The Pennsylvania State University

The Graduate School

College of Health and Human Development

THE ROLE OF SCHOOL AND TEACHER CHARACTERISTICS ON TEACHER BURNOUT AND IMPLEMENTATION QUALITY OF A SOCIAL-EMOTIONAL LEARNING CURRICULUM

A Thesis in

Human Development and Family Studies

by

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Submitted in Partial Fulfillment
of the Requirements
for the Degree of

Doctor of Philosophy

May 2007

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Abstract

Over the last several decades, teachers' roles have evolved with new demands that result, in part, from federal legislation. Most recently, the No Child Left Behind (NCLB) Act (Public Law 107-110) has placed additional pressures and accountability on teachers and schools. As a result, teachers' rates of stress and burnout are believed to have increased, and in turn, may be influencing teachers' effectiveness. Further, when teachers are asked to implement a new curriculum, those who show high rates of stress and a low sense of efficacy may also exhibit a lowered quality of implementation and ultimately have a negative impact on their students' learning. To extend previous research and address these current issues, the focus of the present study was to examine what factors in the teacher, as well as their support systems, impact both their feelings of burnout and the quality of implementation of a new evidence-based curriculum whose goal is to improve students' social and emotional learning (i.e., the PATHS program). The present study specifically focused on the following factors: teachers' work pressure, teachers' efficacy, technical and principal support for the PATHS program, teachers' burnout, as well as teachers' dosage and perceptions of the quality of their PATHS implementation.

Results revealed that teachers' stress and efficacy both have direct associations with teacher burnout while teachers' supports for curriculum use do not. Teachers' stress, efficacy, and curriculum supports also all have direct associations with particular aspects of implementation dosage and quality. Moreover, interactive effects between stressors, efficacy, and curriculum supports suggest that it is the combination of factors that *most* impacts the quality with which lessons and concepts are being delivered to students. High levels of work pressure *alone* did not decrease teachers' level of implementation quality, nor did low levels of burnout. Additionally, teachers with higher efficacy were "protected" from the influence of high burnout on their implementation quality. Finally, results also varied by grade level, suggesting that teacher efficacy, as well as both principal and technical support, are more critical factors for upper grade level teachers. These findings reiterate the importance of teacher characteristics in the implementation of new curriculum. Researchers must also pay particular attention to grade level and other demographic factors that may play a role in program fidelity and program outcomes. Ultimately, schools must address the "whole" teacher as well as the role of principal and technical support in order to attain their most desired, and now required, outcomes of improved academic achievement.

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Introduction

The role of teachers has changed and expanded over the past few decades. As a result, teachers' rates of stress and burnout are believed to have increased, and in turn, may be influencing teachers' effectiveness. This is especially believed to be the case in urban schools. It is likely that teachers who show high rates of stress and a low sense of efficacy will have a negative impact on their students' learning. Further, when teachers are asked to implement new models (curriculum) for learning, teachers with high stress and burnout and low efficacy are likely to perform at a lower level of implementation quality. To extend previous research and address these current issues, the focus of this project was to examine what factors in the teacher, as well as their support systems, impact both their feelings of burnout and the quality of implementation of a new evidence-based curriculum whose goal is to improve students' social and emotional learning.

The Changing Roles and Conditions for American Teachers

Over the last several decades, teachers' roles have evolved with new demands that result, in part, from federal legislation. In particular, with the passing of Public Law 94-142, teachers have had to adapt their teaching strategies to be individualized for all students, whether learning disabled or gifted, yet most classroom teachers were not trained in special education. More recently, the No Child Left Behind (NCLB) Act (Public Law 107-110) has also placed additional pressures and accountability on teachers and schools. For instance, NCLB requires schools to include 95% of students in each subgroup (racial or learning disabled) in standardized assessments (United States Department of Education [DOE], 2002). Existing teachers must "demonstrate subject-matter competence" in core academic areas, and new teachers must also demonstrate these competencies as well as pass an exam for being a "highly qualified" teacher.

Districts that fail to make adequate yearly progress (AYP) for multiple consecutive years become subject to increasingly serious consequences and interventions (DOE, 2001). While many occupations require their employees to demonstrate ongoing competence in their roles and adapt to new changes, the recent changes for teachers have come for many without sufficient preparation time or appropriate training. Even prior to NCLB, heightened expectations, broader demands, and the implementation of multiple reforms simultaneously already led to significant job intensification in teachers' work lives (Hargreaves, 1994); therefore potentially exacerbating teachers' pressures and stress.

Teachers have also been asked to fulfill roles beyond their presumed role as an educator, such as more "social work" responsibilities (Hargreaves, 1994). Recent qualitative interviews revealed that teachers felt they have an ethical, moral, and professional obligation to go *beyond* the delivery of curriculum and also support their students' social and emotional development as well as maintaining open, trusting relationships with students (Lasky, 2005). However, as teachers' roles expand, many teachers are being pressed to do more work with fewer resources. As a result, they face a greater risk of experiencing emotional exhaustion and a sense of alienation from their work lives (Vandenberghe & Huberman, 1999). Job intensification can also affect teachers' ability to effectively perform their work through a lack of time to refine and review one's skills, reduced time for relaxation (i.e., lunch and planning "hours") during the work day, persistent and chronic overload, and sustained job intensification can also lead burnout and emotional exhaustion (Hargreaves, 1994; Lasky, 2005; Woods, 1999). Physically, teachers are working, on average, almost 2 hours longer each day than their contract requires, and some estimates have shown up to 4 hours beyond their contract each day (Drago, Caplan, Costanza, et. al, 1999). This average of an additional 10 hours per week was also more recently reflected in the latest report of the nationally-representative 2003-2004 School and Staffing Survey collected by the Department of Education. In

the 2003-2004, teachers across all schools reported they were contracted to work 37.7 hours during a full week to receive base pay. However, teachers reported that they actually worked, on average, 52.7 hours per week on in-class instruction and other school-related activities outside of work, and that average rose to 62.8 hours per week for teachers in public schools, similar to principals' reported 59.0 average hours spent on school-related activities each week (National Center for Education Statistics [NCES], 2006).

Considering teachers' expanding roles and requirements, along with working longer hours, teachers may also be feeling additional stress in struggling to balance their work demands and time constraints. Even before the NCLB requirements went into effect, one-third of 9000 teachers surveyed reported their job as "stressful" or "extremely stressful" (Borg, Riding, & Falzon, 1991). Compared to many other occupations, teachers do report high levels of stress (International Labour Office, 1993), and this may be in part due to their routine experiences and expressions of negative emotion and stress associated with responding to students' misbehaviors (Pianta, Hamre, & Stuhlman, 2002; Yoon, 2002). Because occupational stress has been found in many studies to be associated with health risks, including increased risk for cardiovascular disease and high blood pressure, it is critical that research better evaluates teachers' stress and examines its links to teachers' physical health (Guglielmi & Tatrow, 1998; Kristensen, 1996; Theorell & Karasek, 1996). Given that, in 2005, the majority of teachers were female (82%) and almost half were over age 50 (42%) (National Center for Education Information, 2005), they are a high risk group for cardiovascular disease or other stress-related disorders. Therefore, it is critical for teachers' stress to be evaluated and addressed.

As teachers experience these additional requirements over time, the physical and psychological toll on teachers may result in teacher burnout and eventually lead to turnover. A recent national survey of about 1,000 teachers across the nation found that 27% of teachers said

they were likely to leave the profession in the next five years (Metropolitan Life, 2006). These findings also indicated that even though career satisfaction is at higher levels than previous years, rates of teacher retention are remaining about the same. With about one quarter of teachers planning to leave the profession in the next 5 years, turnover is a serious concern that needs to be addressed. Teachers who exited the profession reported they left, in part, because of their expectations not being met in their professional prestige, salary and benefits, and a lack of control over their work. However, for those still in the classroom, indicators of why teachers may leave the profession in the next 5 years consisted of issues such as not being prepared to work with children with a wide range of abilities, not being prepared in the area of classroom management, and a lack of communication and consideration from administrators. Additionally, many teachers cited a lack of resources to meet even the basic needs of their students: 26% of teachers reported that their school's equipment did not meet the needs of their students, 19% reported not having enough current textbooks, and 18% reported school buildings and grounds were unclean and in poor condition (Metropolitan Life, 2006).

Relative to other occupations, rates of turnover in education services sit somewhere in the middle of other service-oriented occupations at 18.6%, according to the U.S. Department of Labor. In 2005-2006, the annual average turnover rate for those employed in finance and insurance was 15.4%; for those employed in health care, the turnover rate was 19.6%. However, the highest turnover rate was for those who were employed in the leisure service industry was 52.6%, although the jobs encompassed in this category are highly subject to seasonal variation (Nobscot Corporation, 2007).

More specifically over the last few decades, teacher turnover has varied depending on school characteristics, but, overall, has increased slightly. In 1991, the national average turnover rate was 13%, while in 1999-2000, the rate of turnover was 16% (i.e., about 550,000 teachers).

That rate has slightly risen to about 17% in the 2004-05 school year (NCES, 2007). Turnover rates, however, varied among private (21%) and public (13%) schools, as more private school teachers left teaching for another job, for family reasons, or for further schooling (NCES, 2005). Also, turnover rates were as low as 13% in schools with low rates of poverty but that number rose to 20% in schools with high rates of poverty (Ingersoll, 2001). The most recent information on reasons for turnover indicates that more teachers are actually leaving the teaching profession for another job (41%) than due to retirement (30%), which is another cause for concern (NCES, 2007).

To better understand why teachers are leaving, the Teacher Follow-up Survey of 2004-05 also revealed, of the public school teachers who left K-12 teaching for a position outside of education, about 65% reported having a more manageable workload, having more control over their work, and being better able to balance their personal and work lives. 61% reported having better general working conditions, 58% reported more opportunities for professional advancement, and 55% reported having better availability to resources to do their job. Additionally, 53% of teachers who left reported receiving more recognition and support from administrators/managers, and about 45% reported a better salary and more professional prestige than in teaching (NCES, 2007). Many of these factors were also found as reasons teachers were dissatisfied with or left their jobs in the MetLife Survey of the American Teacher (2006). Not only are teachers' working environments potentially contributing to increasing levels of turnover, but also these conditions may also be contributing to higher levels of teacher stress and burnout for those who stay in the profession. Ultimately, teacher stress and burnout may be indirectly affecting their instructional quality as well as their students' academic achievement.

To extend previous research and address these current issues, the present study examined factors that influenced teachers' perceived stress and burnout as well as how burnout impacted the quality of the implementation of a new social-emotional learning (SEL) curriculum

model (i.e., The PATHS curriculum). As illustrated in Figures 2 and 3, this study examined how teacher stress (work pressure), teacher efficacy and teacher support structures are related to teacher burnout and how well teachers implement a new evidence-based curriculum. Further, the study will test whether teacher burnout moderates the impact of these domains on curriculum implementation (see Figure 4). These figures will be explained in further detail in the next section which will present theoretical frameworks of how these factors interact and ultimately affect curriculum implementation. These frameworks incorporate both distal and proximal interactions by including individual-level frameworks within an ecological systems perspective.

Guiding Theoretical Frameworks

This study utilizes three guiding theoretical frameworks: an ecological systems model, demands-control-support model, and a stress and coping model. First, there are multiple levels of ecological factors that may influence teachers' perceptions and behaviors. Taking a broad perspective of dynamic systems, Bronfenbrenner's ecological systems theory (1986) provides an overarching framework for considering how factors in the work environment may interact across various levels, from the administrative level to the classroom level, and lead to differential outcomes for both teachers and students. At the microsystem level, teachers' daily duties and interactions may lead to feelings of work pressure and burnout. At the mesosytem level, school climate and principal and technical support may also play an additional role in teachers' working environment and their perceived stress. Furthermore, at the macrosystem level, school policies, such as disciplinary procedures and classroom management policies that should also be considered. Given the dynamic nature of the school environment that teachers work in, ecological systems theory provides a useful, general framework for conceptualizing interactions amongst these levels. Fewer studies have considered what organizational or school-level factors, such as school climate and principal support, might also be contributing to stress, burnout, and turnover

(Bryk & Schneider, 2002). Figure 1 illustrates how an ecological framework applies to interactions in the work environment in schools.

Although an ecological framework provides an overarching model across multiple levels, at a proximal level, Karasek's (1979) demand-control model provides a framework to consider how specific work-related factors, such as job demands, level of control over tasks, or supervisor support, may affect how individuals (i.e., teachers) may be influenced within their work environment. The demand-control model proposes that there is an interaction between one's work demands and the amount of control or influence a person has over their work tasks. When high job demands, such as pace and pressure, are coupled with a lack of control, adverse mental and physical health outcomes are likely to result. In their review of job strain and cardiovascular disease research across multiple occupations, Theorell & Karasek (1996) concluded from multiple studies that the combination of high job demands and low job decision latitude (i.e. low control) was associated with higher levels of psychological issues, blood pressure and coronary heart disease.

Applying this model to the teaching profession, teachers may be stressed by multiple job demands at one time. In any given day, a teacher may begin by teaching reading for an hour and a half, while trying also to keep students from being disruptive and addressing any disruptions that arise. Additionally, a teacher may also be asked to simultaneously assess these students during the lesson time and then calculate grades to send home that day. Then, there may be a school emergency to deal with, such as a security or safety issue, particularly in an urban school district. As teachers experience these stressors, they may experience mental and physical strain, and the implementation of the lesson at hand may also be compromised (see Figures 2 and 3).

These various, but almost simultaneous job demands occur frequently in the teaching profession, and teachers do not have much, if any, control over some tasks. Therefore, teaching

under such conditions may be considered a high demand-low control job, which could result in adverse mental and physical health. However, if teachers experienced more autonomy over their daily tasks or the timing of their schedules, they might feel an increased sense of control over their job. Additionally, principal support for increased teacher autonomy and teacher creativity with curricula could also ameliorate some of the effects of high work demands by increasing the amount of control teachers have. For example, as many school districts have adopted a school-based management strategy where principals primarily manage school policies and daily procedures, a similar teacher-based management strategy could also increase teachers' individual control over their job demands.

Johnson (1989) extended the demands-control model to include support, suggesting the quality of social support or family-friendly policies may exacerbate or buffer the effects of job demands and control. In research on the effects of work, the demands-control-support model has been a useful framework for conceptualizing how various work pressures, as well as the amount of support, may interact with each other to impact the individual. Johnson and colleagues (1988; 1989) found that higher levels of social support were associated with a decreased risk of cardiovascular disease, above and beyond high demands and low control, and this association was particularly important for women. Additionally, both social support and effective coping behavior have been associated with lower levels of teachers' perceived stress (Griffith, Steptoe, & Cropley, 1999), as well as teachers' recognition of emotional support from their principal (Sakoda, Tanaka, & Fuchigami, 2004). As illustrated in Figure 2, the support aspect of the demands-control-support model is represented by principal and technical support and shows their hypothesized relationship with burnout (i.e., adverse outcomes).

To further illustrate how the demands-control-support model might operate in teaching, consider the following situation while trying to teach a new social-emotional curriculum lesson. If a

teacher was teaching a lesson on emotion words and vocabulary and had a severely disruptive student, in a situation with social support present, there may be colleagues nearby who would be willing to help manage that student with a time-out in another classroom, alleviating the stress and disruption in the classroom and allowing the lesson to continue. Also, this teacher may be trying to simultaneously assess each individual student's performance or responsiveness during this lesson and calculate grades based on those indicators, as part of the new curriculum evaluation. If this teacher has a classroom teaching assistant (i.e., social support), he or she may aid in the assessment process, or a collaborative colleague might combine classes to enable team teaching. This could be beneficial to all involved as previous research has indicated that teachers who reported a higher level of collaboration with colleagues also expressed a higher level of general teaching efficacy (Shachar & Shmuelevitz, 1997). Furthermore, if principals directly support the implementation of the new social-emotional curriculum with additional material resources, training, or coaches, teachers may also face fewer barriers to implementing the curriculum and feel less stress and fewer demands in doing so (see Figure 3). These forms of social support illustrate how the support aspect of the extended demands-control model may buffer the negative effects of high job demands and low task control.

Additionally, when teachers experience stress, individual perceptions of appraisal and coping must be considered. Each individual will experience a stressor in a unique situation and with various levels of coping resources available (Hanson & Sullivan, 2003; Kirmeyer & Dougherty, 1988; Lazarus, 1999; Pearlin, Menaghan, Lieberman, & Mullan, 1981). Furthermore, stress, coping, and adjustment show reciprocal influence. While a stressor may act as a catalyst to begin this process, individuals may continue to reappraise a stressful situation as well as exhibit a range of emotions in their reaction to a stressor (Lazarus, 1999; Pearlin, et. al, 1981). This process may result from only one experience with a stressor or more chronic or recurrent stressors. Additionally,

one's appraisal of each situation may vary depending on multiple physical and psychological factors, such as gender, age, health, life events, and self-concept (Montgomery & Rupp, 2005; Borg, Riding, & Falzon, 1991; Folkman, Lazarus, Pimley, & Novacek, 1987; Pearlin et. al, 1981).

Given that teachers face some constant work demands (e.g., lesson plans, teaching lessons) as well as day-to-day changes in demands (e.g., classroom management issues, schedule changes, administrative requests), it seems likely that some teachers will encounter chronic as well as acute stressors in their daily work environment, which places them at risk for negative outcomes, such as burnout and poor implementation quality of curriculum. For example, previous research suggests that not only are teachers' objective work demands a source of stress, but also the structure of the school day in terms of time pressures and workload, few or no breaks in schedule, and constant contact with students (Pithers & Soden, 1998; Travers & Cooper, 1996). The pace of the school day and the rigid schedules require teachers to maintain a general level of alertness and vigilance, which is another main source of stress (Kyriacou, 1987; Travers & Cooper, 1996). Furthermore, Lazarus and Folkman (1984), and more recently, Admiraal, Korthagen, and Wubbles (2000) suggest that daily events and experiences predict psychosomatic health better than major life changes. As interactions at the administrative, classroom, and individual levels are all part of teachers' daily experiences, it is important utilize both global and proximal frameworks to examine the interactions between systemic and individual factors that may contribute to perceptions of teachers' stress and ability to cope with these stressors, such as illustrated in the potential moderating effects of burnout in Figure 4.

Literature Review

Teacher Burnout and Teacher Characteristics

The term "burnout" was originated by Herbert Freudenberger (1974), a clinical psychologist who was familiar with the stressors and responses experienced by staff members

working in free clinics and halfway houses. Current burnout research continues to focus on those in the human service sector, and diverse definitions of burnout have developed. The most common definition for burnout is a three-component, psychological syndrome which includes a state of emotional exhaustion, depersonalization, and feelings of low personal accomplishment that may occur in response to chronic role stress (Maslach & Jackson, 1981; Maslach, 1982; Jackson, Schwab, & Schuler, 1986). Emotional exhaustion can result from excessive psychological and emotional demands experienced by people who are helping others. Depersonalization refers to detaching oneself from clients or patients by referring to them with object labels (e.g., the lung tumor in room 106). While some level of depersonalization is necessary and effective for performing tasks in some occupations, excessive depersonalization is associated with feelings of callousness and cynicism (Jackson, Schwab, & Schuler, 1986). The last component of burnout is feelings of low personal accomplishment. This component can be described as the frustration and lack of motivation that occurs when people repeatedly put forth effort to accomplish a task, but fail to positively accomplish their goal. This can result in people feeling their actions are ineffective to complete a task, and ultimately, they may quit trying, similar to what previous research has shown with learned helplessness (Evans & Stecker, 2004; Miller & Norman; 1979). While the constructs of burnout and stress may appear similar and are related, it is important to distinguish that burnout is a reaction or response to experiencing constant and/or repeated exposure to stressors in one's environment, rather than a general stress response, such as strain, to an acute or brief exposure to one or more stressors (Boles, Dean, Ricks, Short, & Wang, 2000; Kokkinos, 2006; Pines & Keinan, 2005).

In reviewing the literature related to burnout in general, there has been much research describing the phenomenon of burnout, examining its predictors and its consequences. A wide range of predictors from previous research have been identified, including client and employee

characteristics, supervisory practices, organizational structures (both social and physical), workload, and cultural norms (Boles et. al., 2000; Dorman, 2003; Jackson, Schwab, & Schuler, 1986). Previous research has also found several negative factors associated with burnout, such as low job performance, poor quality of client care, negative effects on family and personal relationships, poor health, more frequent absences, and turnover (Cherniss, 1980; Maslach, 1982; Maslach & Jackson, 1984; Perlman & Hartman, 1982). In reviewing the psychological and educational literatures specifically concerning teachers' stress and burnout, most research has focused on predictors (e.g., reasons) for teacher burnout, rather than the consequences of experiencing burnout, such as low job performance or poor quality of "client care". Yet these potential consequences of burnout in the teaching profession hypothetically could result in negative effects on students' social, emotional, and cognitive development. Therefore, examining the consequences of teacher burnout is particularly important in extending previous research.

Guglielmi & Tetrow (1998) reviewed the literature related to teacher stress, teacher burnout, and health outcomes and found 40 relevant studies. Their literature review echoes many of the above predictors and consequences of teacher stress and burnout; however, they noted that these studies were plagued with self-report bias and shared variance issues, as well as the fact that these studies were primarily cross-sectional with a "rare few exceptions" of longitudinal or model-fit designs. While it is important to acknowledge these limitations, previous studies have still found associations between predictors of teacher stress and experiences of teacher burnout and negative health outcomes that warrant further examination.

Demographic Characteristics

Several demographic and individual characteristics of teachers have been found to be associated with teacher burnout, such as age, marital status, years in teaching, and personality characteristics (Dorman, 2003; Ingersoll, 2001; Leithwood, Menzies, Jantzi, & Leithwood, 1997),

although overall, these findings have been inconsistent (Vandenburghe & Huberman, 1999). In a recent study of elementary teachers, teachers who had less than 10 years experience, who were over 60 years of age, or who were regular education teachers experienced higher levels of burnout (Cunningham, 2004). Also, male teachers reported more work stress demands while female teachers reported more time management stressors (Burke & Greenglass, 1989). On the other hand, Russell and colleagues found that the combination of gender, age, marital status, community size, teaching, grade taught, class size, and level of education only accounted for 6% of the variance in teacher stress (Russell, Altmaier, & VanVelzen, 1987). Another study reported that teacher workload and student misbehavior, rather than demographic characteristics, accounted for the most variance in predicting teacher stress (Boyle, Borg, Falzon, & Baglioni, 1995).

Associations with demographic characteristics, such as age and years in teaching, must also consider that teachers who do not cope effectively with their work stress may be more likely to leave the profession in the first few years. Thus, teachers who are older or have more years experience may have survived the early stressors of their job, done well in their careers, or found ways of effective ways of coping with their stressors. As the literature on teacher demographics and burnout is inconsistent, these various teacher characteristics should be considered when examining relationships with teacher burnout.

Work Pressure and Stress

Given that up to one-third of 9000 teachers reported their job as “stressful” or “extremely stressful” (Borg, Riding, & Falzon, 1991), it is important to better understand what factors may contribute to teachers’ stress. One possibility is how much pressure teachers experience in their everyday work environment. This construct, known as work pressure, has been the focus of much research in the organizational and work literature, primarily examining corporate environments. Distinguishing work pressure from other types of stressors, work pressure has been

conceptualized as experiencing time demands, deadlines, and a fast pace (Barnett & Brennan, 1997; Crouter, Bumpus, Maguire, & McHale, 1999; Westman, 2002).

Work pressure (as defined here) has been examined only once, to our knowledge, in educational settings, yet it is likely to affect teachers as well. In other settings, researchers have found that increases in work pressure are associated with decreases in psychosocial functioning. For example, one study focused on managerial, administrative support, and service occupations found that psychological distress increased as time pressures and conflicting demands increased over time (Barnett & Brennan, 1997). Additionally, in the work-family literature, another study, using SEM, found that higher levels of work pressure lead to higher levels of role overload (i.e., feeling overloaded and overwhelmed) which in turn impacted other family members' well-being (Crouter, Bumpus, Maguire, & McHale, 1999). This same dynamic could be applied to teachers in thinking that the more work pressure they feel, the more likely they are to feel burned out. These feelings then, in turn, may also impact their students. When considering teacher burnout, teachers' general stress levels have been associated with higher levels of burnout, but specific stressors, such as job demands, have only been linked to burnout in a limited number of studies (Bakker, Demerouti, & Euwema, 2005; Burke & Greenglass, 1995; Evers, Tomic, & Brouwers, 2004; Hakanen, Bakker, & Schaufeli, 2006). In one recent study utilizing an SEM approach, the relationship between high levels of job demands and teacher illness was mediated by teacher burnout (Hakanen, Bakker, & Schaufeli, 2006). Yet the construct of work pressure, as defined previously, has only been examined in relation to teacher burnout in one recent study, also using SEM, which found that work pressure was a significant predictor of teacher burnout (Dorman, 2003).

Additional research findings with teachers support the idea that work pressure may be related to teacher stress. Previous research has found that high levels of workload, administrative demands, and large class sizes are related to teacher stress (Pithers & Soden, 1999). Research

also suggests that individual teacher characteristics, such as personality traits, social support networks, and individuals' ability to cope with stressors, may also play a role in the relationship between stress and its impact on teachers (Dorman 2003; Frese & Zapf, 1988). Furthermore, Johnson & Templeton (1999) reported that teachers believed that more resources, more student support, and fewer pressures in the school environment were vital to having a peaceful (i.e., less stressful) school environment. As seen in figure 4, the present study examined the role of work pressure as an indicator of stress and its links to burnout and implementation.

Teacher Efficacy in Teaching and Classroom Management

Teacher efficacy has been defined as "teachers' belief or conviction that they can influence how well students learn, even those who may be difficult or unmotivated" (Guskey & Passaro, 1994, p.4). Teacher efficacy also has included how effective teachers feel they are managing their classroom, as illustrated by Emmer & Hickman's (1991) extension of the original Gibson & Dembo (1984) measure of teacher efficacy. In general, such efficacy beliefs reflect a self-judgement of a teacher's capability to affect student performance and have a strong influence on teachers' behaviors (Tschannen-Moran, Hoy, & Hoy, 1998; 2001). Research has found teachers who have a stronger sense of efficacy also set more challenging goals from themselves and their students, take responsibility for student outcomes, and persist longer when faced with challenges (Ross, 1995), and teacher efficacy predicts multiple important factors related to both teachers and students, such as teachers' adoption of innovations (Fuchs, Fuchs, & Bishop, 1992), the success of program implementation (Guskey, 1988), teachers' classroom management strategies (Woolfolk, Rosoff, & Hoy, 1990), students' self-esteem and prosocial attitudes (Borton, 1991; Cheung & Cheng, 1997), and teacher stress (Bliss & Finneran, 1991). Furthermore, a study by Shachar & Shmuelevitz (1997) revealed that participating in cooperative learning and collaboration with colleagues explained the largest portion of the variance in teachers' sense of efficacy, while

teachers' background variables accounted for only negligible amounts of variance in teachers' sense of efficacy.

Teachers' efficacy in teaching and classroom management has also been related to teacher burnout. Brouwers & Tomic (2000) used a longitudinal design and found that teachers who reported high levels of self-efficacy for coping with students' disruptive behaviors reported lower levels of teacher burnout (i.e., depersonalization) five months later. Additionally, Evers, Brouwers, & Tomic (2002) examined the implementation of an innovative study program and found that higher levels of teachers' self-efficacy were associated with lower levels of burnout, above and beyond teachers' attitudes towards the implementation of the innovative study. Research has also found that higher levels of classroom disorganization and student misconduct (i.e., low teacher efficacy) significantly predicted higher concurrent levels of teacher burnout (Dorman, 2003).

Students' misbehaviors and disrespect also contribute to a poor classroom climate and can lead to a negative, reciprocal cycle in which disruptive student behaviors create a negative classroom climate that then results in additional disruptive behaviors (Somersalo, Solantaus, & Almqvist, 2002). As disruptive student behavior increases, the negative classroom climate also encompasses a degenerating emotional climate, where teachers become emotionally exhausted as they try to reestablish order. This emotional exhaustion may lead teachers to feel ineffective in their classroom management, as well as their teaching, and teachers may begin to depersonalize their students, further contributing to a negative classroom climate (Byrne, 1994; Jennings & Greenberg, 2007). Furthermore, a negative classroom climate reciprocally increases teacher stress and burnout (Bacharach, 1986).

Previous research has found students' disrespect towards their teachers predicted both emotional exhaustion and depersonalization burnout, while their lack of sociability predicted both depersonalization and personal accomplishment burnout (Hastings & Bham, 2003). Female

teachers have also been found to be more affected by students' disrespectful behaviors while male teachers are more affected by inattentiveness (Friedman, 1996). Another study, while utilizing only students' reports of disruptive behaviors and students' perceptions of teacher burnout, found that students' reports of disruptive behaviors were related to their perceptions of their teachers on all three aspects of teacher burnout (Evers & Tomic, 2002). Furthermore, teachers' classroom management efficacy has been suggested to be a separate predictor of teacher burnout as opposed to general teaching efficacy (Emmer & Hickman, 1991). However, it is important also to note that many previous studies are susceptible to self-report bias, as they have primarily used teachers' reports of students' behaviors and burnout (Burke, Greenglass, & Schwarzer, 1996; Friedman, 1996; Hastings & Bham, 2003).

Organizational Factors and Teacher Burnout

School Demographics

In addition to teachers' demographic characteristics, it may also be important to consider the demographic characteristics of the district or school level as teachers' job challenges are likely to differ depending on whether their school is primary or secondary, urban or rural, and the rates of special needs students (Able & Sewell, 1999; Ingersoll, 2001; Kristensen, 1996; Williams & Gersch, 2004). Abel and Sewell (1999) found that urban school teachers experienced significantly more stress from poor working conditions and poor staff relations than did rural teachers, and these poor working conditions and relations were predictive of burnout for urban school teachers. On the other hand, time pressures and poor working conditions were predictive of burnout for rural school teachers. Additionally, teachers in mainstream schools experienced more stress from noisy students, poor student attitudes, lack of time to spend on individual students, and government inspections while teachers in special-needs schools have experienced more stress from a lack of resources (Williams & Gersch, 2004). Teachers in secondary schools have also reported more

stress than those in primary schools (Williams & Gersch, 2004; Borg, Riding, & Falzon, 1991), although this may be related to the specific stressors measured.

School Environment and Stress

In general, research in the organizational/work literature has shown that supervisor support is associated with general indicators of psychosocial functioning (e.g., job satisfaction, commitment, burnout). Supervisor support has been positively associated with perceptions of control which, in turn, predicted greater job satisfaction and individual well-being (Thomas & Ganster, 1995). Supervisor support has also been related to higher organizational commitment and higher job satisfaction (Colton, Hammer, and Neal, 2002). In the education literature, teachers who reported having supportive supervisors (i.e., principals) and positive feedback from coworkers were less vulnerable to burnout (Russell, Altmaier, & Van Velzen, 1987). Westman and Etzion (1999), in a study of 183 teachers, found that when teachers felt undermined by their principals, they experienced elevated levels of burnout and job-induced tension, suggesting that a lack of support from principals (i.e., supervisor) may also be associated with negative psychosocial outcomes for teachers. Taken together, these studies indicate that principals may play a role in teachers' job satisfaction or job stress, so future research should consider the role of the principal when examining teachers' efficacy, stress, and burnout.

Dorman (2003) assessed the relationship between burnout and seven school environment as well as seven classroom environment dimensions. Using a SEM approach, he found that lack of staff affiliation and high work pressure were significant predictors of the emotional exhaustion dimension of burnout whereas low staff mission consensus and low levels of cooperation in classrooms were significant predictors of the depersonalization dimension of burnout. Additionally, Friedman (1991) found that four school culture factors contributed to teacher burnout: 1) goal-

achievement behavior imposed on teachers by school administration, 2) lack of trust in teachers' professional adequacy, 3) circumscribing school culture, and 4) physical environment.

Studying factors that are related to teacher retention and turnover also illustrates the influence of multiple factors at both school and individual levels. In a comprehensive analysis of the Schools and Staffing Survey (conducted by the National Center for Educational Statistics), Ingersoll (2001) found that teacher turnover results primarily from teacher job dissatisfaction, teacher burnout, and teachers pursuing other jobs, not retirement as commonly thought. In addition, low salaries, inadequate administrative support, and limited faculty input in school decision-making all contributed to higher levels of turnover. On the other hand, when schools have a strong sense of collegiality and collaboration, teachers, particularly those newest to the profession, are more likely to receive appropriate, ongoing support and assistance as well as develop a sense of connectedness to their colleagues. These factors have been found to be most effective in developing new teachers' skills and retaining them (Murray, 2005).

Factors Related to the Implementation of SEL Prevention Curricula

The field of prevention research has long acknowledged the need to evaluate the process of program implementation in order to understand what factors contribute to program success or failure. Given that teachers are often the implementers of programs in school-based settings, researchers and program developers must consider their role and individual contributions to this process. With the increasing dissemination of prevention research, systematic evaluations of implementation factors are becoming more common, but our current knowledge is limited because, in the past, these factors have not been frequently assessed (Durlak & Wells, 1998; Ozer, 2006). Moreover, our current knowledge regarding implementation processes comes primarily from efficacy studies (i.e., initial research on programs), which are highly controlled studies rather than effectiveness studies, which have fewer controls and inherently allow for variation in

implementation (Greenberg, 2004). While necessary for determining initial program outcomes, we know less about how real-world factors contribute to and interact with the implementation process because these studies are highly controlled. However, several critical components have been identified as key factors in the implementation process across school-based, community-based, and health care settings: program adoption, implementation fidelity, and support (e.g., administrative and technical support) (Graczyk & Tolan, 2005; Rohrbach, Grana, Sussman, & Valente, 2006).

Implementation Planning and Concerns

When schools undergo a change process such as the implementation of a new curriculum, an organized plan for adoption and implementation of a new curriculum (i.e., program) is believed to predict more successful implementation, integration, and sustainability (Elias, Zins, Gracyzk, & Weissberg, 2003). Furthermore, district policies and priorities define the condition under which schools are governed, allocated resources, and the types of in-service training provided to teachers, and this contextual background shapes the types of interventions and initiatives schools select to implement and are theoretically able to support and sustain (Coburn, 2003; Han & Weiss, 2005). However, when evidence-based programs are implemented in a disorganized environment, they may be associated with low levels of implementation and a lack of positive program outcomes (Gottfredson, Jones & Gore, 2002; Tolan, Gorman-Smith, & Henry, 2004). Furthermore, classroom climates in disorganized environments are less likely to be orderly, safe, and foster a sense of community, factors which have been found to promote learning and minimize behavioral issues (Osterman, 2000). Yet research in the prevention field suggests that “at risk” schools, such as those with high rates of poverty, problem behaviors, and disorganization, would benefit most from additional evidence-based prevention curricula, like those focused on addressing students’ social-emotional development and problem solving skills (Graczyk, Weissberg, Payton, Elias, Greenberg,

& Zins, 2000). This only further emphasizes the need for resources and supports to ensure more successful program implementation and outcomes.

Previous research on the adoption of new innovations has found that concerns of program implementers (e.g., teachers) are also important to consider when implementing an innovation. Hall and colleagues (1977) originally developed the concerns-based adoption model (CBAM), which has been widely used to evaluate adoption of innovations with the idea that concerns are "an aroused state of personal feelings and thought about a demand as it is perceived." Van den Berg and colleagues (1999) adapted this model to encompass three stages of concern: self-concern (i.e., Am I functioning well enough to implement this program?), task concern (i.e., Will the time spent and the required materials and preparation produce the results we want?), and other concerns (i.e., the impact of the innovation on others). Furthermore, Lewis and Seibold (1996) propose that interactions around a new innovation and how they are incorporated into existing organizations are based on three similar areas of concern: performance, normative, and uncertainty concerns. They also propose that these concerns affect individuals' coping responses, and in turn, the quality of their adoption of the innovation at hand. For instance, teachers' coping responses or resources may depend on teachers' concerns related to supervision and technical support when implementing a new intervention or curricula. Research has indicated that it is important to assess teachers' and/or schools' openness to change, as people who are less interested in supervision and support may also be less willing to change and implement a new program with fidelity (B. Bumbarger, personal communication; Lasky, 2005). Therefore, researchers must acknowledge teachers' individual concerns, as well as their resources for adapting to these changes.

Using qualitative methods, education and organizational change research also has found that the way the change process (i.e, implementation process) is approached and presented

affects the success of the change at hand (Clarke & Hollingsworth, 2002). High-quality, interactive information exchange and valuing teachers' input related to program implementation also has been found to promote quality implementation (Lewis, 2004). As the demands-control-support model (Karasek, 1979; Johnson, 1988) would suggest, allowing and valuing teachers' input in this process may give them a sense of control and power over their situation, and in turn, reduce their feelings of stress. Additionally, a qualitative study of comprehensive school reform showed that, as teachers processed information related to reforms at the school level, they attached little emotion to them; however, when they conceptualized the reforms vis-a-vis their own classroom practice, teachers experienced a more emotional process for teachers (Schmidt & Datnow, 2005). Therefore, it is important in ensuring quality implementation to consider how teacher characteristics, such as their beliefs and attitudes, may be exacerbated or ameliorated, even in a stressful work environment.

Implementation Fidelity

There is a general consensus from previous research that implementation fidelity is a critical component for successful implementation and positive program outcomes. Fidelity refers to the degree to which program implementers deliver the program as intended by the developers (Dusenbury, Brannigan, Falco, & Hansen, 2003). Two commonly used measures of program fidelity are dosage (i.e., the amount of the program delivered) and the quality of program delivery (i.e., implementation quality) (Dane & Schneider, 1998). One of the main challenges facing researchers and program developers with regard to fidelity is adaptations that may occur as program implementers, such as teachers, make changes and adjustments in their program delivery. Yet there is even less known specifically about how the characteristics of program implementers may affect program fidelity and such adaptations. Therefore, when implementing a new program curriculum, individual characteristics of the implementers (i.e., teachers) should be

assessed, as program implementers may make changes in delivery due to their own beliefs and attitudes towards the program, for ease of use, or even due to their current workload or stress levels.

While limited, previous research has found some associations regarding general characteristics of program implementers and implementation. More successful implementation has been associated with those who are motivated, have a positive attitude and feel comfortable with the program, and have a stronger sense of self-efficacy (Rohrbach, et. al., 2006). However, there has been very little research related to teachers' attitudes, motivation, or efficacy towards new program curricula, academic or nonacademic, and its influence on implementation and outcomes. Of the research that has been conducted, most comes from the implementation of academic curriculum. For example, a recent review of mathematics education reform studies by Ross, McDougall, & Hogaboam-Gray (2002) found that the main obstacle to implementation was teachers' beliefs about mathematics education. Additionally, research has found that even high-quality mathematics teachers (as defined by the NCLB) implemented NCLB reform-oriented teaching strategies and conceptual learning strategies best when they had received content-related professional development and had the preparedness to teach the content material (Smith, Desimone, & Ueno, 2005).

Factors related to the implementation of non-traditional academic curricula, such as social-emotional (SEL) curricula, parallel that of academic curricula but also provide additional areas to consider. For example, teachers who do not see the value in fostering students' social-emotional development may show poorer program implementation (Greenberg, Domitrovich, Graczyk, & Zins, 2005). Furthermore, if teachers struggle with these areas in their own life, such as having had a recent experience with substance abuse, they may find it harder to teach these topics to their students (Greenberg et. al., 2005). Yet when teachers have implemented SEL programs,

promising improvements have been seen in teachers' own skills and their working conditions (e.g., classroom climate) (Murray, 2005). For instance, teachers that have been trained in SEL also have more positive learning environments, an enhanced ability to connect with students and colleagues, as well as better classroom management (CASEL, 2003; Elias, Bruene-Butler, Blum, & Schuyler, 2000; Rimm-Kaufman & Sawyer, 2004). These studies suggest that even if teachers have difficulty with a topic area or finding value in non-traditional academic curricula, implementing such programs may be beneficial for their teaching, classroom environment, and their relationships with students.

Given that the implementation of new programs is increasingly common it is important to consider how the implementation process may be affected by teachers' stress and burnout, such as lower quality program implementation than their less-stressed coworkers (Evers et al., 2002). Yet research has not examined these relationships. As previous research by Freudenberger (1974) and Maslach (1979) indicates, burnout in other professions has led to the deterioration in the quality of care or service provided by employees. Moreover, a recent literature review suggested the importance of examining teachers' challenges to implementation, which included teacher self-efficacy beliefs, burnout, and teachers' opinion of program feasibility (Han & Weiss, 2005); however, they too overlooked teachers' own social-emotional competence which may also contribute to teachers' sense of self-efficacy, reduced experience of burnout, and may result in greater program success, contributing to the teachers' opinion of program feasibility (Jennings & Greenberg, 2007). Drawing from these studies, teachers' attitudes, beliefs, self-efficacy, and levels of stress and burnout must also be considered when assessing implementation processes, such as fidelity.

Implementation Support

In order to obtain higher levels of implementation quality, previous research suggests two areas of implementation support may be helpful: technical and administrative (i.e., principal) support. First, concerning technical support, research in the educational literature suggests the need to consider a framework for integrating "macroworld" policy changes with the "microworld" individuals who will implement those policies (McLaughlin, 1987). Specifically, McLaughlin (1987) suggests that when assessing school environments and implementing macro-level change, it may be more advantageous to shift to a bottom-up analysis, such as looking at students' effort in mathematics rather than teachers' implementation of the math curriculum. Additionally, a classic educational case study by Cohen (1990) examined the relationship between instructional policy and teaching practice. The teacher in this case perceived she was very successful in implementing the new mathematics teaching strategies and felt she had revolutionized her teaching. However, observations of her mathematics instruction revealed that the innovations in her teaching were simply merged with her previous traditional approach to instruction (Cohen, 1990).

In the organizational change and prevention literatures, researchers have found that the implementation policies and procedures an organization establishes are critical components in the implementation process (Klein & Ralls, 1995). These policies and procedures include the quality and quantity of training provided to program implementers and the amount of technical assistance provided in addition to any rewards (e.g., praise or promotions) for program use or implementation, as well as how user-friendly the program is. The overall quality of these policies and procedures has been found to be predictive of successful implementation (Klein & Knight, 2005).

Studies in the prevention literature also suggest that pre-implementation training and technical assistance (e.g., ongoing formal or informal training, consultation, and support) may lead

to greater fidelity of implementation programs. For example, when teachers received pre-implementation training that went beyond theory and discussion and were given demonstrations, feedback, practice, and coaching, 95% used these new skills in the classroom (Joyce & Showers, 2002). It appears that training with discussion of program theories and skills alone will not suffice. It is critical for training to incorporate demonstrations of and practice with key skills, as well as classroom coaching (Fixsen, Naoom, Blase, Friedman, & Wallace, 2005). However, little attention has been devoted to empirically testing the effectiveness of technical assistance beyond pre-implementation training (Fagan & Mihalic, 2003; Fixen, et al., 2005; Gager & Elias, 1997; Gottfredson & Gottfredson, 2002; Rohrbach et. al., 2006). Furthermore, while several studies have shown the importance in providing coaching when implementing any program, there has not been any experimental research conducted to evaluate what coaches should say or do to be most effective in improving implementation (Fixen, et al., 2005). Taken together, these studies suggest that multiple factors, such as the quality of training or technical support for program implementation, may be necessary to ensure high quality implementation of new instructional strategies or curricula.

While becoming an increasing focus of research, little research has focused directly on the effects of implementation (i.e., technical or principal) support on implementation dosage and quality (Domitrovich & Greenberg, 2000), and none have looked at implementation support as a separate predictor of teacher burnout. In the organizational change literature, administrators (e.g., managers) have been shown to play a critical role in the implementation process. When administrators provided informed, convincing, and strong support for the implementation of a new innovation or program, employees were more likely to realize the innovation was not merely a passing fancy and were more likely in turn to use or implement the innovation (Klein & Knight,

2005). Additionally, Joyce & Showers (2002) have found that successful training and coaching relies on full support and participation of school administrators.

In the prevention literature, the role of the principal has also been found to be key in the implementation of new curricula. In general, implementation is more likely to be successful when administrators have strong support and leadership for a program (Berends, Bodilly, & Kirby, 2002; Farrell, Meyer, Kung, & Sullivan, 2001; Kegler, Steckler, Malek, & McLeroy, 1998; Rohrbach et. al., 1993; 2006) and allow participation in decision making as well as establish open communication patterns (Stoll & Fink, 1996; Kegler, et. al., 1998, Palestini, 2000). More specifically, when one social-emotional curriculum was implemented in a school with a supportive principal and high levels of implementation, positive program outcomes were attained (Kam, Greenberg, & Wells, 2003). Additionally, when principals have been made aware of their importance in supporting implementation through encouragement and monitoring of teachers, teachers' program implementation has also increased (Rohrbach, Graham, & Hansen, 1993).

As Kam and colleagues (2003) found that positive program outcomes were attained when a program was supported by the principal in combination with high levels of implementation, it is important to also consider how teachers view technical support (i.e. training, coaching) provided to them as well as how their principals support the new curriculum when evaluating teacher burnout and implementation quality. Possibly, teachers who report higher levels of technical and principal support would feel less stressed in the implementation of a new curriculum and therefore implement the program with higher quality. As technical and principal support may vary widely across schools as well as evidence-based programs, the present study also examined technical and principal support in relation to teacher burnout as well as implementation quality (see Figure 4).

Research Questions and Hypotheses

The present study examined factors that influence teachers' perceived stress and burnout as well as how burnout impacts the quality of the implementation of a new curriculum model. The curriculum model for the present study is the PATHS (Promoting Alternative Thinking Skills) program (Greenberg & Kusché, 1993), a social-emotional prevention curriculum that can be used in grades K-5. The PATHS curriculum synthesizes the areas of emotional awareness and understanding, self-control, social skills with peers, and social problem solving skills in order to promote social and emotional competence. In terms of training and support, teachers and principals received 2 days of initial training. Teachers implemented 2-3 lessons weekly and integrated concepts throughout the school day and the school environment, through posters and education of all staff on Paths concepts. Ongoing coaching support was also provided throughout the study, weekly to monthly dependent on when the teacher was trained in the curriculum. Training in PATHS proceeded over a 4-5 year period and occurred in a step-wise fashion. That is, training began teachers in Kindergarten and first grade, and the following grade of teachers was trained in each subsequent year. Thus, by year 4, teachers had been trained in all grades, with the teachers in the higher elementary grades being trained most recently.

Each grade-level curriculum consists of a set of structured lessons and generalization strategies that are designed to: (1) improve students' social-emotional and thinking skills; and (2) facilitate a positive classroom environment. The PATHS philosophy also encourages schools to integrate these strategies throughout the school building by placing PATHS posters in school hallways and educating all building staff on the PATHS model to incorporate PATHS concepts in cafeterias and on the playground (Greenberg & Kusché, 1993; Greenberg, Kusché, Cook, & Quamma, 1995).

The PATHS curriculum has been used both in over 1,000 elementary schools in the U.S. and in about 500 schools internationally (e.g., Netherlands, Australia, United Kingdom, Germany, Mexico). PATHS has been found to improve the social and emotional knowledge skills of children in grades 1-4 (Greenberg & Kusche, 2006; Seifer, Gouley, Miller, & Zakriski, 2004). In randomized trials with both urban and rural settings with ethnically-diverse samples, PATHS has also been reported to reduce externalizing problems (e.g., aggression, emotional dysregulation) and internalizing symptoms (e.g., depression, anxiety) in children and increases their ability to regulate emotions, plan for the future, and tolerate frustration (Conduct Problems Prevention Research Group, 1999; Kam et al., 2003; Riggs et al., 2006).

Given the importance of contextual issues in the implementation of curriculum, there are several factors surrounding the curriculum implementation in the present study. The current study evaluating the implementation of the PATHS curriculum was in its 4th year of implementation. The implementation took place in a very distressed, urban district with high rates of poverty and very low levels of achievement. Although the PATHS Curriculum was mandated by the district, the district was placing great pressure on the teachers to improve math and reading instruction given the fact that many of the districts' schools were designated as underperforming and on the "watch list" for NCLB. As a result, teachers felt strong pressures to devote most education time to reading and math instruction, as the success of students in those subjects would be included in teachers' evaluations. In addition, this district had also undergone a major administrative change when the legislation was passed that gave the mayor control of the school district three years earlier. As a result, there was substantial turnover in district administration, including shifting of most principals, with a high percentage either being removed or leaving the district. During the past two years, there was substantial improvement in graduation rates, but little changes in state assessment test scores. Thus, despite the district mandate, both principals and teachers felt strained and often

placed a relatively low priority on implementation of the PATHS Curriculum. As a result, it was expected from previous evaluations within this district that there would be a substantial range of variability in implementation dosage and quality.

To examine relationships among teachers' perceived stress, burnout, and implementation quality, this study focused on the following factors: teachers' work pressure, teachers' efficacy, technical and principal support for the PATHS program, teachers' burnout, as well as teachers' dosage and perceptions of the quality of their PATHS implementation. Hypotheses in the present study predict that lower levels of teachers' work pressure, higher levels of technical and principal support, and higher levels of self-efficacy will be associated with lower levels of burnout and higher levels of implementation dosage and quality of the PATHS curriculum. Figures 2-4 illustrate how these processes may be associated.

Research Question 1: What are the direct effects of teachers' work pressure, efficacy, and support on teacher burnout ? (see Figure 2)

Hypothesis 1-3: Higher levels of teachers' (1) work pressure will be associated with higher levels of teacher burnout. Lower levels of (2) teaching efficacy, classroom management efficacy, (3) principal support, and technical support will be associated with higher levels of teacher burnout.

Research Question 2: What is the direct effect of teacher burnout on measures of implementation dosage and quality? (see Figure 3)

Hypothesis 4: Higher levels of teacher burnout will be associated with lower levels of implementation dosage ([a] average number of lessons, [b] average number of supplemental activities) and lower levels of perceived implementation quality ([c] how well teachers felt they were teaching lessons and [d] generalizing concepts).

Research Question 3: What are the direct effects of teachers' work pressure, efficacy, and support on measures of implementation dosage and quality?(see Figure 3)

Hypothesis 5–9: Higher levels of teachers' work pressure (5) will be associated with lower levels of implementation dosage ([a] average number of lessons, [b] average number of supplemental activities) and perceived implementation quality ([c] how well teachers felt they were teaching lessons and [d] generalizing concepts). Lower levels of teaching and classroom management efficacy (6-7), and principal and technical support (8-9) will be associated with lower levels of implementation dosage ([a] average number of lessons, [b] average number of supplemental activities) and perceived implementation quality ([c] how well teachers felt they were teaching lessons and [d] generalizing concepts).

Research Question 4: What are the moderating effects of teacher burnout on the relationships between teachers' work pressure, efficacy, support and the measurement of implementation dosage and quality? (see Figure 4)

Hypothesis 10-14: Burnout will moderate the relationship between work pressure(10), and teaching and classroom management efficacy (11-12), principal and technical support (13-14) and implementation dosage ([a] average number of lessons, [b] average number of supplemental activities) and perceived implementation quality ([c] how well teachers felt they were teaching lessons and [d] generalizing concepts). Specifically related to work pressure, when teachers report high levels of work pressure, teachers with higher levels of burnout will report lower levels of implementation dosage and quality than teachers with lower levels of burnout. When teachers report lower levels of efficacy or support, teachers with higher levels of burnout will also report lower levels of implementation dosage and quality.

Methods

Sample

Data were collected via web-based surveys in fall of 2005 from K-5 teachers across 11 urban K-7 elementary schools. 121 teachers completed the web-based survey which included measures of work pressure, burnout, and efficacy as well as their perception of the implementation process and their own implementation of the PATHS curriculum. The overall response rate for these schools was close to 85%. Teachers in this sample were 92% female and 8% male, and they had worked this school district, on average, for 14.7 years. See Table 1 for additional demographic statistics for this sample.

Procedure

The school district's Human Resources Department provided a list of all staff by building including their first and last name, grade, and email address. First, principals were notified of the data collection from the superintendent's office through a letter describing the purpose of the study and the district's support of the research. A follow-up letter inviting staff to participate in the survey was also placed in each teacher's building mailbox. All PATHS teachers in 11 elementary schools were asked to log onto the Internet and complete a 20 minute survey. Teachers were instructed to access their email account where they received an email with the link to the survey and then to click on the link to complete the survey.

When teachers accessed the site, they were taken through an informed consent process. Upon submitting their consent via the web, teachers then completed the survey. Respondents who did not consent to complete the survey were contacted systematically following the initial survey administration to ensure they received the survey and were voluntarily refusing participation in the data collection.

Several procedures were employed to follow up with respondents who did not respond within the first week of the survey. First, non-respondents received an email the day following the survey date. A second email reminder was sent one week following the first. Specific barriers were handled on a case-by-case basis. If respondents could not access the web-based survey, they could request that a paper and pencil version be placed in their school mailbox. With the paper survey, we included an addressed and stamped return envelope. The respondent was then asked to complete the survey and return it to us in the mail. At the end of web-based data collection, 21 teachers requested the paper version, and 13 consented to and completed the paper survey. Upon completion of the survey, a nominal amount of $10 was given to recognize the value of teachers' time, but not an amount of money that would alter someone's decision to participate and should not have produced any coercive affects.

Measures

Teacher demographics. Teachers provided the following demographic information: gender, years in teaching, year of PATHS training, grade level, marital status, and overall health status. These demographic variables will be used in the analyses for this study as appropriate (see Appendix B).

Work pressure. Teachers completed the Work Pressure subscale of the Work Environment Scale (Moos, 1986), a 9-item measure assessing the extent to which the workplace is characterized by deadlines, rapid pace of work, and other demands Teachers were asked to respond to these items with regard to the school where they worked this year. Each item (e.g., "Teachers cannot afford to relax.") was measured on a 4-point scale ranging from 1 (*very true*) to 4 (*very untrue*) with higher scores indicating higher work pressure (some items reversed scored).

Teaching efficacy. Teachers completed a 15-item measure of teaching efficacy which assessed how effective teachers feel they are as a teacher and in the classroom with students

(Gibson & Dembo, 1984; Emmer & Hickman, 1991). Teacher efficacy was asked in the same section of the survey with work pressure, and teachers were asked to indicate their agreement or disagreement with each item. Present tense item wording implied that teachers would respond according to their feelings at the current time. Each item (e.g., "If students stop working in class, I can usually find a way to get them back on track.") was measured on a 6-point scale ranging from 1 (strongly disagree) to 6 (strongly agree).

Classroom management efficacy. This measure is a 6-item subscale of the teacher efficacy measure discussed above (Emmer & Hickman, 1991). Classroom management efficacy was asked in the same section of the survey with work pressure, and teachers were asked to indicate their agreement or disagreement with each item. Present tense Item wording implied that teachers would respond according to their feelings at the current time. Each item (e.g., "I have very effective classroom management skills.") was also measured on the same 6-point scale as mentioned above.

Principal support. Teachers completed one item to indicate principal supportiveness for the PATHS curriculum (Kam, Greenberg, & Walls, 2003). This item, measured on a 4-point scale ranging from 1 (not at all supportive) to 4 (very supportive), directly asked teachers to rate the degree of PATHS support provided by the administration in their building. Teachers were asked about principal support with regard to the degree of PATHS support provided by the administration in their building. The item wording implied teachers would respond according to their perception of support at the current time (see Appendix B).

Technical support. Teachers were asked two items related to technical training and support provided by PATHS consultants and coordinators. Teachers were asked one item related to training quality with regard to the past school year (2004-2005), following instructions only to continue with these items if they had consented to training and support in the past year. This item

(e.g., How well did the PATHS training prepared you to use the curriculum?) was measured on a 5-point scale ranging from 1 (*not at all)* to 5 (*extremely*).

Teachers were also asked one item related to the technical support provided by the PATHS coordinator with regard to the past school year (2004-2005), following instructions only to continue with these items if they had consented to training and support in the past year. This item (e.g., Overall, how useful was the consultation time with your PATHS coordinator?), was measured on a 5-point scale ranging from 1 (*very dissatisfied*) to 5 (*very satisfied*) (see Appendix B). These two items were combined as an average to measure technical support in this study.

Teacher burnout. Teachers completed the educator-specific version of the Maslach Burnout Inventory (MBI) (Maslach, Jackson, & Schwab, 1986), a 22-item measure assessing how frequently teachers experienced feelings of burnout. Teacher burnout was included in the same section of the survey with work pressure and teacher efficacy, and teachers were asked to respond to how frequently the statements applied to them in the past year. Each item (e.g., "I feel used up at the end of the work day.") was measured on a 7-point scale ranging from 1 (*never*) to 7 (*every day*). This measures also contains three subscales of burnout: emotional exhaustion (9 items), depersonalization (5 items), and personal accomplishment (8 items) which can be analyzed separately, or the measure can be used as a whole.

Dosage of PATHS curriculum. Teachers were asked two items relating to implementation dosage. For one item, teachers were asked "how often, on average, do you actually use the PATHS Curriculum lessons and generalization techniques in your classroom?', which were key components to the curriculum. For the second item, teachers were asked "how often, on average, do you use the supplemental activities that are designed to integrate PATHS with academics…?". These supplemental activities were more optional components to the curriculum. The item wording in the present tense implied that teachers would answer regarding their current implementation.

Both of these items were measured on a 5-point scale including the timeframes of: not at all, rarely when problems arise, every few months, 1-2 lessons per week, or weekly lessons with frequent generalization techniques (see Appendix B).

Quality of PATHS implementation. Teachers were asked two items related to implementation quality. For one item, teachers were asked "how well do you feel you are implementing the lessons in the PATHS manual?". For the second item, teachers were asked "how well do you feel you are generalizing PATHS concepts throughout the day?". The present tense wording implied that teachers would answer regarding their current implementation. Both of these items were measured on a 5-point scale including ratings of: not at all, not very well, somewhat, fairly well, and very well (see Appendix B).

Results

Preliminary Analysis

Descriptive statistics. Table 2 provides descriptive data on each of the independent and dependent variables. The sample mean for work pressure was 3.51 (SD = 0.43) which was higher than the scale midpoint for this measure (i.e., 2.5). This indicated that, on average, the teachers in this sample reported relatively high levels of work pressure (i.e., indicating work pressure between very and somewhat true for themselves). The sample means for teacher and classroom management efficacy (M= 4.42, SD= 0.58 and M= 4.64, SD= 0.62, respectively) also were slightly higher than the scale midpoint for these measures (i.e., 3.5). This indicated that, on average, the teachers in this sample reported relatively high efficacy (i.e., indicating moderate agreement with statements indicating efficacy in teaching and classroom management). .Conversely, the sample mean for teacher burnout was 2.68 (SD = 0.80) which was substantially lower than the scale midpoint (i.e., 4.0). However, the sample mean of 2.68 indicated that teachers reported experiencing burnout almost monthly, on average.

The sample mean for principal support was close to the scale midpoint of 2.5 (i.e., M = 2.62, SD = 0.87), indicating teachers felt, on average, that their administration was somewhat supportive of the PATHS curriculum and teachers' efforts to implement the curriculum. The sample mean for technical support, however, was 3.73 (SD = 0.87), which was slightly higher than the scale midpoint for the measure (i.e., 3.0), which indicated that teachers, on average, felt that their training and consultation was "quite a bit" helpful in their utilization of the PATHS curriculum.

Teachers' implementation dosage and quality differed slightly in their average levels. Concerning implementation dosage, there were two items: one relating to lessons (i.e., "required" components) and one relating to supplemental activities (i.e., "optional" components). Teachers implemented the lessons, on average, slightly more frequently (i.e., regularly/1-2 lessons per week = 4) than the supplemental activities (M = 3.63 and 3.06, SD = 0.94 and 1.02, respectively). Teachers also implemented the lessons slightly more often than would be expected from the scale's midpoint (i.e. occasionally/few times per month = 3).

Teachers' implementation quality also was measured with two items: one relating to how well they were implementing lessons (i.e., "required" components) and one relating to "how well they were generalizing concepts" (i.e., "optional" components). Teachers felt they were implementing lessons and generalizing concepts, on average, "fairly well" (M=3.53 and 3.72, SD=0.99 and 0.97, respectively), which were slightly higher than the scales' midpoints (i.e., 3 = somewhat) In sum, teachers in this sample reported relatively high work pressure and efficacy yet relatively low burnout. Teachers also reported relatively high levels of technical support and implementation dosage (e.g., lessons) and quality, while reporting average levels of principal support and implementation dosage (e.g., supplementals). That is, teachers were implementing lessons and generalizing concepts on average 1-2 times per week, which is a high level of implementation for the PATHS curriculum. They also felt their technical support was quite useful

and prepared them quite well for implementing the PATHS curriculum. See Table 2 for additional descriptive statistics for all measures in the current study.

Reliability analyses. To evaluate the reliability of the measures used in the current study with this sample, Cronbach's alphas were conducted (see Table 3). The alphas for the measures in this study ranged from 0.55 to 0.86. The most widely accepted cutoff for adequate internal consistency is 0.70, although a cutoff of 0.60 has also been found as acceptable in exploratory research (Nunnaly, 1978; Garson, 2006). The lowest measure of reliability (0.55) is associated with the technical support measure, which is a two-item scale. Therefore, the alpha is actually the correlation between the two items, which is significant at $p < .01$, suggesting good internal consistency among these two items. Teacher efficacy had an alpha of 0.64, suggesting this measure had only moderate internal consistency. A review of items in this measure revealed that deleting any one item would not significantly improve the overall internal consistency of the measure. Therefore, all 9 items were retained in analyses. Individual alphas for the other measures are included in Table 3.

Validity analyses. To evaluate the validity of the measures used in the current study, confirmatory factor analyses (CFA) were conducted in AMOS and focused on three of the four independent variables in this study: work pressure (Moos, 1986), teacher efficacy (Gibson & Dembo, 1984; Emmer & Hickman, 1991) and teacher burnout (Maslach, Jackson, & Schwab, 1986). These three measures have been previously validated and found reliable in previous research; however, in order to determine if these measures were operating similarly in this sample, confirmatory factor analysis was utilized to compare the factor structure and item loadings of these measures in the present sample to those in previous research.

For work pressure, previous research determined that this 9-item measure loaded on to one latent construct, work pressure (Moos, 1986). In the present study, confirmatory factor analysis

revealed a nonsignificant, but parsimonious one-factor structure model where all 9 items loaded onto one latent factor, work pressure (X^2 =69.9 , *df* =27 , CFI = 0.86, RMSEA = 0.11) (see Tables 4, 5, and Appendix C). While this model did not achieve statistical significance, allowing the factor structure to include two latent factors did not significantly improve the model fit (X^2 = 120.84, *df* =26, CFI = 0.70, RMSEA = 0.18) nor did allowing the two factors to correlate (X^2=65.8, *df* = 27, CFI = 0.87, RMSEA = 0.12). Because the primary rationale for this CFA was to determine if a similar factor structure applied to this sample, no further model testing was conducted. Therefore, the one-factor was the best-fitting model for the measure of work pressure and parallels the factor structure found in previous research, suggesting this measure operates similarly in the present sample as in previous research.

For teacher efficacy (Gibson & Dembo, 1984; Emmer & Hickman, 1991), previous research identified two factors: teaching efficacy, containing 9 items related to how effectively teachers feel they are teaching, and classroom management efficacy, containing 6 items related to how effective teachers feel they are at managing their classroom. Confirmatory factor analyses again revealed that the best-fitting model, while not statistically significant, did contain two correlated, latent factors (X^2 = 274.9, *df* = 89, CFI = 0.69, RMSEA=0.14) (see Tables 4, 6, and Appendix C). A one-factor model did not improve the model fit (X^2=280.2, *df* = 90, CFI = 0.68, RMSEA = 0.14) nor did an uncorrelated, two-factor model (X^2 = 303.8, *df*=90, CFI = 0.64, RMSEA =0.15). Although the two-factor, correlated model did not obtain significance, conducting additional analyses to obtain a better fitting model was not in line with the purpose of the analysis for this study; therefore, the two-factor model with correlated latent factors was accepted as the best-fitting model. Guided by hypotheses and previous research, the constructs of teaching and classroom management efficacy were analyzed separately in all substantive analyses.

For teacher burnout (Maslach, Jackson, & Schwab, 1986), previous research on educational samples has found that the construct of teacher burnout contained three factors: emotional exhaustion, personal accomplishment, and depersonalization. Confirmatory factor analysis revealed that a three-factor model, while nonsignificant, was the best-fitting model, with correlations allowed between emotional exhaustion and personal accomplishment and emotional exhaustion and depersonalization (X^2 = 383.3, *df* = 207, CFI = 0.80, RMSEA = 0.09) (see Tables 4, 7, and Appendix C). Models with one or two factors did significantly not improve model fit (X^2,=578.5, *df* =209, CFI = 0.53, RMSEA=0.13 and X^2 = 403.3, *df* =208, CFI = 0.78,RMSEA = 0.09 respectively) nor did allowing all three factors to correlate (X^2=390.1, *df* =206, CFI = 0.80, RMSEA = 0.08) or other combinations of correlations among the three factors. Guided by hypotheses and previous research, the construct of teacher burnout was analyzed as one total scale in all substantive analyses (see also Burke, Greenglass, & Schwartzer, 1996).

Tests for normality. Descriptive analyses were first conducted on each of the variables to examine the measures of central tendency as well as the normality of each variable. Scatterplots and fit statistics were also inspected to guard against generalizing results to the entire sample when they may have been driven by possible outliers. All variables appeared normally distributed, with the exception of two variables containing outliers. Tests for normality revealed that work pressure and teacher efficacy had a few significant outliers. Specifically, those outliers which were more than 2.5 standard deviations above or below the mean were omitted from analyses including that particular variable. Applying the specified criteria, work pressure had two outliers (m = 1.00; m =2.00; SD = 0.43), and teacher efficacy also had three outliers (all three m = 2.78; SD = 0.58). These outliers were omitted from all analyses containing either of these two variables.

Background characteristics. In order to identify potential control variables, correlational analyses were run on demographic, predictor, and outcome variables. The demographic variables

examined were age, marital status, health status, grade level, total years in teaching, and year trained in the PATHS curriculum. As shown in Table 8, correlations between the demographic and predictor variables revealed that age was significantly positively associated with work pressure (r = 0.33, p < .001), suggesting that older teachers reported higher levels of work pressure. Also, age was significantly positively associated with technical support (r = 0.21, p <.05), suggesting that older teachers also reported higher levels of technical support. Total years in teaching was significant positively associated with work pressure (r = 0.25, p <.01), suggesting that teachers who have been in teaching longer also reported higher levels of work pressure. Grade level was also significantly positively associated with perceptions of principal support (r = 0.20, p < .05), suggesting that teachers in upper grade levels reported higher levels of principal support.

As shown in Table 9, correlations between demographic and outcome variables revealed that age was significantly positively associated with average number of lessons and supplemental activities taught (r = 0.22 and r = 0.21, p < .05, respectively), suggesting that older teachers were implementing more lessons and supplemental activities than younger teachers. Health status was negatively correlated with burnout (r = -0.21, p < .05), suggesting that better health was associated with lower levels of burnout, and grade level was negatively correlated with average number of lessons taught (r = -0.35, p < .01) and how well teachers felt they were implementing lessons and generalizing concepts (r = -0.27 and r = -0.28, p < .01, respectively). That is, teachers in lower grade levels were implementing more lessons, and felt they were implementing lessons and generalizing concepts with higher quality than teachers in upper grade levels. Year trained in PATHS curriculum was negatively correlated with average number of supplemental activities taught (r = -0.24, p <.05), suggesting that teachers who had been in teaching for less time were implementing more supplemental lessons. There were no significant relationships between marital status or total years in teaching and either predictors or outcomes.

Table 10 shows the correlations among the predictor and outcome variables. Work pressure was significantly positively associated with burnout (r = 0.21, p <.05), suggesting that teachers who reported higher levels of work pressure also reported higher levels of burnout. Work pressure was also significantly positively correlated with average number of lessons taught (r = 0.24, p <.01), such that teachers who reported higher levels of work pressure also reported teaching more lessons.

Teaching efficacy was significantly negatively associated with burnout (r = -0.39, p < .01), such that teachers with higher levels of teaching efficacy were associated with lower levels of burnout, and teaching efficacy was positively associated with average number of supplemental activities (r = 0.20, p <.05) and how well teachers felt they were teaching lessons (r = .20, p <.05) and generalizing concepts (r = 0.22, p <.05), suggesting that teachers with higher levels of teaching efficacy reported completing more supplemental activities and felt they were generalizing concepts with high quality. Teaching efficacy was also significantly positively correlated with classroom management efficacy (r = 0.46, p <.01) as would be expected that teachers who report higher levels of teaching efficacy would also report higher levels of classroom management efficacy.

Classroom management efficacy was also significantly negatively correlated with burnout (r = -0.25, p <.01), such that teachers with higher levels of classroom management efficacy reported lower levels of burnout. Classroom management efficacy was significantly positively correlated with how well teachers felt they were doing generalizing concepts (r = 0.21, p <.05), such that teachers with higher levels of classroom management efficacy also reported they were generalizing concepts with higher quality.

Burnout was significantly negatively correlated with technical support (r = -0.25, p <.05), such that teachers who reported higher levels of burnout also reported lower levels of technical

support. Burnout was also significantly negatively correlated with average number of supplemental activities (r = -0.23, p <.05) and how well teachers felt they were implementing lessons (r = -0.23, p <.05), suggesting teachers with higher levels of burnout also implemented fewer supplemental activities and felt they were implementing lessons with lower levels of quality.

Perceptions of principal support were significantly positively correlated with technical support provided by an external agency (r = 0.45, p <.01) and how well teachers felt they were implementing lessons and generalizing concepts (r =0.24, p <.05, and r =0.23, p <.05 respectively), such that teachers who perceived higher levels of principal support also reported higher levels of PATHS technical support and felt they were implementing lessons and generalizing concepts with higher quality.

Finally, perceptions of technical support were significantly positively correlated with average number of lessons and supplemental activities taught (r = 0.29, p <.01 and r = 0.24, p <.05, respectively), suggesting teachers who reported higher levels of technical support also reported they were teaching more lessons and supplemental activities. Perceptions of technical support were also positively with how well teachers felt they were implementing lessons and generalizing concepts (r = 0.23, p <.05 and r =0.32, p <.01, respectively), such that teachers who reported higher levels of technical support also reported they were implementing lessons and generalizing concepts with higher quality.

As expected, average number of lessons and supplemental activities taught and how well teachers felt they were implementing lessons and generalizing concepts were all highly correlated with each other, as they all represent forms of implementation fidelity. Although these dependent variables were highly correlated and could potentially be utilized as one unified scale, our hypotheses and theoretical considerations suggest it is important to separate implementation

dosage from implementation quality, as well as required lessons from more optional, supplemental activities. Therefore, each of these items was analyzed as a separate dependent variable.

Substantive Analyses

Research Question 1: What are the direct effects of teachers' work pressure, efficacy, and support on teacher burnout ? (see Figure 2)

Hypothesis 1-3: Higher levels of teachers' (1) work pressure will be associated with higher levels of teacher burnout. Lower levels of (2) teaching efficacy, classroom management efficacy, (3) principal support, and technical support will be associated with higher levels of teacher burnout.

Hierarchical multiple regressions with a minimum significance level of $p < .05$ were run to investigate these three hypotheses, controlling for age and health. Age and health were entered in step 1, and predictor variables (work pressure, efficacy, or support) were entered in separate models in step 2. Results are found in Table 11, and main effects discussed below are those found in step 2 of the sequential models.

In support of hypothesis 1, a significant main effect was found, such that higher levels of work pressure were positively associated with higher levels of burnout, above and beyond age and health ($\beta = 0.27$, $R^2 = 0.09$, $p < .05$). Hypothesis 2 was supported as lower levels of teaching efficacy were directly associated with higher levels of burnout, above and beyond age and health ($\beta = -0.39$, $R^2 = 0.22$, $p < .001$). A similar pattern of results was found with classroom management efficacy, ($\beta = -0.19$, $R^2 = 0.14$, $p < .05$), such that lower levels of classroom management efficacy were associated with higher levels of burnout. However, hypothesis 3 was not supported in that no significant main effects were found for either principal or technical support in predicting burnout.

Research Question 2: What is the direct effect of teacher burnout on measures of implementation dosage and quality? (see Figure 3)

Hypothesis 4: Higher levels of teacher burnout will be associated with lower levels of implementation dosage ([a] average number of lessons, [b] average number of supplemental activities) and lower levels of perceived implementation quality ([c] how well teachers felt they were teaching lessons and [d] generalizing concepts).

Hierarchical multiple regressions were conducted with age and grade entered in step 1, and burnout in step 2. Results are found in Table 12, and main effects discussed below are those found in step 2 of the sequential models.

Beginning with hypothesis 4a, no significant effects were found between burnout and average number of lessons taught. For hypothesis 4b, a significant effect of burnout indicated that higher levels of burnout were associated with a lower average of supplemental activities completed ($\beta = -0.28$, $R^2 = 0.11$, $p < .05$).

For how well teachers felt they were implementing lessons (hypothesis 4c), a significant main effect of burnout indicated that higher levels of burnout were associated with lower levels of perceived implementation quality related to teaching lessons ($\beta = -0.21$, $R^2 = 0.13$, $p < .05$). No significant effects were found for how well teachers felt they were generalizing concepts and burnout.

Research Question 3: What are the direct effects of teachers' work pressure, efficacy, and support on measures of implementation dosage and quality?(see Figure 3)

Research Question 4: What are the moderating effects of teacher burnout on the relationships between teachers' work pressure, efficacy, support and the measurement of implementation dosage and quality? (see Figure 4)

For organizational clarity and logical progression, research questions 3 and 4 and their hypotheses will be discussed together as related to each dependent variable. Results will be discussed in terms first of direct effects and then moderating effects, grouped by dependent variable. The main effects discussed without regard to any interaction effect are reported from models in step 2. The main effects which are qualified by a higher-order interaction are reported from models in step 3.

Hypothesis 5–9: Higher levels of teachers' work pressure (5) will be associated with lower levels of implementation dosage ([a] average number of lessons, [b] average number of supplemental activities) and perceived implementation quality ([c] how well teachers felt they were teaching lessons and [d] generalizing concepts). Lower levels of teaching and classroom management efficacy (6-7), and principal and technical support (8-9) will be associated with lower levels of implementation dosage ([a] average number of lessons, [b] average number of supplemental activities) and perceived implementation quality ([c] how well teachers felt they were teaching lessons and [d] generalizing concepts).

Hypothesis 10-14: Burnout will moderate the relationship between work pressure(10), and teaching and classroom management efficacy (11-12), principal and technical support (13-14) and implementation dosage ([a] average number of lessons, [b] average number of supplemental activities) and perceived implementation quality ([c] how well teachers felt they were teaching lessons and [d] generalizing concepts). Specifically related to work pressure, when teachers report high levels of work pressure, teachers with higher levels of burnout will report lower levels of implementation dosage and quality than teachers with lower levels of burnout. On the other hand, when teachers report lower levels of efficacy of support, teachers with higher levels of burnout will also report lower levels of implementation dosage and quality.

Hierarchical multiple regressions were conducted, controlling for age and grade or year trained in the PATHS curriculum. Age and grade or year trained were entered in step 1, and predictor variables (work pressure, efficacy, or support, and burnout) were entered in separate models step 2. Interactions among the prior variables were entered in each separate model in step 3. Results are found in Tables 13-16.

Average number of lessons (Hypotheses 5-14a). Age, and especially grade level, were significantly related to the average number of lessons taught, such that older teachers and those in lower grade levels reported teaching more lessons on average. A significant main effect only was found with technical support. Results revealed that higher levels of technical support were associated with a higher number of lessons reported ($\beta = 0.43$, $R^2 = 0.29$, $p < .01$) (see Table 11). No significant direct effects were found with work pressure, efficacy or principal support, and no moderation effects were found.

Average number of supplemental activities (Hypotheses 5-14b). Partial support was found for this set of hypotheses. Results indicated a significant main effect for both teaching efficacy and technical support. First, higher levels of teaching efficacy were associated with higher numbers of supplemental activities implemented, ($\beta = 0.19$, $R^2 = 0.16$, $p < .05$). Higher levels of technical support were also associated with higher levels of supplemental activities implemented, ($\beta = 0.34$, $R^2 = 0.26$, $p < .01$) (see Table 14). No other significant direct effects and no moderation effects were found.

How well teachers felt they were implementing lessons (Hypotheses 5-14c). For this set of hypotheses, results were more consistently supported our expectations. First, controlling for age and grade, a significant main effect was revealed for work pressure ($\beta = -0.62$, $R^2 = 0.21$, $p < .05$). However, this main effect must be interpreted in the context of a significant interaction between work pressure and burnout ($\beta = -0.81$, $R^2 = 0.21$, $p < .01$) (see Table 15). The effect of burnout is

stronger in teachers who reported high levels of work pressure, such that in situations of higher burnout and higher work pressure, teachers reported feeling that they were implementing lessons with lower levels of quality (see Figure 5). No other significant moderation effects were found with work pressure and burnout.

Similarly, for teaching efficacy, a significant main effect was found ($\beta = 0.50$, $R^2 = 0.21$, $p < .05$). However, this main effect also must be interpreted in the context of a teaching efficacy x burnout interaction ($\beta = 0.82$, $R^2 = 0.21$, $p < .01$). The interaction between teaching efficacy and burnout revealed that the effect of burnout is stronger when teachers reported lower levels of teaching efficacy, such that in situations of higher burnout and lower teaching efficacy, teachers reported that they felt they were implementing lessons at lower levels of quality than those teachers who reported low levels of burnout and low levels of teaching efficacy (see Figure 6).

The same pattern of effects occurred with hypothesis 11c for classroom management efficacy ($\beta = 0.36$, $R^2 = 0.20$, $p < .01$), such that there were significant main effects for classroom management efficacy; however, these main effects are also only interpretable in the context of a classroom management efficacy x burnout interaction (see Table 15). A classroom management efficacy x burnout interaction ($\beta = 0.60$, $R^2 = 0.20$, $p < .01$) revealed that in situations of higher burnout and lower classroom management efficacy, teachers reported that they felt they were implementing lessons at lower levels of quality (see Figure 7).

Third, for principal support, a significant main effect was found ($\beta = 0.31$, $R^2 = 0.16$, $p < .05$) such that higher levels of principal support were associated with higher levels of how well teachers felt they were implementing lessons. Finally, for technical support, a significant main effect was found ($\beta = 0.47$, $R^2 = 0.31$, $p < .01$), such that higher levels of technical support were associated with higher levels of how well teachers felt they were implementing lessons.

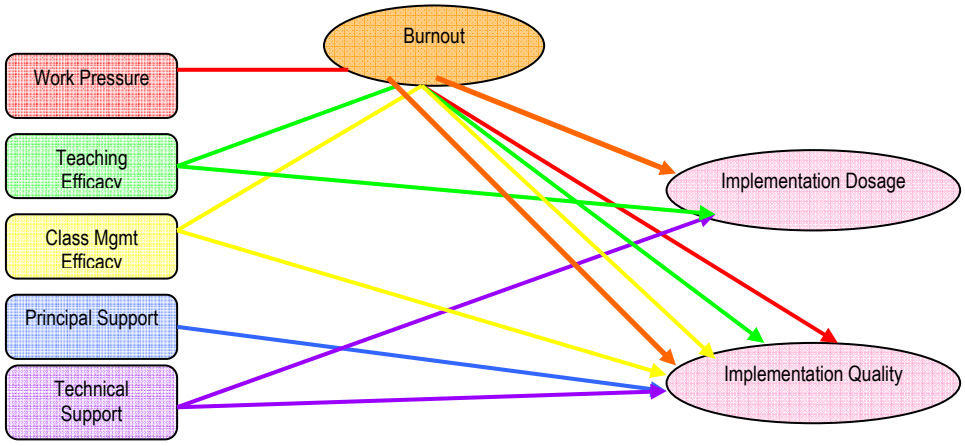
How well teachers felt they were generalizing concepts (Hypotheses 5-14d). Hypotheses 5-12d were partially supported with a similar pattern of effects as how well teachers felt they were implementing lessons. First, controlling for age and grade, a significant main effect was found for teaching efficacy (β = 0.51, R^2=0.19, *p* <.01); however, this main effect can only be interpreted in the context of a teaching efficacy x burnout interaction (β = 0.80, R^2=0.19, *p* <.01) (see Table 16). This interaction revealed that the effect of burnout is stronger when teachers reported lower levels of teaching efficacy, such that in situations of higher burnout and lower teaching efficacy, teachers reported that they felt they were generalizing concepts at lower levels of quality than those teachers who reported low levels of burnout and low levels of teaching efficacy (see Figure 8).

Additionally, a significant main effect was found with classroom management efficacy (β= 0.12, R^2=0.13, *p* <.01) such that higher levels of classroom management efficacy were associated with higher levels of generalizing concepts. A significant main effect was also found for principal support (β = 0.36, R^2= 0.15, *p* <.01). Higher levels of principal support were associated with higher levels of how well teachers felt they were generalizing concepts. Finally, a significant main effect was found for technical support (β = 0.41, R^2=0.33, *p* <.01) such that higher levels of technical support were associated with higher levels of generalizing concepts (see Table 16). Results revealed no significant moderation effects of burnout for the relationship between principal support or technical support and how well teachers felt they were implementing lessons or generalizing concepts.

Discussion

The purpose of this study was to examine what factors affect how teachers implement a new SEL curriculum model. This present study considered the role of both stressors and supports, and particularly examined the role of teacher burnout as it impacts various aspects of implementation. Implementation ratings assessed both the dosage and quality of curriculum

implementation, distinguishing those that were required (i.e., lessons) and those that were optional (i.e., supplementals). Overall, results revealed that teachers' stress and efficacy both have direct associations with burnout while teachers' supports for curriculum use do not. Teachers' stress, efficacy, and curriculum supports also all had direct associations with particular aspects of implementation dosage and quality. Moreover, interactive effects between stressors, efficacy, and curriculum supports provided a more nuanced view of the factors related to implementation and suggest that a combination of factors sometimes outweigh a single factor. As a helpful guide for the discussion of findings, the figure below illustrates the significant associations found.



Factors Associated with Burnout

Health. Initial simple correlations indicated a negative relationship between perceived physical health and burnout, suggesting those with poorer health also may experience higher levels of burnout or vice versa. This is not surprising and parallels other findings that occupational stress and burnout are related to higher rates of heart disease, higher blood pressure, and higher rates of illness among those who experience higher levels of stress in the workplace (Guglielmi & Tatrow, 1998; Hakanen, Bakker, & Schaufeli, 2006; Kristensen, 1996; Travers & Cooper, 1996). Therefore, to take into account the role that individuals' health may play in perceived burnout, health status was controlled when examining how other factors were related to burnout.

Stressors. As hypothesized, a positive relationship was found between work pressure and burnout, such that higher levels of pressure were associated with higher levels of burnout. This finding parallels conceptual stress models, such as the underload/overload model (Sutherland & Cooper, 1991). This model suggests that there is an optimal level of work load and stress, creating an inverse U-shaped graph. When the work load (i.e. work pressure) is too high, it is associated with high stress levels. This inverse U model also predicts when the workload is too low, there is low stress and apathy towards the job. In the present study, the finding between work pressure and burnout supports the overloaded aspect of the model, such that when work pressure (i.e. overload) is high, it is associated with higher burnout. A scatterplot revealed that for teachers who reported the highest levels of work pressure in our study (above the 90th percentile), about two-thirds of them experienced above-average levels of burnout, and one-third of them experienced even higher levels of burnout (i.e., almost once per week). This suggests that at the highest levels of work pressure, burnout is more likely to occur; therefore, work pressure is no longer optimal, and instead, is detrimental for teachers.

While directionality cannot be ascertained here, previous research on acute versus chronic stress supports the idea that stressors, such as work pressure, may build up over time to contribute to burnout (Barnett & Brennan, 1997; Crouter, et. al, 1999; Hakanen, Bakker, & Schaufeli, 2006). In the present study, work pressure was conceptualized as experiencing time demands, deadlines, and a fast pace (Crouter et. al., 1999; Westman, 2002). On the other hand, burnout has been defined as a cumulative response to chronic stress and differs from short-term acute stress, as it relates more specifically to situations where job stress is unavoidable and support systems or other sources of relief seem unavailable (Boles, et al., 2000; Maslach & Jackson, 1981; Kokkinos, 2006; Pines & Keinan, 2005). However, another possibility is that work pressure may be in part assessing the dimension of conscientiousness in teachers, such that those who feel higher levels of work

pressure may simply be more conscientious teachers who want to successfully meet work demands and deadlines, and these teachers may ultimately experience higher levels of burnout because of their conscientiousness.

Efficacy. As hypothesized, teaching and classroom management efficacy were both found to have negative relationships with burnout. Together, these findings suggest higher efficacy in the classroom is associated with lower levels of burnout. Previous longitudinal research on teacher efficacy and burnout has found that teachers who have higher levels of efficacy, whether in teaching or classroom management, experienced lower levels of burnout several months later, even if they experience high levels of student disruption or were implementing a new curriculum (Browers & Tomic, 2000; Evers, Browers, & Tomic, 2002). Taken together with previous research, this finding suggests that teachers' feelings of efficacy and burnout are critical components in the classroom environment as well as for teacher well-being. Even more important is the fact that students in classrooms with ineffective teachers are likely to be aware of their teachers' ineffectiveness and stress (Evers & Tomic, 2002). Therefore, administrators, program developers, and educators all should be aware of the need to address teachers' feelings of efficacy and burnout through methods such as improved teacher training and ongoing administrative support regarding classroom instruction and management. School districts should also provide access to and encourage the use of employee assistance programs (e.g., counseling, mental health services) with easily accessible information and options.

While again directionality cannot be ascertained, it is also possible that efficacy and burnout may have a cyclical association, such that either low efficacy or high burnout could begin a downward spiral in either area. For example, a teacher feeling low levels of effectiveness in the classroom, whether in teaching or classroom management, may also experience burnout as a result of prolonged ineffectiveness in the classroom. Burnout may then continue this sense of

ineffectiveness, which in turn, further decreases the teacher's sense of efficacy, and again heightens the level of burnout.

PATHS Curriculum Supports. Although both work pressure and efficacy had direct associations with burnout, contrary to the hypotheses, neither principal support nor technical support regarding curriculum implementation were related to burnout. While these supports simply may not be associated with teacher burnout, the demands-control-support model (Johnson, 1989) and previous research on support systems, would suggest that the presence of principal support, in particular, should be associated with lower levels of stress, such as burnout (Griffith, Steptoe, & Cropley, 1999; Sakoda, Tanaka, & Fuchigami, 2004). It is possible that experiences of general, short-term stress may be affected by these supports, but burnout, resulting from chronic stress, may be less affected by these supports because of the continuous experience of multiple stressors. Additionally, these supports were specifically asked in relation to the PATHS curriculum and not a broader assessment of principal and leadership support. Therefore, teachers' perceptions of their principals' support for a particular curriculum or the technical support provided for one given curriculum may not be a broad enough assessment to predict teachers' feelings of burnout from continuous stressors. Rather, it is the principal support at a broad relational level and technical support for all teachers' duties and responsibilities that may lessen the likelihood that teachers will become burned out.

The Relationship of Burnout and Implementation Dosage and Quality

In congruence with this study's hypotheses, teachers' reports of burnout were directly negatively related to two aspects of implementation: the average number of supplemental activities completed and the quality of lessons taught. With respect to implementation dosage, teachers who were experiencing burnout were also less likely to complete supplemental activities. This finding parallels previous research indicating that burnout has been significantly associated with lower

levels of worker productivity (Freudenberger, 1974; Cherniss, 1980; Maslach & Jackson, 1982; 1985; Perlman & Hartman, 1982), as the average number of supplemental activities is one aspect of teachers' productivity. Additionally, supplemental activities are suggested, but not required parts of the curriculum. If teachers are burned out, it is possible they are less likely to have time for more optional curriculum pieces. They also may have less desire to try anything new or perceived as an extra benefit to students. While directionality cannot be established with this study, it seems unlikely that those who do not implement supplemental activities may ultimately experience burnout. It seems more likely that those who are omitting optional activities may be doing so because of chronic stress or burnout. Also, because this association was found with only supplemental activities and not curriculum lessons, researchers should look more specifically on the kinds of tasks associated with lower productivity, rather than overall worker productivity, as this finding suggests basic, required activities may be less affected by the experience of burnout.

As hypothesized, teacher burnout also showed a negative relationship with the implementation quality of required curriculum materials (i.e., how well teachers feel they are teaching lessons). In other words, teachers who experienced higher levels of burnout were also more likely to feel they were implementing lessons with lower quality. Teachers who are experiencing burnout may have a generalized tendency to view many aspects of teaching more negatively. Specifically, teachers may feel they are not implementing a new curriculum with sufficient quality in part due to their negative emotionality and stress (Jennings & Greenberg, 2007). In addition, they may simply perceive they are not implementing a new curriculum with quality because they lack the motivation and energy to learn new curriculum models well or implement the lessons with consistency. Although directionality is not able to be determined here, it seems less likely that poor lesson implementation is leading to burnout, and it is more likely that

those who are burned out are implementing curriculum with lower quality for a myriad of reasons related to their chronic stress.

Burnout was not related to two other aspects of implementation: the average number of lessons completed and how well teachers felt they were generalizing concepts. As previously mentioned, burnout may not be associated with the average number of lessons because they may feel required to complete the basic curriculum lessons, in spite of their report of lower quality implementation. It is less clear, however, why burnout was not also associated with how well teachers felt they were generalizing concepts. While there may actually be no association, it would seem that those experiencing high levels of burnout would be less likely to feel they were generalizing concepts effectively because these generalizations require more nuanced integration of the curriculum concepts into daily activities and academic subject areas. For teachers with high levels of burnout, this may require more resources than they have available. It is also possible that this effect may be more specific to one of the three aspects of burnout, such as emotional exhaustion, rather than the overall general level of burnout that was measured in this study. Therefore, future researchers should consider examining the more specific aspects of both burnout and implementation concurrently.

Direct and Interactive Associations of Stressors, Efficacy, Supports, and Burnout with Implementation Dosage and Quality

Stressors. A significant work pressure x burnout interaction was found with perceived implementation quality. That is, teachers high both in work pressure and burnout reported lower levels of implementation quality than did teachers were high in work pressure and low in burnout. Thus, higher levels of pressure may produce an additive effect when combined with higher levels of burnout (Sutherland & Cooper, 1991). The fact that implementation is not effected when teachers show high pressure and low burnout indicates that high levels of work pressure *alone* do

not decrease teachers' level of implementation quality, nor do low levels of burnout. Previous research has found similar combinations of factors that were associated with negative outcomes. In research on work-family balance, high levels of work pressure were predictive of higher levels of overload, in turn which negatively affected family well-being (Crouter, Bumpus, et al., 1999). It was the combination of high levels of both factors that negatively impacted family relationships. Given that overload has also been linked to burnout (Byrne, 1999), these findings support the idea the combination of high levels of work pressure and burnout are likely to have negative effects, both in the home environment but also in the work environment as well, such as with teachers and implementation of curriculum.

Thus, the combination of work pressure and burnout are particularly important to consider when implementing a new curriculum or program. Adding an unfamiliar curriculum into an already busy school-day schedule may create additional work pressure, especially if its progress is being closely monitored and evaluated. More importantly, given that high-risk schools are most likely to need and receive new curricula and programs to improve low test scores or lessen high rates of behavior problems, any new program in these circumstances is more likely to be met with teachers who are already experiencing higher levels of work pressure as well as burnout. Therefore, researchers, administrators, and educators must be aware that these high-risk schools are also at "high-risk" for overloading teachers in a manner that may only result in poor implementation of new curricula and programs, and ultimately not improving the issues they chose the program for in the first place.

In order to lessen the possibility that teachers will feel overloaded or burned out, and more likely to implement a new curriculum with quality, the planning process prior to implementation must involve teachers and be carefully thought through (Elias, Zins, Gracyzk, & Weissberg, 2003; Lewis, 2004). Researchers and administrators must work together to assess the needs and

readiness of the school to implement a new curriculum, for implementation of new curricula in disorganized environments has had little success (Gottfredson & Gottfredson, 2002). The way the change process is presented and perceived by administrators and teachers may also affect its implementation (Lewis & Seibold, 1996). Therefore, it is important to build trusting relationships and collaborative teams in the planning process, as these supportive relationships may lessen feelings of stress, concern, or overload, and promote successful, quality implementation (Bryk & Schneider, 2002; Brewster & Railback, 2003; Johnson et al., 1989). Teachers must also buy-in to the program. Programs which have more user-friendly materials, have a perceived benefit over current practices, and have some flexibility in their implementation are likely to be implemented more successfully (Greenberg et al., 2005; Han & Weiss, 2005; Rohrbach et al., 2006). Incentives, such as small monetary amounts or gift cards to community businesses, may also increase teacher buy-in and implementation quality. Additionally, both researchers and administrators must be aware of teachers' needs and concerns relating to the implementation of a new curriculum (Hall & Hord, 1987; 2001; van den Berg & Ros, 1999). Finally, implementation support should be provided in various forms, such as proper training, sufficient materials, strong administrative leadership, and coaching, in order to increase implementation quality (Gottfredson, et. al., 2002; Fixen, et al., 2005; Han & Weiss, 2005; Klein & Knight, 2005; Rohrbach et al., 2006). These supports are likely to promote high quality implementation and decrease the possibility that teachers will become overwhelmed and burned out as they implement a new curriculum.

Contrary to the study's hypothesis, there was no direct relationship between work pressure and the other three aspects of implementation: average number of lessons and supplemental activities completed and how well teachers felt they were generalizing concepts. Also, there were no other interactions between work pressure and burnout with implementation. It may be the combination of these two stressors that has its greatest impact on the required elements of

curriculum implementation. Given the direct associations between burnout and implementation quality were only with the average number of supplemental activities completed and there were no other direct associations with work pressure and implementation, it is not surprising that there were no other interactive effects with work pressure, burnout, and implementation.

Efficacy. As hypothesized, teaching efficacy showed direct positive and interactive associations with implementation dosage and quality. Specifically, teaching efficacy had a positive relationship with the average number of supplemental activities. Previous research has shown that teachers' efficacy beliefs have strong effects on their behaviors (Tschannen-Moran, Hoy, & Hoy, 1998; 2001), and those with higher efficacy set more challenging goals for themselves and their students, and they are more persistent when facing challenging tasks, such as the implementation of new curriculum (Fuchs, Fuchs, & Bishop, 1992; Ross, 1995). Effective teachers may simply have just enough "extra" time to teach supplemental, nonrequired activities because they teach the required lessons more efficiently as well. However, counter to the study's hypothesis, results revealed no direct or interactive association with teaching efficacy and the average number of lessons teachers completed. This may be due in part to NCLB requirements intensifying job demands, and therefore, teachers' levels of efficacy are not influencing how many social-emotional lessons they are completing. Completing a certain number of new lessons in a given week may more simply be related to the amount of time and ability to fit additional lessons into their schedule around other requirements, while the time for a supplemental activity associated with a given lesson may be possible to fit in because they were efficient in delivering the main lesson.

As hypothesized, a teaching efficacy x burnout interaction was significantly associated with both how well teachers were feeling about implementing lessons as well as generalizing concepts. Teachers with high burnout and low efficacy feel least positive about their implementation of lessons and generalizations. Once again, it is the combination of factors that *most* impacts the

quality with which lessons and concepts are being delivered to students. Thus, teachers who experienced high burnout and high efficacy did not differ in their implementation quality from those with lower levels of burnout. This finding provides more support to the idea high teaching efficacy is a protective factor, as previous longitudinal research has also found (Brouwers & Tomic, 2000).

Turning to classroom management efficacy, results revealed a direct positive relationship with how well teachers felt they were generalizing concepts. It is possible that those teachers who have better classroom management are able to maintain student interest and attention, and thus, can more easily extend the lesson's concept. Furthermore, preliminary analyses revealed a strong correlation between teaching and classroom management efficacy, suggesting that the two occur hand-in-hand. Those teachers with good classroom management efficacy are also likely to be effective in their teaching, which can result in having more time with students to extend basic lesson concepts and more energy or resources for teachers to generalize these concepts. Thinking in terms of Hargreaves' theory of job intensification (1994), this lower level of job intensity may provide just enough time for reviewing their own skills or those in the lessons or simply provide a moment of brief relaxation in a generally hectic schedule, allowing for higher levels of implementation quality in the extension of these tasks.

In congruence with these hypotheses and similar to the effects with teaching efficacy, a classroom management efficacy x burnout interaction was found with perceived implementation quality. Teachers experiencing high burnout and low classroom management efficacy feel they were implementing lessons with less quality than teachers with higher efficacy. Here again, teachers with higher efficacy were "protected" from the influence of high burnout on their implementation quality.

However, unlike general teaching efficacy, no direct or interactive associations were found with classroom management efficacy and implementation dosage. While again it seems as though

teachers with better classroom management efficacy should complete more lessons that their counterparts with lower efficacy, having high levels of classroom management efficacy may not quite equate to being more efficient in delivering lessons. Rather teachers who have good classroom management efficacy, and their students' attention and interest longer, may spend more time carefully teaching a lesson and emphasizing and reviewing its concepts. In these situations, teachers then may not leave time for additional lessons or activities to be taught. Again, this lack of association may also be related to job intensification with NCLB requirements, such that regardless of classroom management efficacy, teachers must have the time to complete additional lessons or supplemental activities in addition to all their other requirements.

PATHS Curriculum Supports. As hypothesized, teachers who report more principal support for PATHS implementation also reported higher quality lesson implementation and generalization. However, principal support did not affect implementation dosage. The associations between principal support and teachers' perceptions of their level of quality are similar to findings from previous research (Berends, Bodilly, & Kirby, 2002; Kam, et. al., 2003; Klein & Knight, 2005; Rohrbach et. al., 1993). In particular, one study using the PATHS curriculum found that it was the combination of high principal support with high implementation quality that led to positive program outcomes (Kam, et. al., 2003). Higher perceived principal support may help teachers to know that the new curriculum is not going to "fade away," and it is a priority for teachers to be implementing the curriculum. This support may also help teachers feel more confident in or conscientious about how they implement a new curriculum. This may in turn then lead to more positive program effects, which could ultimately lead to longer program sustainability.

The lack of association between principal support and implementation dosage may be related to issues of feasibility. While teachers are having to complete lessons in multiple subject areas, principals are also having to support multiple school goals and programs due to recent

legislative policies, such as NCLB. Furthermore, additional analyses revealed that grade level also played a role in the relationship between principal support and implementation dosage, which will be discussed in more detail later. Teachers in upper grade levels have more pressures (i.e. principal "support") to focus on academic lessons and improve student achievement, as standardized testing most frequently occurs in grades 3 and above. When assessments are completed with grades K-2, most often they are completed as "practice" for later standardized testing, and the results are not held to the same benchmarks, if any, as those in upper grades. Therefore, the distinction here with principal support and implementation quality versus dosage may be that the support primarily encourages teachers to implement the new curriculum with high quality, which is important for program success, but ultimately, teachers decide how many curriculum lessons they truly are able to implement well.

Finally, as hypothesized, technical support had a significant, direct positive relationship with both implementation dosage and implementation quality. This is important and positive finding: better perceived technical support is associated with a higher average number of lessons and supplemental activities completed, as well as how well teachers feel they are implementing the curriculum and generalizing concepts. This finding parallels the general findings of previous research which has found that program deliverers are more likely to implement the programs, and also more likely to do so with greater fidelity if they receive training prior to implementation (Fagan & Mihalic, 2003; Gager & Elias, 1997; Gottfredson & Gottfredson, 2002; Klein & Knight, 2005). Previous research has also suggested that the dosage and quality of implementation may vary with the types of implementation (i.e. technical) support provided. For instance, trainings are often provided to teachers initially in single-day or multi-day workshops. Then, ongoing program monitoring and consultation may be done by program developers, but more often has been provided by others who have been trained by the developers (Fixen et. al., 2005; Graczyk,

Weissberg, et al., 2000; Rohrbach et. al., 2006). These are the most frequent forms of technical support offered and may produce sufficient levels of implementation and program outcomes. However, little empirical research has compared the various forms of technical support and their effects on implementation dosage and quality (Fixen et. al., 2005; Rohrbach et. al., 2006).

In the present study, technical support was offered in a variety of approaches. Teachers were trained initially in pre-implementation workshops. Those who were newest to the curriculum then received weekly coaching from PATHS coordinators (provided by an outside agency). Teachers who may have been trained in previous workshops received bi-weekly or monthly coaching. Teachers, however, could request additional coaching at any time. Finally, principals were also encouraged to attend the pre-implementation workshops, and additional school staff (e.g., administrative assistants, cafeteria workers, janitors) were also trained in the curriculum model. These various forms of technical support and the ongoing nature of the technical support in this study suggest this varied and consistent support may produce stronger effects with implementation quality and dosage. Additionally, our measure of technical support captured both pre-implementation and coaching aspects offered, lending more support that these two aspects are critical components in higher levels of implementation dosage and quality.

Previous research has found that both pre-implementation training and the coach-teacher relationship are related to implementation success. Pre-implementation training has been most effective in supporting implementation in the classroom when it provides knowledge, demonstration, and the opportunity for practice as well as providing coaching support (Joyce & Showers, 2002; Fixen et. al., 2005). The ability of coaches to develop an effective, positive relationship by adapting their coaching style to fit with those implementing the program (e.g., teachers) promotes a better understanding of the program and may increased motivation to implement a program (Fixen et. al., 2005). However, research has not been conducted to

conclude exactly what coaches should say or do that is most effective in improving implementation. Future researchers should focus more attention on evaluating these specific aspects of technical support (i.e., amount, form, and quality of training and coaching support) in relation to both implementation dosage and quality.

Additional Contributing Factors

Although originally age, grade, and other demographic variables were considered primarily as "control" variables, several demographic factors were found to be consistently associated with implementation dosage and quality but were not with burnout. While not a primary focus of the study, these associations provide a more complete picture of factors pertaining to burnout and implementation. First, health was the only demographic factor associated with burnout, as previously discussed and would be expected from previous research on stress, burnout, and physical and mental health (Guglielmi & Tatrow,1998; Kristensen, 1996; Theorell & Karasek, 1996). The lack of associations between age, grade, marital status, years in teaching and year trained with burnout are not inconsistent with previous research, as demographic factors have been either *not* been associated or *inconsistently* associated with burnout (Vandenberghe & Huberman, 1999). Years in teaching and marital status have not been consistently associated with burnout. Previous research also has found associations specifically between younger age and higher levels of the emotional exhaustion subscale of burnout, but not other subscales of burnout (Byrne, 1999). Additionally, grade level has only been associated with burnout when considering elementary versus high school teachers, with burnout higher in high school teachers, but has not been associated within K-8 grades (Byrne, 1999; Williams & Gersch, 2004).

However, demographic factors were associated with perceived implementation quality. Both age and total years in teaching were positively related to both aspects of implementation dosage, suggesting a direct correlation between experience (as represented by either years in

teaching or age) and how many lessons and supplemental activities teachers completed. With experience, teachers may be more able to accommodate a new curriculum into the daily schedule and also teaching new lessons may come with more ease as “practice makes perfect”.

There was also a significant age x work pressure interaction found with the average number of lessons completed, such that the effect of teacher age on lessons completed is stronger in situations of high work pressure. Older teachers who experienced higher levels of work pressure taught more lessons on average than younger teachers who also reported higher levels of work pressure. In situations of low work pressure, the average number of lessons completed did not vary by age. This finding suggests that as teachers gain more experience teaching (as age represents), they are less likely to be effected by higher levels of work pressure in the number of lessons they complete. This could be due to a couple of factors. First, more experienced teachers may have learned how to cope with the pressures of the school environment. Younger, newer teachers may not be as able to cope with the pressures and fast paced environment of a school setting, and hence, are less able to implement a higher number of lessons. Second, more experienced teachers may perceive higher levels of work pressure, even though they may cope with it effectively, because they are also more conscientiousness. The longer they have stayed in teaching, the more conscientious they may feel, especially when under pressure, and therefore, are more likely to implement more lessons as they feel more responsibility to do so. Finally, the fact that in situations of low work pressure, teachers did not vary according to their age again supports the idea that some level of work pressure is optimal for work productivity, as represented here by how many lessons are being completed, although here it seems that only older teachers are affected positively by higher amounts of work pressure (see Figure 9).

Grade level also was significantly related to both implementation dosage and quality: how many lessons teachers were completing on average as well as how well teachers felt about

lessons and generalizing concepts. These findings indicated that teachers in lower grade levels showed higher implementation dosage and quality. Competition for time resources at higher grade levels with NCLB and other standardized testing may contribute to these associations, as standardized tests, such as the Pennsylvania System of School Assessment (PSSA), begin in the 3rd grade, increasing accountability for schools and teachers. The stress of performance standards, in addition to implementing both academic and social-emotional curriculum, may be an additional unmeasured variable influencing the relationship with how well upper grades feel they are doing with implementation. Teachers may be stressed for time to meet academic requirements and feel they do not have time to complete social-emotional curriculum lessons or the time do them well.

As previously mentioned, grade level also interacted with principal support in relation to both implementation dosage and quality. For the average number of lessons completed, the effect of grade level was stronger in situations of low principal support, such that upper grade level teachers were implementing fewer lessons than lower grade level teachers in situations of low principal support. In situations of high principal support, there was no difference among grade level and average number of lessons taught. Additionally, grade level interacted with principal support and how well generalizing concepts in a similar pattern as average number of lessons taught. This is an important finding to note as it suggests that higher levels of principal support are more critical for teachers at higher grade levels. Those higher grade level teachers with higher levels of principal support were completing on average the same number of lessons and felt they were generalizing concepts well as teachers in lower grade levels, despite the additional pressures for academic lessons and standardized testing for upper grade levels (see Figures 10 and 11). Thus, the influence of principal leadership and support for SEL is especially critical in higher elementary grades.

A significant technical support x grade level interaction was also found with the average number of lessons taught. Lower grade level teachers were implementing more lessons than upper grade level teachers in situations of low perceived technical support. In situations of high technical support, there was no difference among grade level and the average number of lessons taught. This finding suggests that technical support is also more important for teachers at higher grade levels. Given the additional demands and accountability on higher grade level teachers, they may need higher levels of technical support than those at lower grade levels to demonstrate similar levels of implementation dosage.

Finally, grade level moderated the relationship between teaching efficacy and how well teachers felt they were teaching lessons, such that the effect of grade level was stronger in situations of high efficacy. While a main effect for efficacy was found, such that teachers with lower efficacy were implementing lessons with lower quality than teachers with higher efficacy, this effect must be interpreted in the context of the present interaction. Even though overall levels of quality were higher for all teachers with higher levels of efficacy, those in lower grades were implementing lessons with even higher quality than those in upper grade levels. This finding further supports the earlier ideas presented regarding teachers' time pressures at upper grade levels, and now in particular, those with higher levels of efficacy. Teachers in upper grade levels with higher teaching efficacy may feel less positive towards their implementation of social-emotional lessons possibly because they know they are implementing them quickly and less effectively than they would ideally be able to given their higher levels of effective teaching. Conversely, this finding also suggests that higher levels of teaching efficacy matter more for teachers in lower grade levels, as they implemented lessons with higher quality when they also had higher levels of teaching efficacy (see Figure 13). Taken together, these findings suggest principal and technical support as well as teacher efficacy play important roles in ensuring higher levels of implementation dosage and

quality across all grades, and when these supports or teacher efficacy are lacking, implementation dosage and quality differs depending on grade level.

Marital status, year trained in PATHS, and total years in teaching had fewer associations with burnout and implementation dosage and quality. Marital status only was found to have two significant interactions: one with principal support and burnout and one with work pressure and implementation quality. While these two findings may simply be spurious, it is also possible that the effects of marital status are stronger in situations of pressure or stress. First, a significant marital status x principal support interaction was found with teachers' burnout, Teachers who experience higher levels of principal support and were married reported lower levels of teacher burnout (see Figure 14). This may be due to an additive effect of social support in the workplace and the home and may lessen the likelihood of experiencing burnout, such as the stress and coping literature also suggests (Hanson & Sullivan, 2003; Kirmeyer & Dougherty, 1988; Lazarus, 1999).

In terms of work pressure, results revealed a significant work pressure x marital status interaction with implementation quality, specifically how well teachers felt they were generalizing concepts. Married teachers who experienced lower levels of work pressure felt they were generalizing concepts with higher levels of quality than did married teachers who experienced higher levels of work pressure (see Figure 15). Conversely, single teachers actually felt they implemented with better quality in situations with higher pressure. This finding, although it may be spurious, indicates that single teachers may need a higher level of work pressure to implement with better quality, while those who are married appear to need lower levels of work pressure. Under situations of high pressure, those with spousal or family members may have additional concerns outside the workplace or struggle to balance family issues with work issues, as previous research in work-family balance might suggest (Frone, 2001; Gryzywacz & Marks, 2004). Even though married teachers are also likely to experience additional social support from home, they may still

feel pressure to balance the amount of time or effort spent in the workplace versus that which they put into their home life. This attempt to balance roles, time, and energy resources may make it more difficult for married teachers in high pressure to extend concepts with higher quality throughout the day.

Additionally, the year teachers were trained in the PATHS curriculum was also related to implementation dosage: those with more years of PATHS experience completed more lessons and supplemental activities. Furthermore, an interaction between total years in teaching and technical support was found with the average number of supplemental activities completed, such that teachers who perceived lower technical support and who had been in teaching for fewer years implemented significantly fewer supplemental activities (see Figure 16). Taken together, it is likely that more familiarity and a higher level of comfort with the curriculum due to more experience with it also contribute these associations. Teachers who have implemented the curriculum for several years have simply had more practice with the lessons and concepts and time to figure out how to fit these activities into their daily schedule. As previous research suggests, teacher experience is an important factor in the implementation of a new curriculum, and therefore, new curriculum programs may be most accurately evaluated after teachers have reached a minimum level of experience with the curriculum (Gager & Elias, 1997; Elias et al., 2003).

Strengths and Limitations

The findings from this study have provided results extending previous research with implications for schools, teachers, students, and researchers. This study particularly emphasized how teachers' stressors, efficacy, and curriculum supports effect teachers' implementation of a new, non-traditional academic curriculum. Teachers are not often the focus of research, but rather a partner in research on students' academic and social development. While their role in student-focused research is critical, researchers also must take a closer look at teachers' work and

personal environments to better understand their role in the larger picture of successful student academic and social development.

The present study also extended previous research on burnout as it considered burnout as both a direct and moderating effect on teacher behavior. Additionally, this study extended research on efficacy as two distinct constructs and examined the possibility of how chronic stress from burnout might interact with supports, such as principal support. Regarding implementation quality, the present study also was able to tease apart the factors of both implementation dosage and quality along with "required" vs. "nonrequired" tasks.

One of the primary limitations of this research was its cross-sectional methodology. While longitudinal research is methodologically the gold standard, the present study was only able to obtain cross-sectional data which limits the ability to determine causality. Further, the measures in the present study were all self-report, which may result in single-reporter bias. This bias may inflate the significance of the relationships among the predictor and outcome variables, as respondents may have answered items generally all in the same way, without regard to what actual question they were responding to. For example, a person who, in general, has a negative level of emotionality may answer all items generally negatively regardless of the actual question asked. However, given the constructs of stressors, efficacy and supports are affected by self-perceptions, utilizing self-reports is still a valid way of assessing these constructs. Despite this, only utilizing self-report measures still has the aforementioned limitations, and future research should consider alternative ways of measuring these constructs, such as observer reports, in addition to self-report, in order to better estimate any biases that may be present in the self-reported data.

It is also important to acknowledge that the current study included one variable that asked teachers to report retrospectively. That is, for questions regarding technical support, teachers were asked about the school year that had ended about 4 months earlier. The retrospective nature of

this measure may result in bias due to memory recall issues. For the other variables, work pressure, burnout, efficacy, and principal support as well as implementation dosage and quality, teachers were asked to report concurrently; however, these assessments may have captured attitudes or perceptions over a longer period of time because some measures did not specify how long a time frame they were reporting on. It is also expected that some of the variables assessed are relatively stable across short periods of time, and thus responses would remain fairly similar. In the present study, teacher efficacy is likely to meet this assumption and remain relatively stable throughout a school year, while teacher burnout is less likely to meet this assumption as it is likely to be lower at the beginning of the school year and higher towards the end. This may, in part, explain the relatively low levels of burnout reported in this distressed school district. In sum, all of these factors further compound the issue of self-reports utilized in this study and limit confidence in the significance of the present findings.

It is also important to note that technical support was asked with regard to the previous school year because that was the last year of grant funding to provide technical support (i.e., training and consultation). However, principal support was asked with regard to the current year, as this was the first time point when principal support was able to be assessed. Therefore, the relationship of these supports to implementation dosage and quality may have been affected by the differences in the timeframe of the two measures of support. Principals may have lessened their support due to the end of the grant-period assessments, and teachers were no longer receiving technical support at the time they were reporting their implementation dosage and quality. Although teachers did report relatively high levels of implementation dosage and quality on average, it is possible they would have reported even higher levels if they had been asked these same items when concurrently receiving technical support.

Combining the three components of the MBI, as was done in the present research, may have also clouded important relationships between the various components of burnout and the variables of interest as these components have been shown, albeit inconsistently, to have different correlates and relationships with outcomes (Burke, Greenglass, & Schwartzer, 1996; Greenglass, Fiksenbaum, & Burke, 1994; Leiter & Durup, 1992). However, initial analyses utilizing the three separate components of burnout did not show differences by components. Also, the subscales in the Maslach Burnout Inventory may overlap in construct with teachers' feelings of efficacy. Although item-by-item correlations did not reveal significant correlations on many items between teacher burnout and efficacy, it is possible that teachers' feelings of emotional exhaustion or personal accomplishment may also overlap with teachers' responses of efficacy in the classroom as their emotional state or personal achievements may be reflected in their level of burnout on these subscales. Yet the goals of the present study were not to elaborate the notion of distinct features of burnout nor was there previous research to support hypotheses that would differ according to these components; therefore, this study simply utilized the broadest possible operationalization of the burnout construct to test for initial, exploratory associations among these variables.

With regard to sample size, the present study was approved by the school district but not required of teachers. However, teachers participated in this study with a high response rate of 85%, resulting in a moderately large sample size of 110. This is something to note given that researchers have previously experienced difficulties in obtaining data from schools and teachers. Finally, our findings are also limited in their generalizability and may apply only to other urban school districts.

Implications

The findings from this study have important implications for schools, teachers, and researchers, particularly in relation to the process of implementation. One of the primary goals of this study was to determine what factors played a role in obtaining high levels of implementation dosage and quality of an SEL curriculum. This study has provided many nuanced answers to questions in the fields of prevention and education research. Complexities in the relationships between teacher characteristics and implementation, such as those examined in the present study, have not been examined in previous research, even though the impact of teachers' burnout on students is more frequently becoming a focus of research (Byrne, 1999).

While several factors were associated with burnout and could have contributed to the implementation process, findings ultimately revealed that burnout had only one direct association with implementation dosage. While this association with dosage supports the idea that chronic stress can have an impact on the quantity of program delivery, the larger implications are found with the moderating role burnout played in the relationships between efficacy and implementation quality. Findings consistently indicated that for those teachers experiencing higher levels of burnout, their levels of teaching and classroom management efficacy mattered more in relation to their implementation quality. Those teachers who were burned out but had higher efficacy still implemented with higher quality, similar to teachers with low burnout and as opposed to their counterparts who had lower efficacy. Furthermore, grade level was also found to play a role with efficacy and implementation quality, suggesting that higher levels of efficacy were even more important for upper grade levels. Together, these findings indicate that lower levels of teaching and classroom management efficacy, especially in situations of higher burnout and in upper grade levels, can be detrimental to new curriculum implementation.

Researchers, schools, and teachers must all be made aware of the importance of strengthening teacher's sense of efficacy, especially in upper grade levels, and decreasing teachers' levels of burnout, as these factors may not only be associated with negative implementation of new curriculum but also may extend in their application to curricula that have been previously implemented. Previous research has strongly suggested that schools address teachers' stress before it reaches levels of burnout (Maslach & Leiter, 1999), and find ways to help teachers to become more effective in their teaching and classroom management strategies. This may be possible by offering employee assistance or wellbeing programs as found in many corporate occupations. Such programs might provide teachers with the opportunity to improve their time management skills, nutritional education, or stress management techniques with classes in meditation or yoga.

When developing and evaluating the implementation of new curriculum, researchers and program developers must consider teacher characteristics, such as efficacy and burnout, and pay particular attention to grade level and other demographic factors that may play a role in program fidelity, and ultimately, program outcomes. These findings also suggest it is critical to distinguish the various aspects of implementation dosage and quality, such as what is required versus recommended, as well as consider comparing the implementation of two new curricula: one traditional academic (e.g., reading, math) and one non-traditional academic (e.g., SEL), to look for differences. As some of the findings here imply, teachers may gravitate towards implementing traditional academic lessons more frequently and with higher quality than non-traditional academic lessons, despite the fact that research is beginning to support the links between non-traditional academic curriculum (e.g., SEL programs) and students' traditional academic outcomes (Zins, Bloodworth, Weissberg, & Wang, 2004).

Finally, schools and researchers must be made aware of the importance of both principal and technical support for program implementation. The findings from the present study revealed that these two supports have direct associations with implementation dosage and quality and do not appear to vary according to teachers' levels of efficacy or burnout. Also, it is important to consider that principal support was associated with higher implementation quality, while technical support was associated with higher levels of both dosage and quality. Furthermore, these supports were again most important for teachers in upper grade levels. As previously discussed, the role of the principal and coaches in the implementation process are critical for successful, high quality implementation (Fixen et al., 2005; Klein & Knight, 2005). Therefore, program developers and researchers need to carefully consider how to integrate administrators into the planning and training processes. Principals must understand the goals of a new program and how it may address the needs of a particular school, in order to know how it may improve upon services already provided. When principals have participated in a thorough pre-planning process and have a better understanding of the program model and goals, they can provide more information to teachers to promote buy-in as well as provide teachers with better curriculum support.

Principals must also be made aware of their critical role in the implementation of new curriculum as well as their differential impact on teachers in upper grades, and future research should not omit principal support from any evaluation of implementation. It is clear from research across multiple literatures that without appropriate leadership and support for a new program, it is not likely to be implemented well or produce positive program outcomes (Klein & Knight, 2005; Kam et. al., 2003; Rohrbach et. al., 1993; 2006). However, principals need training and support as well in order to become more effective in gaining teacher buy-in and providing curriculum support. Program developers may want to create separate versions of the key curriculum components for principals and require principals to attend some form of program training in order to enable them to

better support teachers in the implementation process. Furthermore, academic curriculum may also experience better implementation quality if principals find effective ways to support their teachers in those areas.

Together, these findings suggest that schools and researchers should provide the best technical support possible for upper grade level teachers when implementing a new curriculum. While technical support may be limited due to organizational or financial constraints, researchers and program developers should reevaluate how and what kind of training and other supports are offered, in order to also take into consideration the grade level and the experience of the teachers being trained. Furthermore, school districts should be made aware of the critical importance of technical support for the successful implementation of a new curriculum, such that they might set aside or apply for additional funds and/or resources to provide continuous peer-led support when program-directed support is no longer available. If programs are implemented successfully, they are more likely to be sustained (Elliott & Mihalic, 2004; Olds, 2002), and funds will have been used most effectively.

Ultimately, schools must pay more attention to the "whole" teacher in order to attain their most desired, and now required, outcomes of improved academic achievement. No longer can teachers' individual wellbeing or personal characteristics be ignored, as these factors are also contributing to the issues surrounding schools and their environment, safety, and achievement. If we want to improve student achievement, we not only have to improve teacher quality as mandated by NCLB, but we also have to acknowledge and address all of the factors surrounding and contributing to student learning, and teachers are one of the primary and most prevalent resources to invest in.

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Appendix A. Tables

Table 1. Sample Demographics

Variable	Category	N	%
Gender (N=109)	Female	100	92%
	Male	9	8%
Ethnicity (N=109)	White	94	86%
	Black/AA	10	10%
	Asian	2	2%
	Multiracial/ Other	3	3%
Grade Level (N=110)	K	18	16%
	1	20	18%
	2	17	15%
	3	19	17%
	4	9	8%
	5	16	15%
	9 (mixed)	11	10%
Marital Status (N=105)	1=single	30	28%
	2=long-term	3	3%
	3=nonmarried	1	1%
	4=married	52	50%
	5=divorced	17	16%
	6=widowed	2	2%

Variable	N	Mean	Median	SD
Age	106	40.73	39.50	12.04
Yrs in District	110	14.68	13.00	11.77
Total Yrs Teaching	109	15.96	15.00	11.43
Overall Health	109	4.18	4.00	0.72

Table 2. Descriptive Analyses for Substantive Variables

Variable	N	Mean	Median	SD	Range
1) Work Pressure	106	3.53	3.61	0.43	1-4
2) Teaching Efficacy	101	4.42	4.44	0.58	1-6
3) Classroom Management Efficacy	101	4.64	4.67	0.62	1-6
4) Principal Support	104	2.62	3.00	0.87	1-4
5) Technical Support	64*	3.73	4.00	0.87	1-5
6) Teacher Burnout	108	2.68	2.66	0.80	1-7
7) Implementation Dosage					
1) Average number of lessons	109	3.63	4.00	0.94	1-5
2) Average number of supplementals	109	3.06	3.00	1.02	1-5
8) Implementation Quality					
1) How well teachers felt they were implementing lessons	108	3.53	4.00	0.99	1-5
2) How well teachers felt they were generalizing concepts	107	3.72	4.00	0.97	1-5

* The sample for the technical support variable is at 64 due to the sample selection of only those respondents who consented to technical support in the previous school year. Other variations in sample size are due only to omissions of respondents who did not have data on that measure.

Table 3. Measurement Table of Alphas

Measure	Number of Items	Alpha
1) Work Pressure	9	0.77
2) Teaching Efficacy	9	0.64
3) Classroom Management Efficacy	6	0.74
4) Technical Support	2	0.55
5) Teacher Burnout	22	0.86

Table 4. Confirmatory Factor Analyses Model Comparisons

Model	X^2	*df*	*p*	CFI	RMSEA
1) Work Pressure					
a. 1 factor	69.9	27	<.000	0.86	0.11
b. 2 factor	120.84	27	<.000	0.70	0.18
c. 2 factor correlated	65.8	26	<.000	0.871	0.12
2) Teacher Efficacy					
a. 2 factor correlated	274.9	89	<.000	0.69	0.14
b. 2 factor	303.8	90	<.000	0.64	0.15
c. 1 factor	280.2	90	<.000	0.68	0.14
3) Teacher Burnout					
a. 3 factor, 2 correlated pairs	383.3	207	<.000	0.80	0.09
b. 3 factor, all 3 correlated	390.1	206	<.000	0.80	0.08
c. 3 factor, uncorrelated	427.4	209	<.000	0.75	0.10
d. 2 factor, correlated	403.3	208	<.000	0.78	0.09
e. 2 factor, uncorrelated	407.5	209	<.000	0.77	0.09
f. 1 factor	578.5	209	<.000	0.58	0.13

Table 5. Work Pressure Estimates for Model 1a. from Table 4

Factor	Unstandardized Estimate	Standard Error	p-value
Work Pressure	0.07	0.05	0.18

Work Pressure Items	Standardized Estimate	p-value
Item 1	0.75	<.01
Item 2	0.77	<.01
Item 3	0.79	<.01
Item 4	0.28	
Item 5	0.59	<.01
Item 6	0.46	<.05
Item 7	0.53	<.01
Item 8	0.70	<.01
Item 9	0.49	<.01

Table 6. Teacher Efficacy Estimates for Model 2a. from Table 4

Factor	Unstandardized Estimate	Standard Error	p-value
Teaching Efficacy	0.34	0.17	<.05
Classroom Management Efficacy	0.49	0.10	<.001
Correlated Factors			
TE & CME	R = 0.89		
Teaching Efficacy Items	**Standardized Estimate**		**p-value**
Item 1	0.40		
Item 2	-0.09		0.42
Item 3	0.65		<.001
Item 4	0.51		<.001
Item 5	-0.10		0.35
Item 8	0.68		<.001
Item 10	0.54		<.001
Item 13	-0.13		0.23
Item 15	0.62		<.001
Classroom Management Efficacy Items			
Item 6	0.65		<.001
Item 7	-0.15		.154
Item 9	0.83		<.001
Item 11	0.86		<.001
Item 12	0.81		
Item 14	0.54		<.001

Table 7. Teacher Burnout Estimates for Model 3a from Table 4

Factor	Unstandardized Estimate	Standard Error	p-value
Emotional Exhaustion	1.19	0.33	<.001
Personal Accomplishment	0.76	0.29	<.01
Depersonalization	0.11	0.12	0.35
Correlated Factors			
EE & DP	R = 0.61		
EE & PA	R = 0.12		
Items	**Standardized Estimate**		**p-value**
Emotional Exhaustion Items			
Item 1	0.69		<.001
Item 2	0.72		<.001
Item 3	0.71		<.001
Item 6	0.66		<.001
Item 8	0.79		<.001
Item 13	0.75		<.001
Item 14	0.65		<.001
Item 16	0.66		
Item 20	0.77		<.001
Personal Accomplishment Items			
Item 4	0.54		<.001
Item 5	0.57		<.001
Item 7	0.56		<.001
Item 9	0.68		<.001
Item 12	0.53		
Item 15	0.37		<.001
Item 17	0.66		<.001
Item 18	0.51		<.001
Item 19	0.68		<.001
Item 21	0.42		<.001
Depersonalization Items			
Item 10	0.50		<.10
Item 11	0.97		<.10
Item 22	0.19		

Table 8. Correlations among demographic and predictor variables, N = 110

	Work Pressure	Teacher Efficacy	Classroom Mgmt Efficacy	Principal Support	Technical Support
1) Age	0.33**	-0.04	0.03	0.07	0.21*
2) Marital Status	0.11	0.02	0.07	0.01	0.04
3) Health Status	0.04	0.06	-0.02	0.02	-0.01
4) Grade Level	-0.17	0.04	0.04	0.20*	-0.01
5) Total Years Teaching	0.25**	-0.07	0.06	0.03	0.15
6) Year Trained	-0.16	-0.16	-0.13	0.08	0.13

*$p < .05$; **$p < .01$

Table 9. Correlations among demographic and outcome variables, N = 110

	Burnout	Avg # of Lessons	Avg # of Supplementals	How well... teaching lessons	How well... generalizing concepts
1) Age	0.17	0.22*	0.21*	0.11	0.12
2) Marital Status	-0.07	0.07	0.04	0.16	0.13
3) Health Status	-0.21*	0.07	-0.08	-0.09	-0.11
4) Grade level	0.06	-0.35**	-0.13	-0.27**	-0.28**
5) Total Years Teaching	0.16	0.15	0.15	0.08	0.12
6) Year Trained	0.05	-0.09	-0.24*	-0.05	-0.12

*$p < .05$; **$p < .01$

Table 10. Correlations among predictor and outcome variables, N = 110

	1	2	3	4	5	6	7	8	9	10
1) Work Pressure	1.00	-0.12	-0.06	0.21*	-0.10	0.05	0.24**	0.13	0.08	0.12
2) Teacher Efficacy		1.00	0.46**	-0.39**	0.06	0.17	0.17	0.20*	0.20*	0.22*
3) Mgmt Efficacy			1.00	-0.25**	-0.08	0.11	0.04	0.15	0.12	0.21*
4) Burnout				1.00	-0.15	-0.25*	-0.13	-0.23*	-0.18	-0.23*
5) Principal Support					1.00	0.45**	0.12	0.06	0.24*	0.23*
6) Technical Support						1.00	0.29**	0.24*	0.23*	0.32**
7) Avg # of Lessons							1.00	0.50**	0.52**	0.51**
8) Avg # of Supplementals								1.00	0.47**	0.50**
9) How well…Lessons									1.00	0.73**
10) How well…Generalizing										1.00

*$p < .05$; **$p < .01$

Table 11. The Relationship of Teacher Stress, Efficacy, and Support to Burnout

DV: Burnout	Step 1: Control Variables				Step 2: Predictors (ME) w/controls			
	β	B	SE (B)	p	β	B	SE (B)	p
Model 1: Work Pressure								
Age	0.16	0.01	0.01	0.27	0.06	0.00	0.01	0.59
Health	-0.13	-0.19	0.11	0.08	-0.15	-0.15	0.11	0.16
Work Pressure					0.27*	0.41	0.19	<.05
F Value for model			2.41	0.10			3.03*	<.05
R2			0.05				0.09*	
Model 2: Teaching Efficacy	β	B	SE (B)	p	β	B	SE (B)	p
Age	0.18	0.01	0.01	0.19	0.14	0.01	0.01	0.16
Health	-0.11	-0.18	0.11	0.10	-0.07	-0.09	0.10	0.38
Teaching Efficacy					-0.39**	-0.57	0.13	<.001
F Value for model			2.48	0.09			8.68**	<.001
R2			0.05				0.22**	
Model 3: Classroom Management Efficacy	β	B	SE (B)	p	β	B	SE (B)	p
Age	0.18	0.01	0.01	0.19	0.18	0.01	0.01	0.13
Health	-0.12	-0.19	0.11	0.08	-0.12	-0.13	0.11	0.23
Classroom Management Efficacy					-0.19**	-0.39	0.13	<.01
F Value for model			2.77	0.07			5.05**	<.01
R2			0.05				0.14**	
Model 4: Principal Support	β	B	SE (B)	p	β	B	SE (B)	p
Age	0.16	0.01	0.01	0.19	0.17	0.01	0.01	0.11
Health	-0.11	-0.19	0.11	0.08	-0.12	-0.13	0.11	0.24
Principal Support					-0.14	-0.11	0.09	0.22
F Value for model			2.77	0.07			1.93	0.13
R2			0.05				0.06	

Model 5: Technical Support	β	B	SE (B)	p	β	B	SE (B)	p
Age	0.01	0.01	0.01	0.19	0.05	0.01	0.01	0.50
Health	-0.20	-0.19	0.11	0.08	-0.20	-0.16	0.13	0.24
Technical Support					-0.10	-0.12	0.13	0.33
F Value for model			2.77	0.07			0.87	0.46
R2			0.05				0.04	

Table 12. The Relationship of Burnout to Implementation Dosage and Quality

IV: Burnout	Step 1: Control Variables				Step 2: Predictors (ME) w/controls			
Model 1: Average Number of Lessons (DV)	β	B	SE (B)	p	β	B	SE (B)	p
Age	0.21*	0.01	0.01	<.05	0.23*	0.02	0.01	<.05
Grade	-0.34**	-0.13	0.03	<.001	-0.33**	-0.13	0.03	<.01
Teacher Burnout					-0.11	-0.13	0.11	0.26
F Value for model			9.85**	<.001			6.82**	<.001
R2			0.17				0.17	
Model 2: Average Number of Supplementals (DV)	β	B	SE (B)	p	β	B	SE (B)	p
Age	0.27**	0.03	0.01	<.01	0.34**	0.02	0.01	<.01
Year Trained	-0.14	-0.13	0.14	0.38	-0.11	-0.04	0.14	0.31
Teacher Burnout					-0.28*	-0.30	0.12	<.05
F Value for model			6.52**	<.01			4.14**	<.01
R2			0.13				0.11	
Model 3: How Well Teachers Feel They are Teaching Lessons	β	B	SE (B)	p	β	B	SE (B)	p
Age	0.11	0.01	0.01	0.34	0.15	0.01	0.01	0.12
Grade	-0.26**	-0.10	0.14	<.01	-0.25**	-0.09	0.04	<.01
Teacher Burnout					-0.21*	-0.26	0.12	<.05
F Value for model			4.03*	<.05			4.81*	<.05
R2			0.09				0.13	
Model 4: How Well Teachers Feel They are Generalizing Concepts	β	B	SE (B)	p	β	B	SE (B)	p
Age	0.11	0.01	0.01	0.26	0.14	0.01	0.01	0.13
Grade	0.28**	-0.10	0.04	<.01	-0.27**	-0.10	0.04	<.01
Teacher Burnout					-0.15	-0.18	0.12	0.11
F Value for model			4.83**	<.01			4.43**	<.01
R2			0.09				0.12	

Table 13. The Relationship of Teacher Stress, Efficacy, and Support to Average Number of Lessons Taught

DV: Average Number of Lessons	Step 1: Control Variables				Step 2: Direct Effects w/Controls				Step 3: Interactions			
Model 1: Work Pressure	β	B	SE (B)	p	β	B	SE (B)	p	β	B	SE (B)	p
Age	0.20*	0.02	0.01	<.05	0.18	0.01	0.01	0.08	0.19	0.01	0.01	0.07
Grade	-0.34**	-0.13	0.03	<.01	-0.33**	-0.12	0.03	<.01	-0.32**	-0.12	0.03	<.01
Work Pressure					0.09	0.25	0.22	0.21	-0.11	-0.14	0.41	.0.72
Teacher Burnout									0.16	0.16	0.26	0.54
Pressure x Burnout									-0.34	-0.32	0.24	0.19
F Value for model			10.06**	<.001			7.17**	<.001			5.03**	<.001
R2			0.17				0.19				0.22	
Model 2: Teaching Efficacy	β	B	SE (B)	p	β	B	SE (B)	p	B	B	SE (B)	p
Age	0.20	0.01	0.01	<.05	0.22*	0.01	0.01	<.05	0.24*	0.02	0.01	<.05
Grade	-0.33	-0.13	0.33	<.001	-0.32**	-0.12	0.03	<.001	-0.31**	-0.12	0.03	<.001
Teaching Efficacy					0.18	0.22	0.14	0.12	0.46	0.64	0.35	0.07
Teacher Burnout									-0.28	-0.30	0.21	0.16
TE x Burnout									0.47	0.29	0.20	0.16
F Value for model			9.85**	<.001			7.47**	<.001			4.95**	<.001
R2			0.17				0.19				0.21	
Model 3: Classroom Management Efficacy	β	B	SE (B)	p	β	B	SE (B)	p	β	B	SE (B)	p
Age	0.19*	0.02	0.01	<.05	0.19*	0.02	0.01	<.05	0.22*	0.02	0.01	<.05
Grade	-0.33**	-0.13	0.03	<.001	-0.33**	-0.13	0.03	<.001	-0.32**	-0.13	0.03	<.001
Classroom Management Efficacy					-0.02	0.01	0.13	0.92	-0.04	0.02	0.29	0.94
Teacher Burnout									-0.13	-0.16	0.22	0.45
CME x Burnout									-0.01	0.03	0.17	0.86
F Value for model			9.85**	<.001			6.32**	<.001			4.02**	<.01
R2			0.17				0.16				0.17*	

Model 4: Principal Support	β	B	SE (B)	p	β	B	SE (B)	p	β	B	SE (B)	p
Age	0.22*	0.02	0.01	<.05	0.21*	0.01	0.01	<.05	0.21*	0.02	0.01	<.05
Grade	-0.30**	-0.11	0.03	<.01	-0.33**	-0.12	0.03	<.001	-0.31**	-0.11	0.03	<.01
Principal Support					0.15	0.10	0.10	0.30	0.34	0.25	0.20	0.22
Teacher Burnout									0.04	0.03	0.14	0.83
PS x Burnout									0.24	0.12	0.14	0.39
F Value for model			8.35**	<.001			5.93**	<.001			3.68**	<.01
R2			0.15				0.06	0.16			0.17	

Model 5: Technical Support	β	B	SE (B)	p	β	B	SE (B)	p	β	B	SE (B)	p
Age	0.24	0.01	0.01	0.08	0.06	0.00	0.01	0.77	0.05	0.01	0.01	0.80
Grade	-0.26*	-0.10	0.04	<.05	-0.25*	-0.09*	0.04	<.05	-0.24*	-0.08	0.04	<.05
Technical Support					0.43**	0.46**	0.13	<.001	0.56*	0.53	0.26	<.05
Teacher Burnout									-0.10	-0.06	0.15	0.68
TS x Burnout									0.15	0.06	0.16	0.72
F Value for model			4.16	<.05			7.61**	<.001			4.47**	<.01**
R2			0.13				0.29**				0.29	

Table 14. The Relationship of Teacher Stress, Efficacy, and Support to Average Number of Supplemental Activities

DV: Average Number of Supplementals	Step 1: Control Variables				Step 2: Predictors (ME) w/Controls				Step 3: Interactions			
	β	B	SE (B)	p	β	B	SE (B)	p	β	B	SE (B)	p
Model 1: Work Pressure												
Age	0.37**	0.03	0.01	<.01	0.34**	0.02	0.01	<.01	0.39**	0.03	0.01	<.001
Year Trained	-0.07	-0.12	0.14	0.39	-0.07	-0.12	0.14	0.39	-0.02	-0.05	0.14	0.68
Work Pressure					-0.01	0.01	0.24	0.98	0.11	0.28	0.48	0.56
Teacher Burnout									-0.38	-0.47	0.30	0.12
Pressure x Burnout										0.05	0.27	0.86
F Value for model			6.59**	<.01			4.34**	<.01			4.99**	<.001
R2			0.14				0.14				0.24	
Model 2: Teaching Efficacy	β	B	SE (B)	p	β	B	SE (B)	p	β	B	SE (B)	p
Age	0.32**	0.03	0.01	<.01	0.35**	0.02	0.01	<.001	0.40**	0.03	0.01	<.001
Year Trained	-0.08	-0.14	0.14	0.34	-0.04	-0.08	0.14	0.58	-0.03	-0.06	0.14	0.64
Teaching Efficacy					0.19*	0.35	0.18	<.05	0.08	0.19	0.38	0.61
Teacher Burnout									-0.32	-0.41	0.24	0.09
TE x Burnout									0.02	0.03	0.23	0.88
F Value for model			5.83**	<.01			5.28**	<.01			4.99**	<.001
R2			0.12				0.16				0.23	
Model 3: Classroom Management Efficacy	β	B	SE (B)	p	β	B	SE (B)	p	β	B	SE (B)	p
Age	0.31**	0.03	0.01	<.01	0.31**	0.02	0.01	<.01	0.41*8	0.03	0.01	<.001
Year Trained	-0.08	-0.13	0.14	0.36	-0.07	-0.12	0.14	0.41	-0.02	-0.06	0.14	0.65
Classroom Management Efficacy					0.05	-0.08	0.15	0.58	-0.30	-0.41	0.31	0.19
Teacher Burnout									-0.10	-0.13	0.23	0.56
CME x Burnout									-0.44	-0.26	0.18	0.15
F Value for model			5.81**	<.01			3.91**	<.01			5.39**	<.001
R2			0.12				0.12				0.24	

Model 4: Principal Support	β	B	SE (B)	p	β	B	SE (B)	p	β	B	SE (B)	p
Age	0.34**	0.03	0.01	<.01	0.33**	0.03	0.01	<.001	0.30**	0.03	0.01	<.001
Year Trained	-0.05	-0.09	0.14	0.52	-0.07	-0.11	0.14	0.43	0.01	-0.06	0.14	0.67
Principal Support					0.13	0.15	0.11	0.16	0.23	0.12	0.21	0.58
Teacher Burnout									-0.29*	-0.35	0.15	<.05
PS x Burnout									-0.08	0.01	0.15	0.95
F Value for model			5.97**	<.01			4.69**	<.001			4.75**	<.001
R2			0.12				0.15				0.23	

Model 5: Technical Support	β	B	SE (B)	p	β	B	SE (B)	p	β	B	SE (B)	p
Age	0.41**	0.03	0.01	<.01	0.25	0.02	0.01	0.10	0.30	0.02	0.01	0.14
Year Trained	0.01	-0.04	0.17	0.82	-0.04	-0.07	0.16	0.65	0.01	0.01	0.05	0.87
Technical Support					0.34**	0.39	0.15	<.01	0.23	0.19	0.29	0.50
Teacher Burnout									-0.29*	-0.37	0.16	<.05
TS x Burnout									-0.08	-0.10	0.17	0.58
F Value for model			4.77**	<.05			6.05**	<.01			4.13**	<.01
R2			0.16				0.26				0.27	

Table 15. The Relationship of Teacher Stress, Efficacy, and Support to How Well Teachers Feel They are Implementing the PATHS curriculum

DV: Implementation Quality of Lessons	Step 1: Control Variables				Step 2: Predictors (ME) w/Controls				Step 3: Interactions			
Model 1: Work Pressure	β	B	SE (B)	p	β	B	SE (B)	p	β	B	SE (B)	p
Age	0.12	0.01	0.01	0.31	0.16	0.01	0.01	0.20	0.18	0.01	0.01	0.19
Grade	0.20**	-0.10	0.04	<.001	-0.21**	-0.10	0.04	<.01	-0.19**	-0.10	0.04	<.01
Work Pressure					-0.12	0.08	0.24	0.84	-0.62*	-0.99	0.43	<.05
Teacher Burnout									0.41	0.39	0.27	0.15
Pressure x Burnout									-0.81**	-0.72	0.25	<.01
F Value for model			4.51*	<.05			3.01**	<.05			4.92**	<.001
R2			0.09				0.09				0.21**	
Model 2: Teaching Efficacy	β	B	SE (B)	p	β	B	SE (B)	p	β	B	SE (B)	p
Age	0.12	0.01	0.01	0.31	0.14	0.01	0.01	0.24	0.21	0.01	0.01	0.07
Grade	-0.20**	-0.10	0.04	<.01	-0.20**	-0.10	0.04	<.01	-0.14*	-0.08	0.04	<.05
Teaching Efficacy					0.11	0.27	0.17	0.11	0.50**	0.99	0.35	<.01
Teacher Burnout									-0.72**	-0.80	0.23	<.001
TE x Burnout									0.82**	0.61	0.21	<.01
F Value for model			4.65**	<.01			4.01**	<.01			4.99**	<.001
R2			0.09				0.11				0.21**	
Model 3: Classroom Management Efficacy	B	B	SE (B)	p	β	B	SE (B)	p	β	B	SE (B)	p
Age	0.11	0.01	0.01	0.36	0.11	0.01	0.01	0.36	0.16	0.01	0.01	0.18
Grade	-0.20**	-0.10	0.04	<.01	-0.20**	-0.10	0.04	<.01	-0.19**	-0.10	0.03	<.01
Classroom Management Efficacy					0.01	0.14	0.14	0.30	0.36**	0.76	0.29	<.01
Teacher Burnout									-0.63*	-0.77	0.22	<.001
CME x Burnout									0.60**	0.45	0.17	<.01
F Value for model			4.50*	<.05			3.36*	<.05			4.77**	<.001
R2			0.08				0.14				0.20**	

Model 4: Principal Support	β	B	SE (B)	p	β	B	SE (B)	p	β	B	SE (B)	p
Age	0.14	0.01	0.01	0.28	0.13	0.01	0.01	0.20	0.15	0.01	0.01	0.22
Grade	-0.17*	-0.09	0.04	<.05	-0.24**	-0.11	0.04	<.01	-0.20**	-0.10	0.04	<.01
Principal Support					0.31*	0.24	0.11	<.05	0.49*	0.44	0.21	<.05
Teacher Burnout									-0.12	0.13	0.14	0.38
PS x Burnout									0.26	0.16	0.15	0.26
F Value for model			3.88*	<.05			4.51**	<.01			3.88**	<.01
R2			0.08				0.16				0.18	

Model 5: Technical Support	β	B	SE (B)	p	β	B	SE (B)	p	β	B	SE (B)	p
Age	0.20	0.01	0.01	0.17	0.01	0.01	0.01	0.89	0.00	0.01	0.01	0.89
Grade	0.30**	-0.12	0.05	<.01	-0.29**	-0.11	0.04	<.01	-0.26*	-0.10	0.04	<.01
Technical Support					0.47**	0.49	0.13	<.01	0.74**	0.54	0.24	<.05
Teacher Burnout									-0.46	-0.45	0.13	<.01
TS x Burnout									0.34	0.08	0.15	0.59
F Value for model			4.75*	<.05			8.63**	<.01			8.46**	<.001
R2			0.14				0.31					

Table 16. The Relationship of Teacher Stress, Efficacy, and Support to How Well Teachers Feel They are Generalizing Concepts

DV: Implementation Quality of Generalizing Concepts	Step 1: Control Variables				Step 2: Predictors (ME) w/Controls				Step 3: Interactions			
	β	B	SE (B)	p	β	B	SE (B)	p	β	B	SE (B)	p
Model 1: Work Pressure												
Age	0.12	0.01	0.01	0.22	0.15	0.01	0.01	0.34	0.16	0.01	0.01	0.20
Grade	-0.23	-0.10**	0.04	<.01	-0.23**	-0.13	0.04	<.01	-0.22**	-0.10	0.04	<.01
Work Pressure					-0.07	0.12	0.25	0.62	-0.29	-0.32	0.44	0.47
Teacher Burnout									0.15	0.07	0.27	0.81
Pressure x Burnout									-0.38	-0.29	0.26	0.27
F Value for model			4.92**	<.01			4.37*	<.01			2.80*	<.05
R2			0.09*				0.19				0.13	
Model 2: Teaching Efficacy	β	B	SE (B)	p	β	B	SE (B)	p	β	B	SE (B)	p
Age	0.09	0.01	0.01	0.38	0.10	0.01	0.01	0.30	0.16	0.01	0.01	0.13
Grade	-0.22**	-0.10	0.04	<.01	-0.22**	-0.10	0.04	<.01	-0.17*	-0.08	0.04	<.05
Teaching Efficacy					0.10	0.27	0.16	0.10	0.51**	0.97	0.35	<.01
Teacher Burnout									-0.62**	-0.67	0.23	<.01
TE x Burnout									0.80**	0.56	0.21	<.01
F Value for model			4.49*	<.05			4.01**	<.01			4.31	<.01
R2			0.09				0.11				0.19	
Model 3: Classroom Management Efficacy	β	B	SE (B)	p	β	B	SE (B)	p	β	B	SE (B)	p
Age	0.34	0.01	0.01	0.32	0.10	0.01	0.01	0.20	0.13	0.01	0.21	0.21
Grade	-0.22**	-0.10	0.04	<.01	-0.23**	-0.10	0.04	<.01	-0.21**	-0.10	0.04	<.01
Classroom Management Efficacy					0.12*	0.26	0.13	<.05	0.18	0.48	0.29	0.11
Teacher Burnout									-0.26	-0.35	0.22	0.11
CME x Burnout									0.14	0.17	0.17	0.33
F Value for model			4.72**	<.01			4.60**	<.01			3.40**	<.01
R2			0.09				0.13				0.15	

Model 4: Principal Support	β	B	SE (B)	p	β	B	SE (B)	p	β	B	SE (B)	p
Age	0.14	0.01	0.01	0.26	0.12	0.01	0.01	0.32	0.14	0.01	0.01	0.26
Grade	-0.20*	-0.09	0.04	<.05	-0.28**	-0.11	0.04	<.01	-0.26**	-0.10	0.04	<.01
Principal Support					0.36**	0.29	0.10	<.01	0.45	0.33	0.20	0.10
Teacher Burnout									-0.05	-0.10	0.15	0.53
PS x Burnout									0.12	0.05	0.15	0.72
F Value for model			3.83*	<.05			5.39**	<.01			3.42**	<.01
R2			0.08				0.15				0.16	

Model 5: Technical Support	β	B	SE (B)	p	β	B	SE (B)	p	B	B	SE (B)	p
Age	0.13	0.01	0.01	0.30	-0.05	-0.01	0.01	0.71	-0.08	-0.00	0.01	0.68
Grade	-0.40**	-0.13	0.04	<.01	-0.40**	-0.12	0.04	<.01	0.38**	-0.12	0.04	<.01
Technical Support					0.41**	0.38	0.12	<.01	0.83*	0.59	0.23	<.05
Teacher Burnout									0.27	-0.24	0.13	0.07
TS x Burnout									0.49	0.17	0.14	0.23
F Value for model			6.31**	<.01			6.87**	<.001			5.83**	<.001
R2			0.18				0.33**				0.35	

Appendix B. Figures

Figure 1. Ecological Model of School-Teacher Interactions

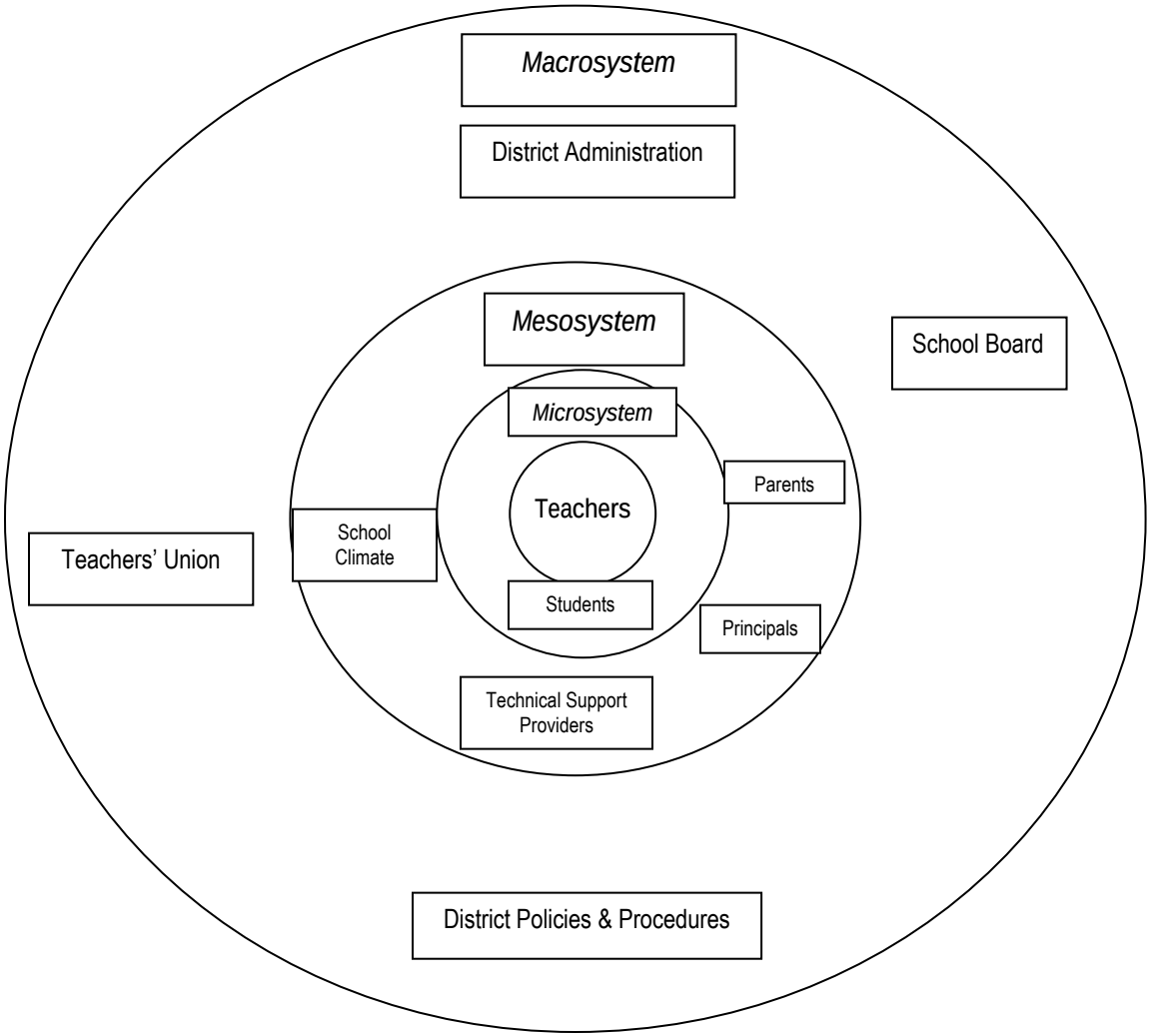


Figure 2. Model of the Relationship Between School and Teacher Characteristics and Teacher Burnout*

* Due to cross-sectional nature of study, directionality/causality cannot be established in this model

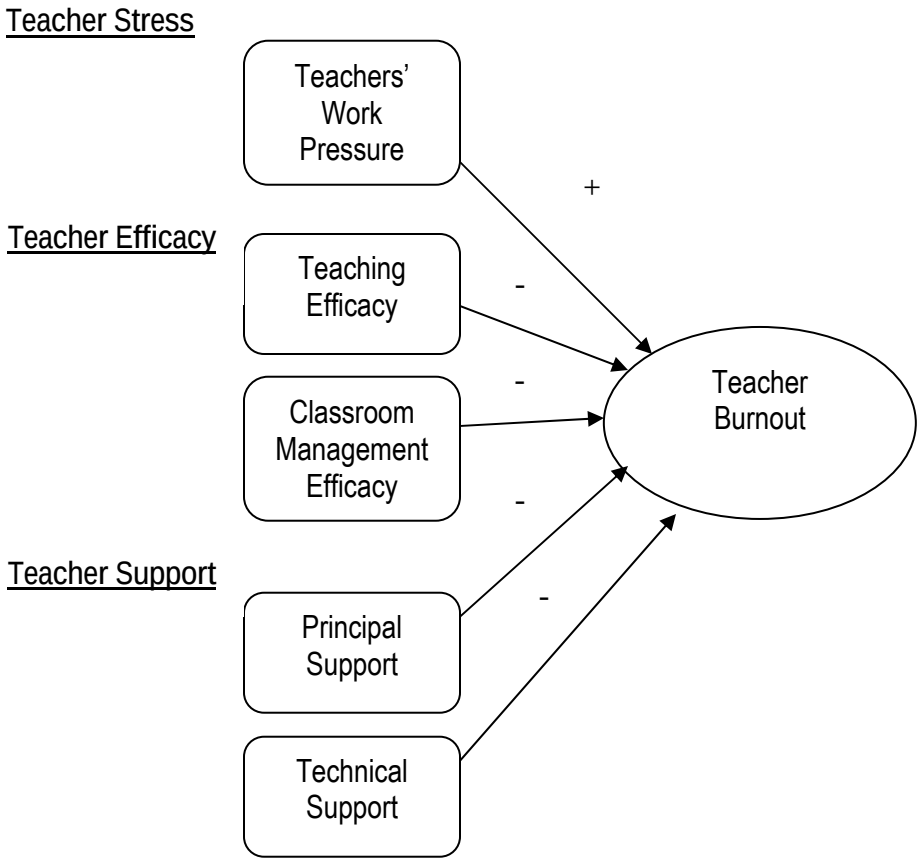


Figure 3. Model of the Relationship between School and Teacher Characteristics and Implementation Dosage and Quality*

* Due to cross-sectional nature of study, directionality/causality cannot be established in this model

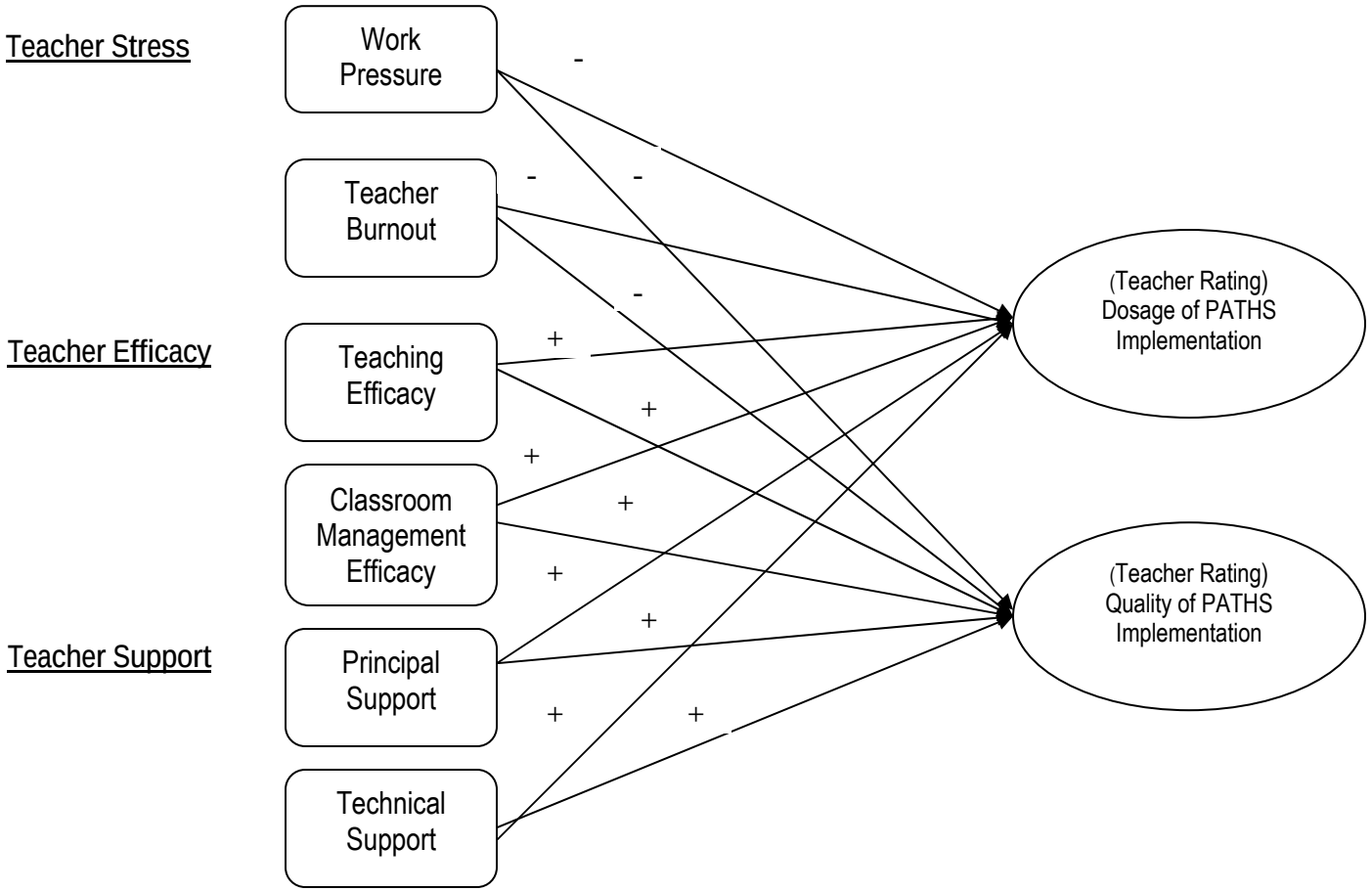


Figure 4. Model of Moderating Effects of Teachers' Burnout on the Relationship Between Work Pressure, Efficacy, Support, and Implementation Dosage and Quality*

* Due to cross-sectional nature of study, directionality/causality cannot be established in this model

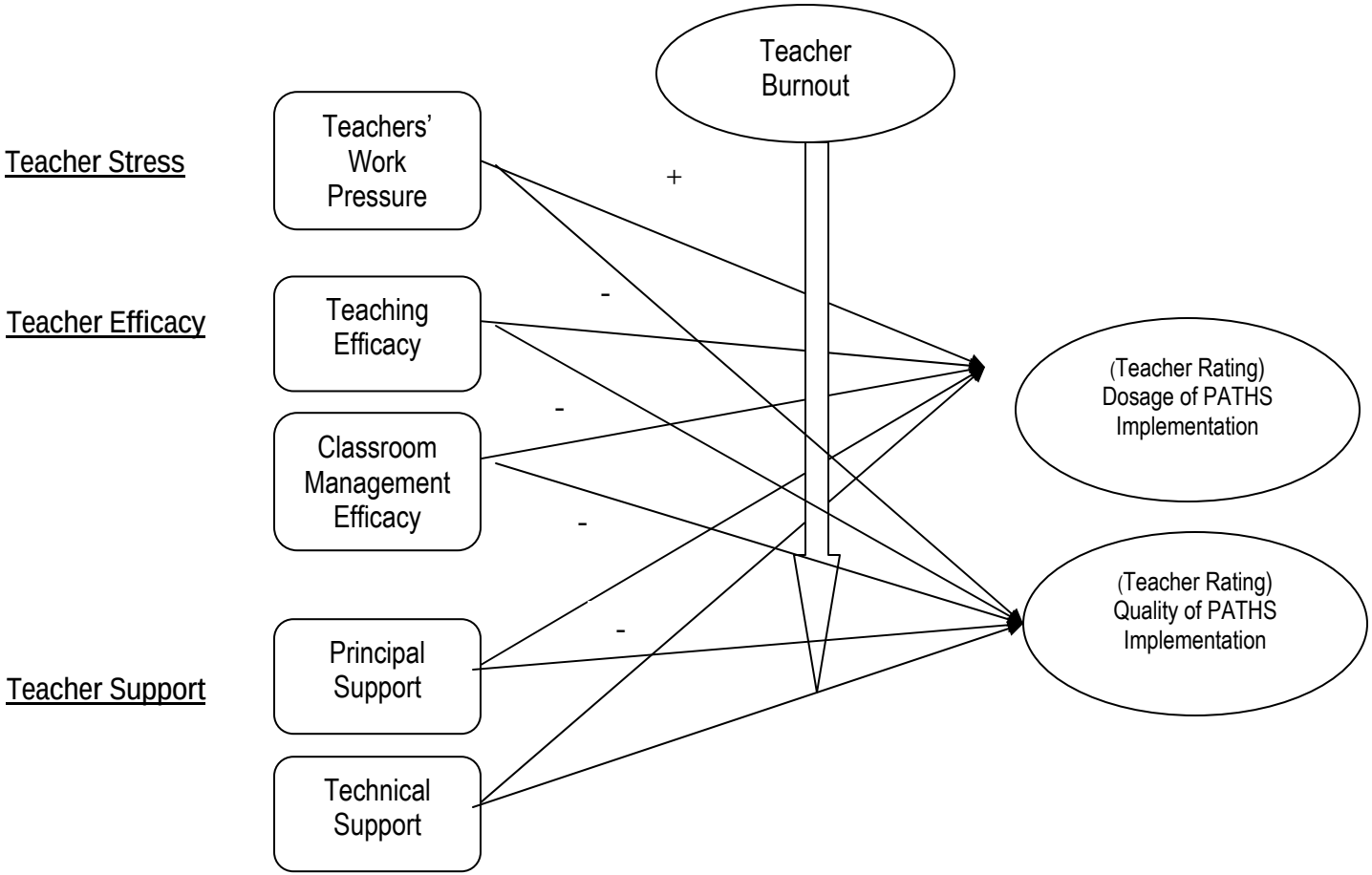


Figure 5. Work Pressure x Burnout Interaction Predicting Implementation Quality

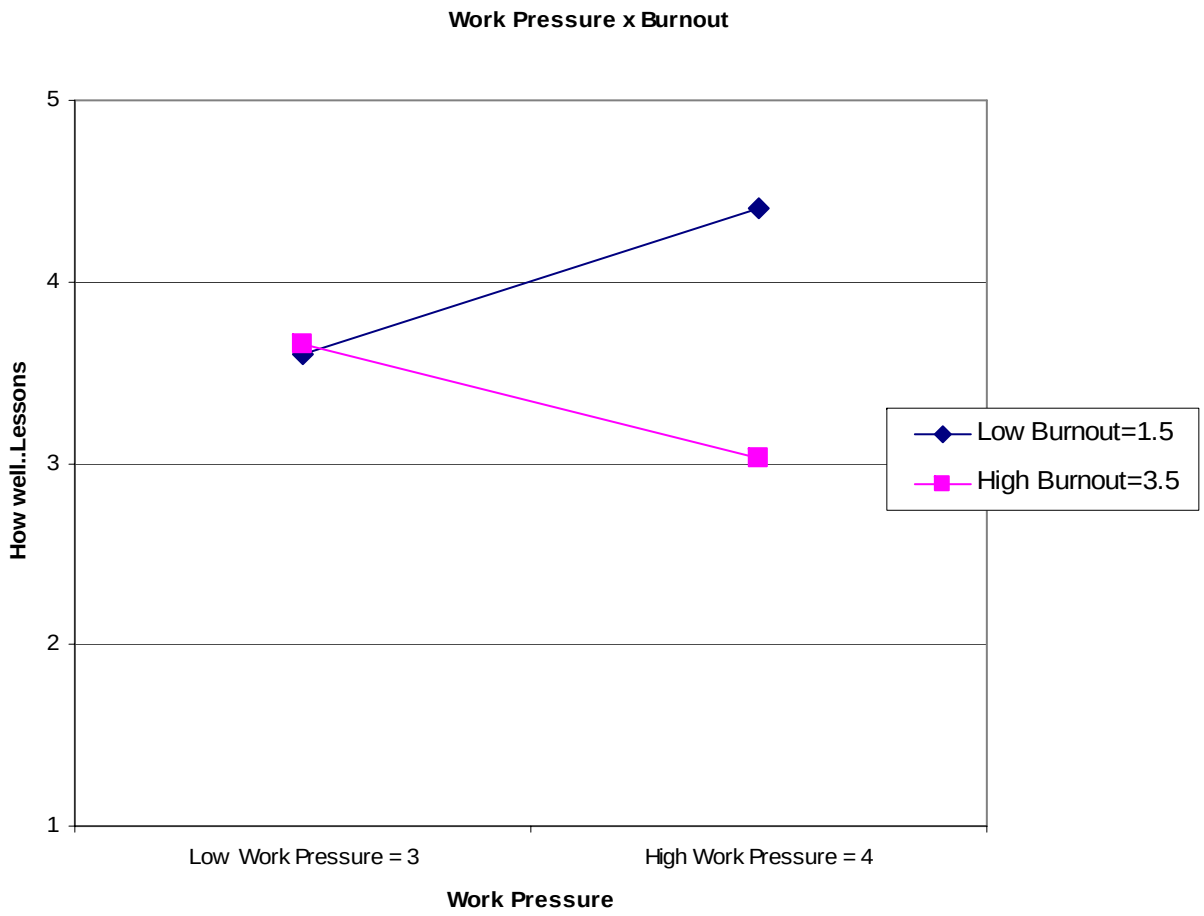


Figure 6. Teaching Efficacy x Burnout Interaction Predicting Implementation Quality of Lessons

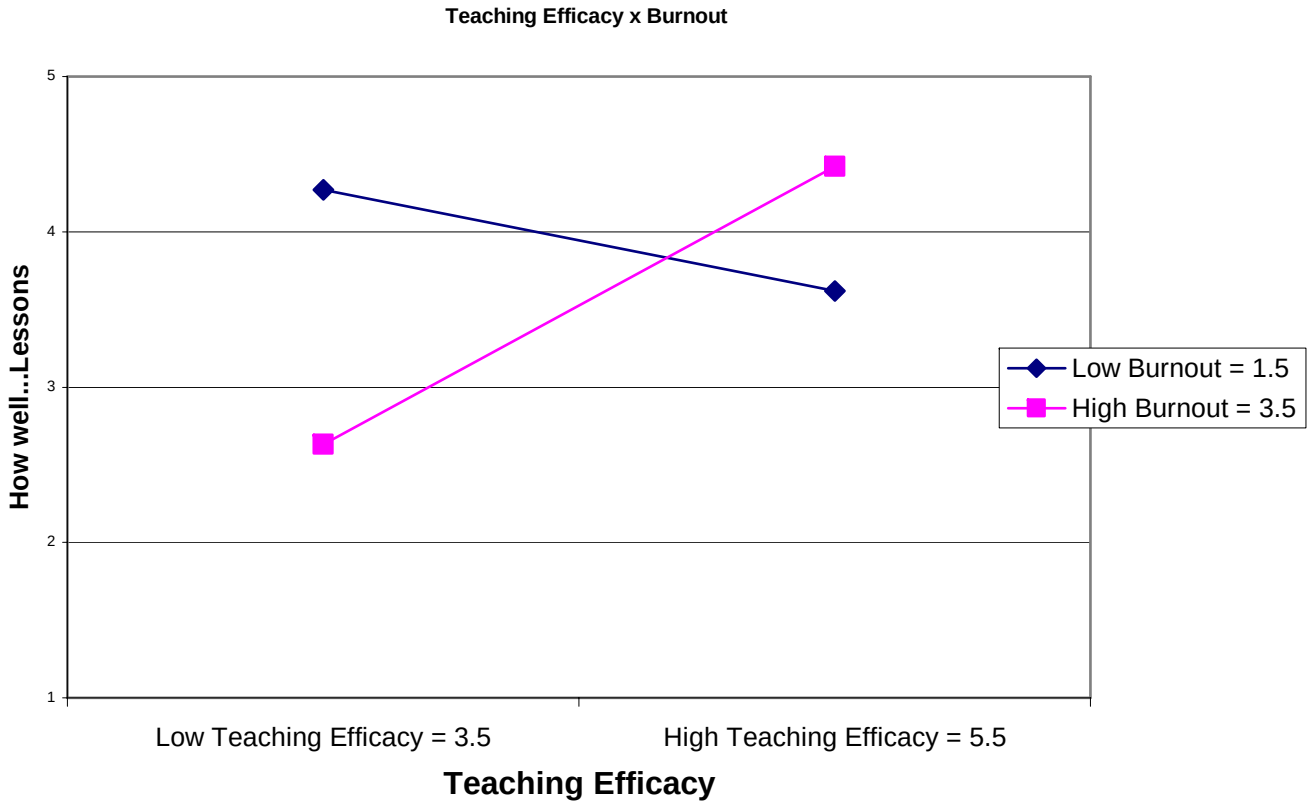


Figure 7. Classroom Management Efficacy x Burnout Interaction Predicting Implementation Quality of Lessons

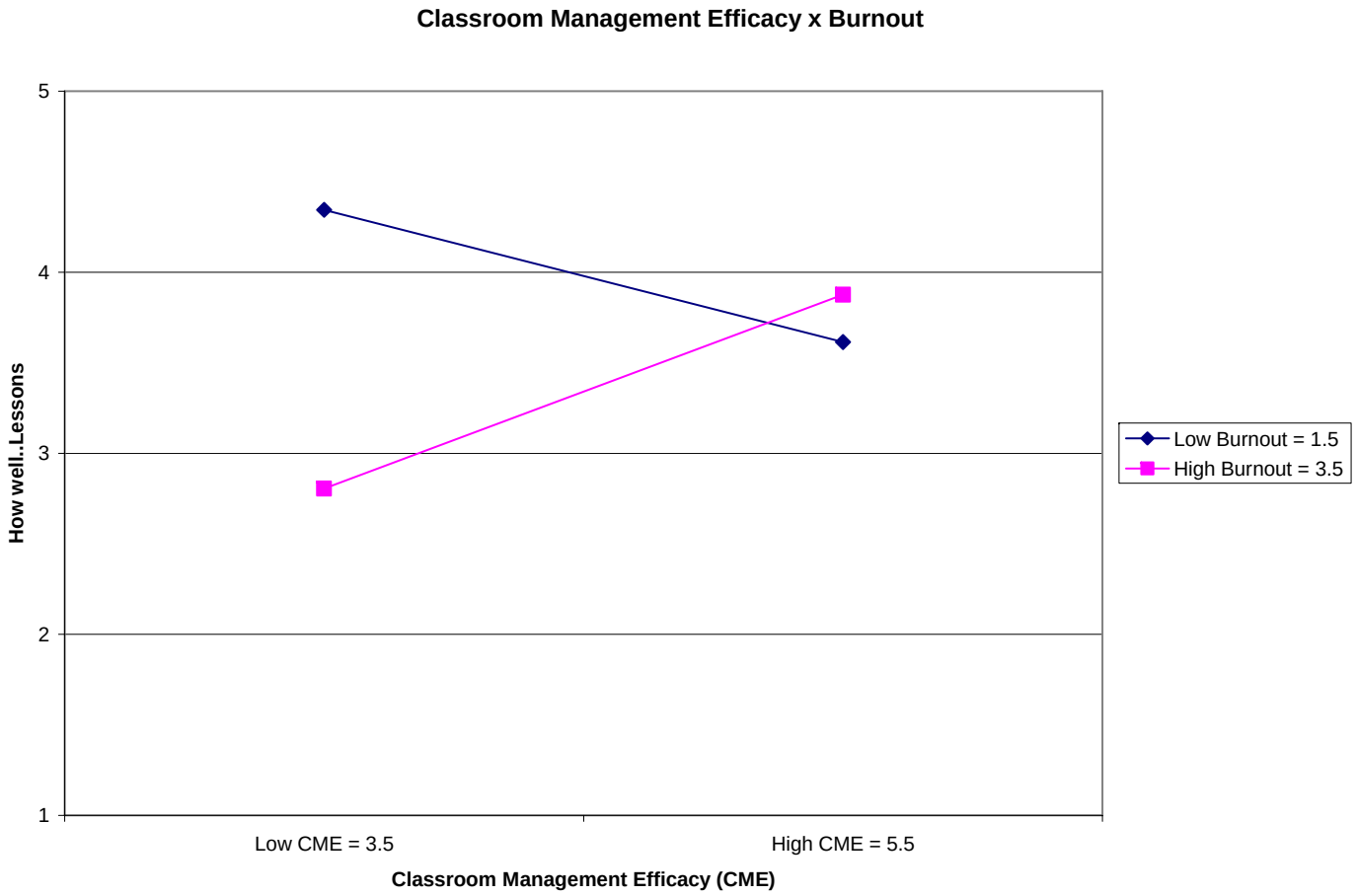


Figure 8. Teaching Efficacy x Burnout Interaction Predicting Implementation Quality of Generalizing Concepts

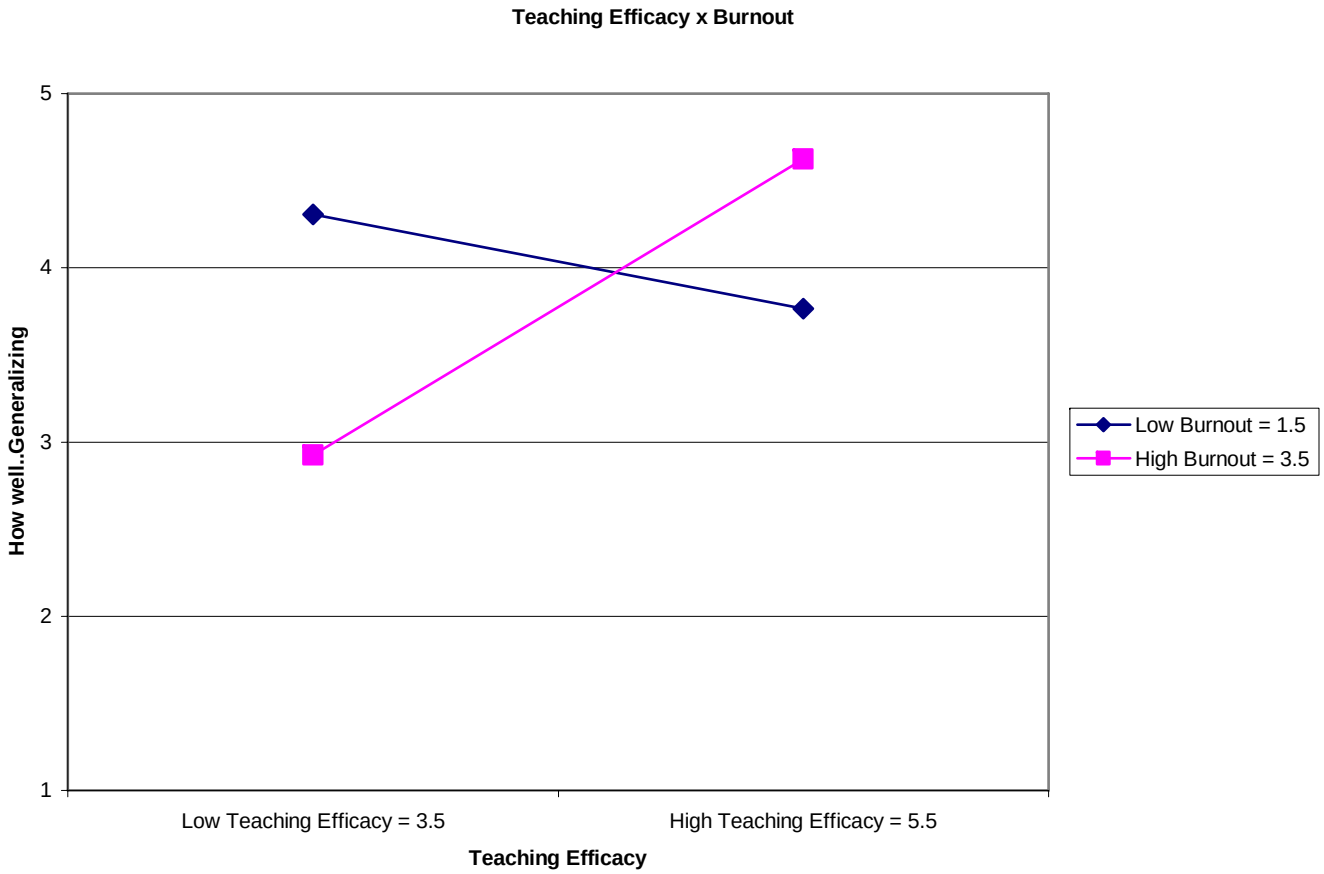


Figure 9. Work Pressure x Age Interaction with Average Number of Lessons Taught

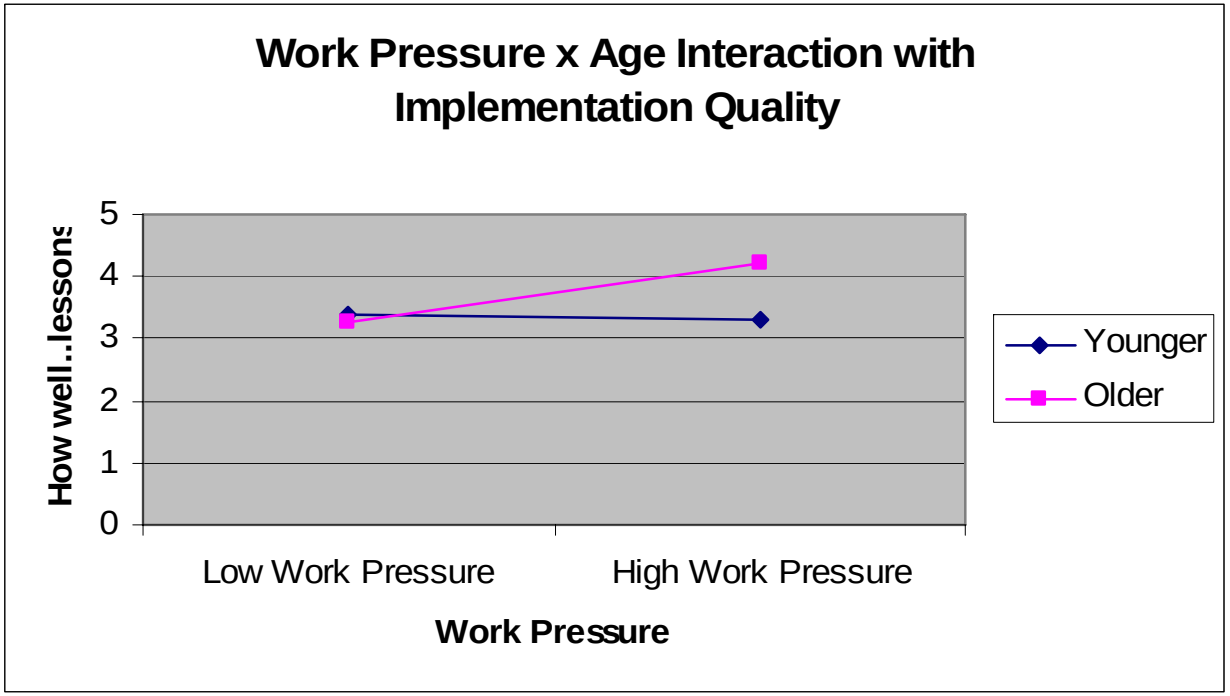


Figure 10. Principal Support x Grade Level interaction with Implementation Dosage

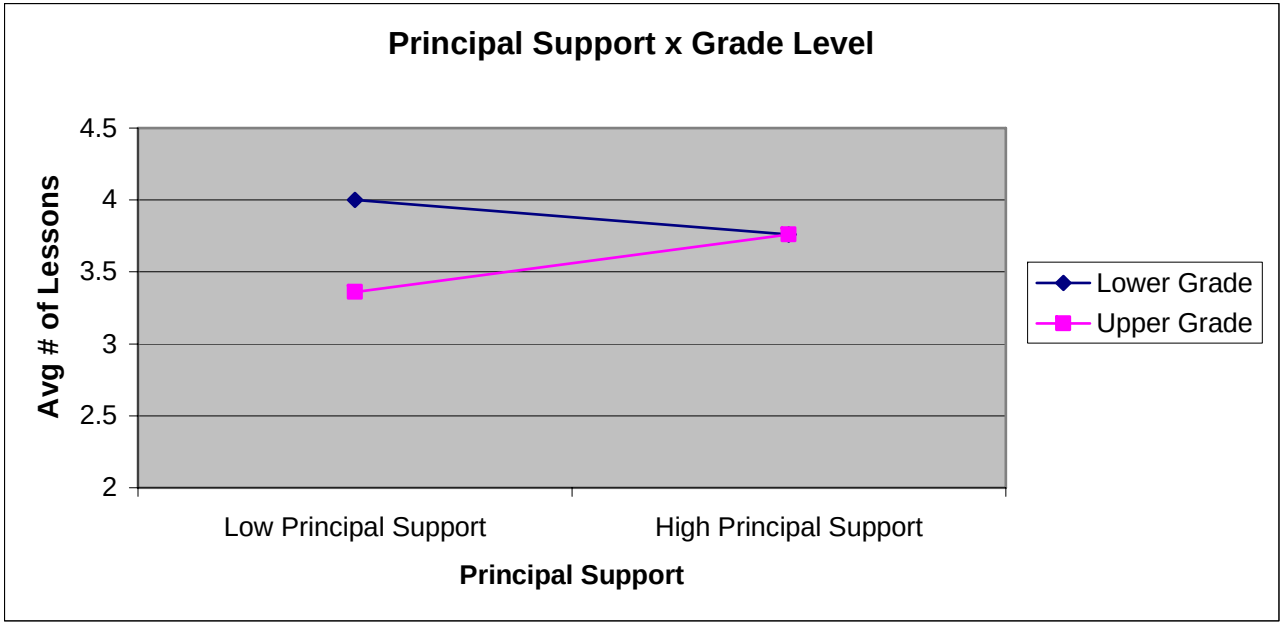


Figure 11. Principal Support x Grade Level interaction with Implementation Quality

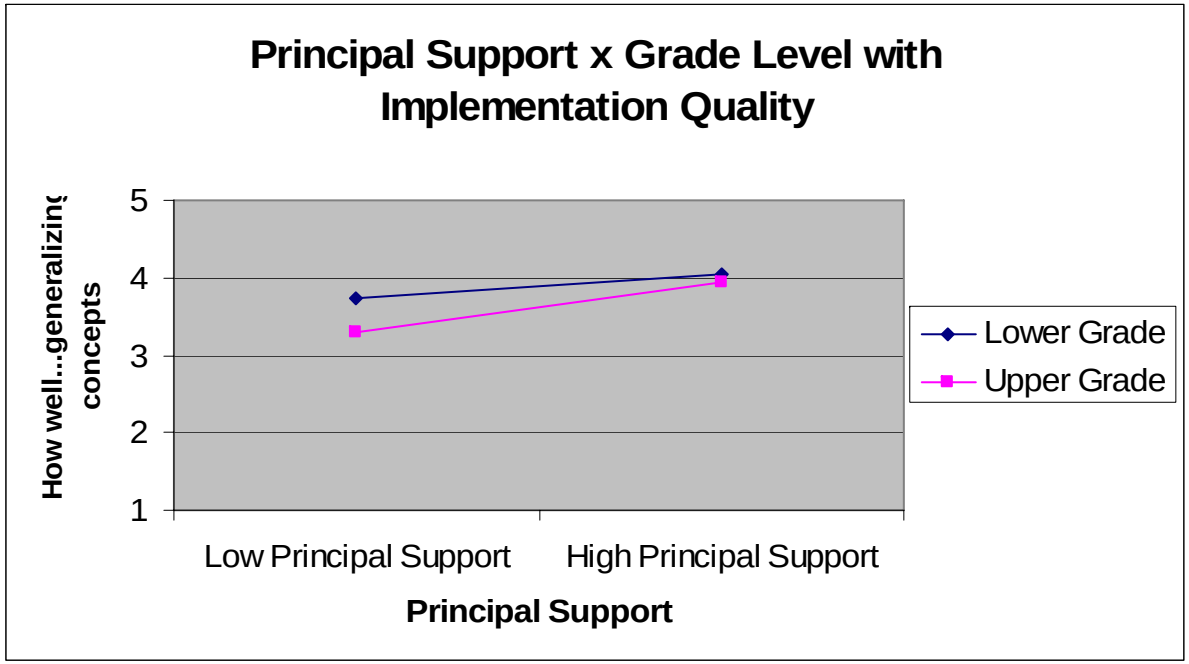


Figure 12. Technical Support x Grade Level Interaction with Implementation Dosage

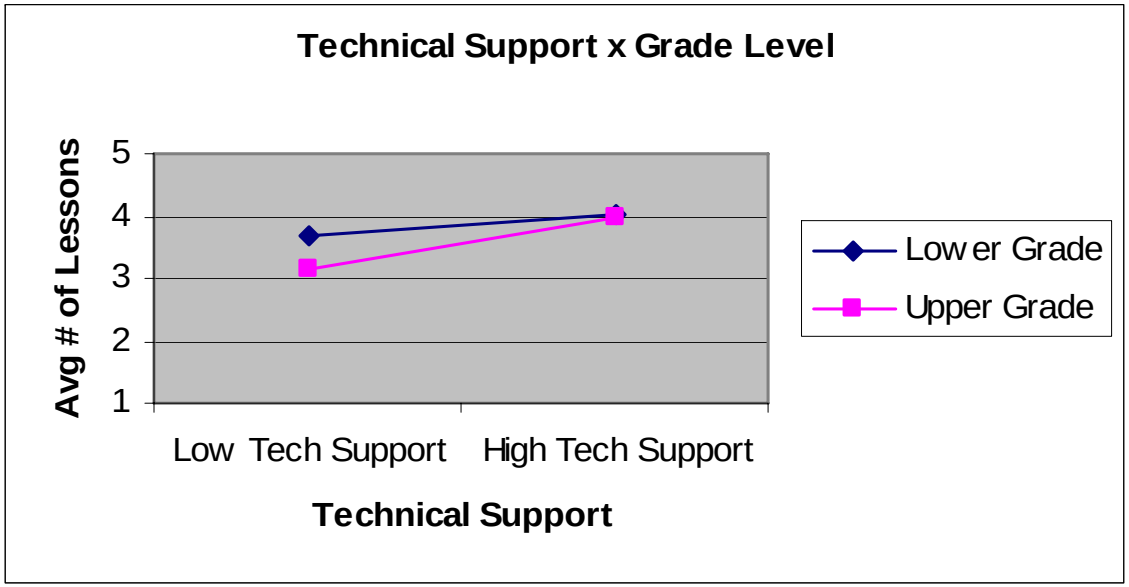


Figure 13. Teacher Efficacy x Grade Level Interaction with Implementation Quality

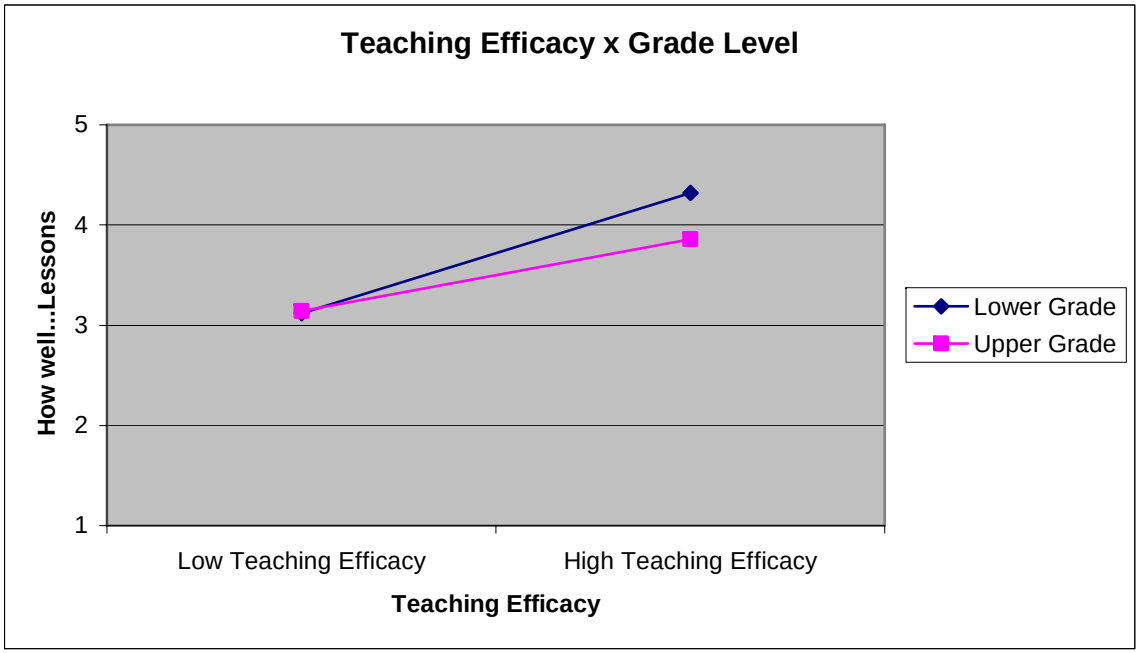


Figure 14. Principal Support x Marital Status Interaction with Burnout

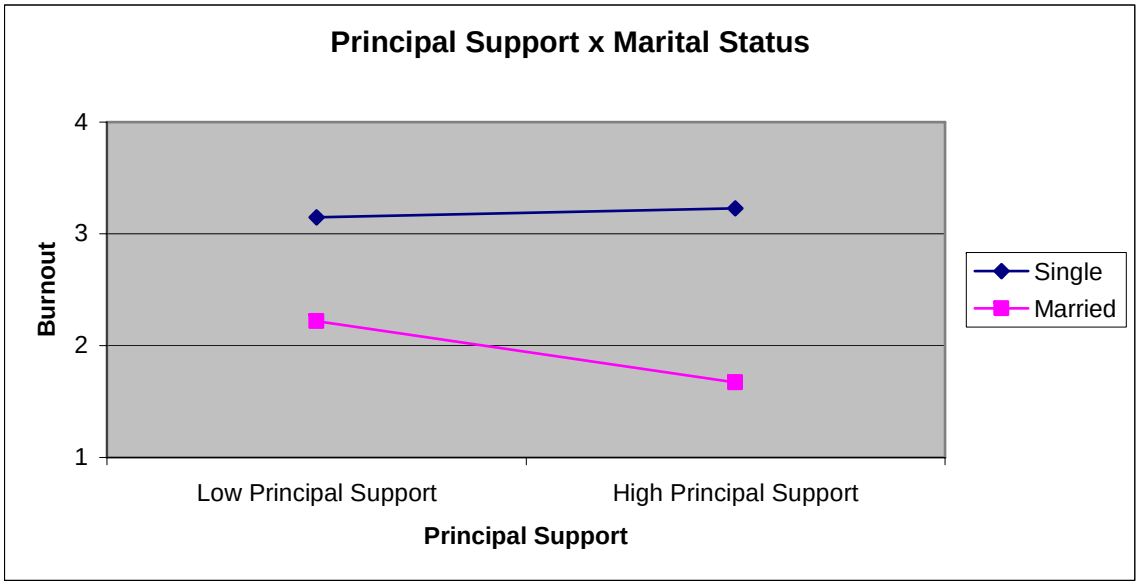


Figure 15. Work Pressure x Marital Status Interaction with Implementation Quality

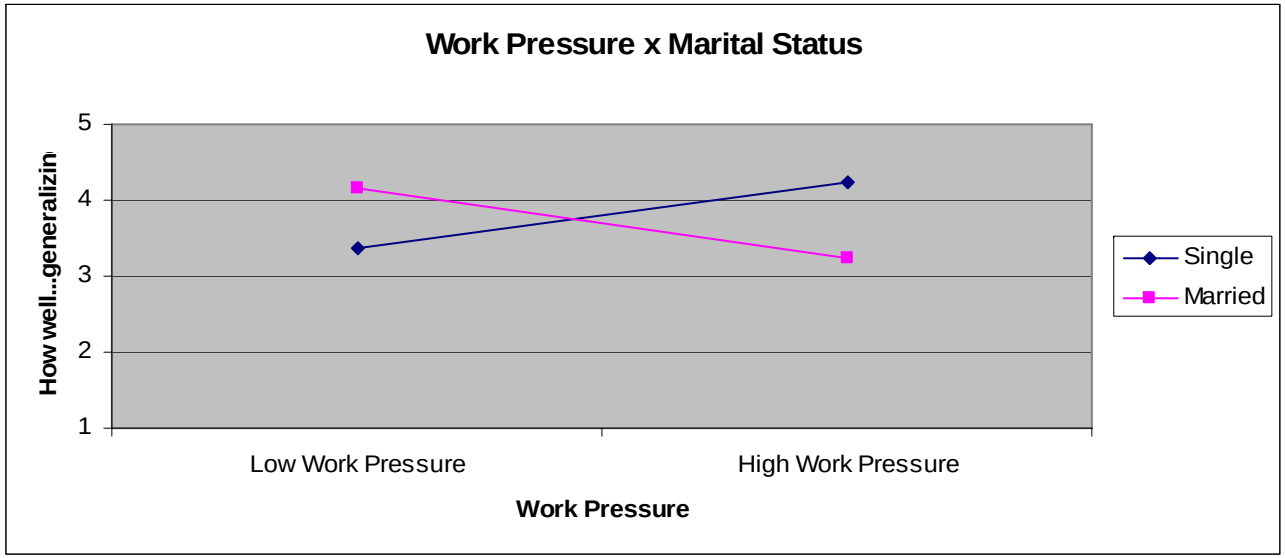
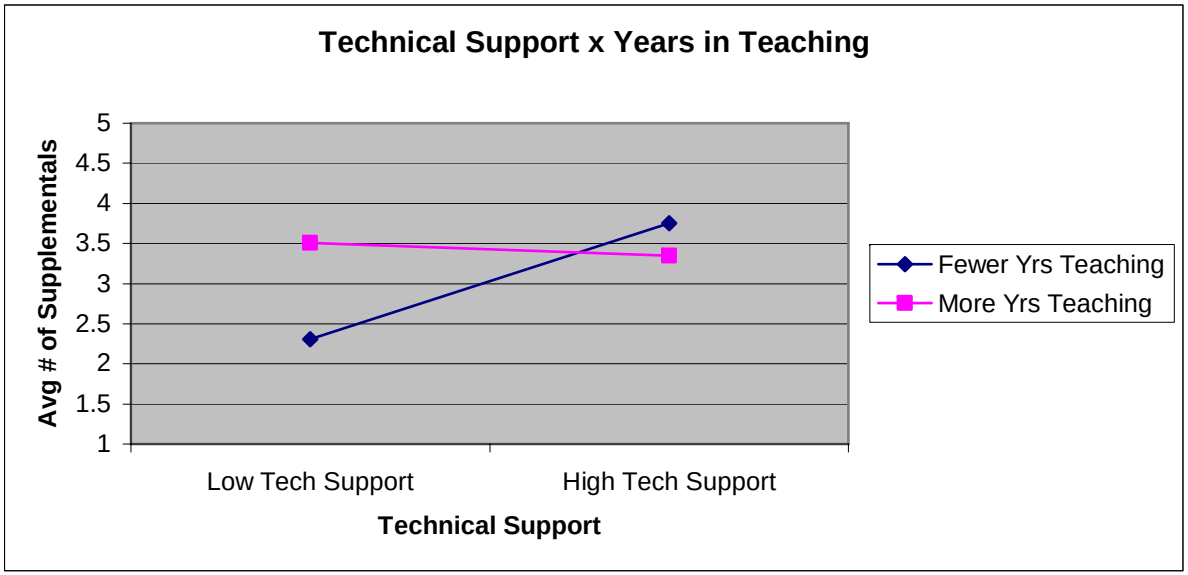
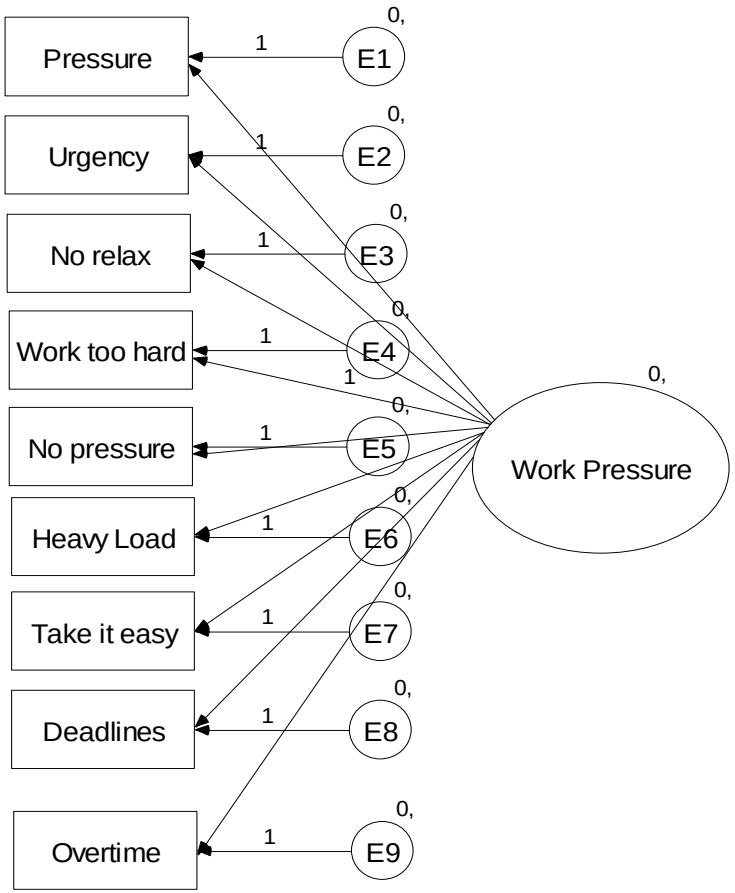


Figure 16. Technical Support x Years in Teaching Interaction with Implementation Dosage

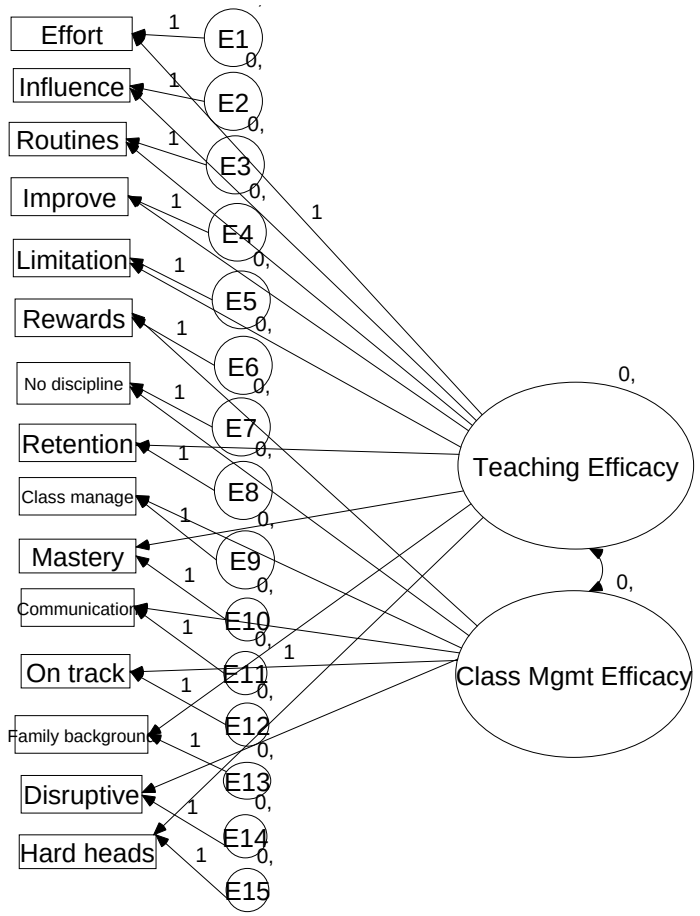


Appendix C.
1) Work Pressure CFA model

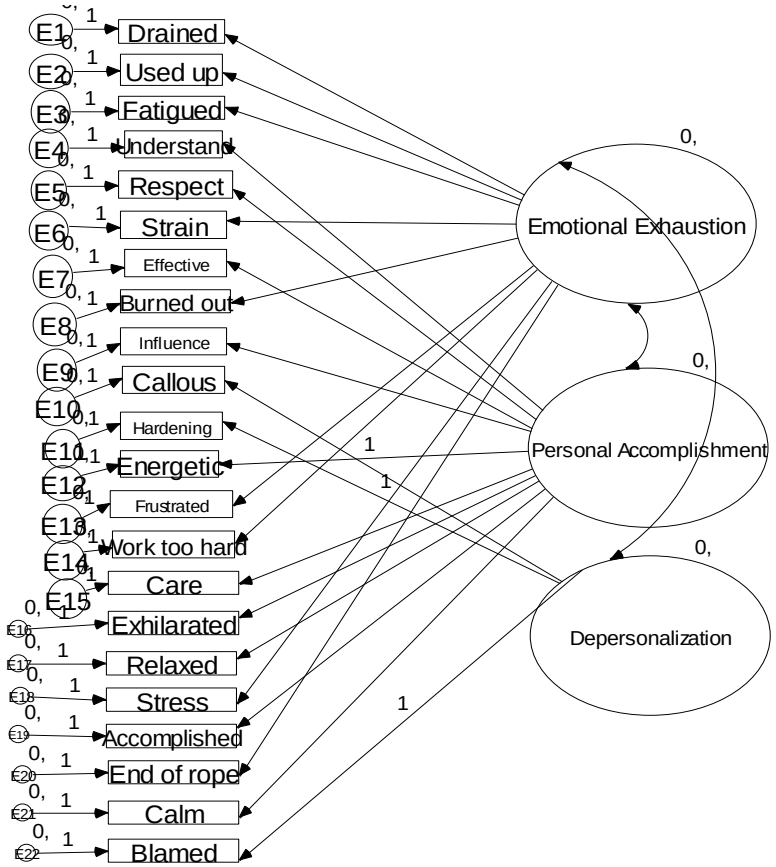


Appendix C. (cont.)

2) Teacher Efficacy CFA Model



Appendix C. (cont.).
3) Teacher Burnout CFA Model



Appendix D. Selection of Measures

Penn State Prevention Research Center
PATHS Curriculum Teacher Opinion Questionnaire

General Information about the Teacher Survey

Thank you for taking the time to respond to these questions. When completed, your responses will be kept completely confidential. The purpose of this survey is to provide Penn State researchers with information about the PATHS program in your school. We are hoping to use these data to improve the programs we help implement in schools like yours. Participating in this survey benefits Harrisburg and other communities. In addition to improving programs in Harrisburg, other school districts may use our findings to improve their efforts. Dr. Celene Domitrovich, is the principal investigator and can be reached at The Prevention Research Center, The Pennsylvania State University, 109 Henderson South, University Park, PA 16802 (814-865-2616). This project is sponsored by U.S. Department of Education.

Why You Were Chosen

All of the teachers using PATHS in your school were selected to help us better understand the factors that affect the delivery of the programs we develop. If you have questions about the survey, please contact Kim Bodes of the Penn State University Survey Research Center at 800-648-3617 or krb186@psu.edu. If you have any questions about the rights of research participants you may contact The Pennsylvania State University Office for Research Protections at 814-865-1775. Please refer to IRB#21016.

Protecting the Confidentiality of Your Responses

Once you submit your completed survey, your responses are completely confidential. All identifiers linking you with your responses will be destroyed at the end of data collection. We will keep a record that you completed the survey so that your $10.00 stipend can be mailed to you. We will only report the data anonymously and in aggregate. Your confidentiality will be maintained to the degree permitted by the technology used. While we use the best technology available to secure data, no guarantees can be made regarding the interception of data sent via the Internet by any third parties. Responding to this survey is completely voluntary and you may terminate your participation at any time. There are no discomforts or risks associated with participation in this study. We have made every effort to limit the number of questions on this survey. You may decline to answer specific questions. The Office for Research Protections and the Social Science Institutional Review Board may review records related to this project.

Informed Consent

Completion and submission of the survey implies that you have read the information in this form, are 18 years of age or older, and consent to participate in this research. This informed consent form (IRB#21016) was reviewed and approved by the Social Science Institutional Review Board at The Pennsylvania State University on 7/26/05. It will expire on 5/19/06. Please print a copy of this consent form to keep for your records by selecting the print option in your internet browser. We anticipate that the survey will take approximately 20 minutes. Thank you in advance for your time and effort.

So a respondent may complete this survey during more than one sitting, a persistent cookie is placed on the respondent's hard drive to hold the place of the respondent within the survey. If a respondent wishes to exit the survey, they may close the survey window or their web browser and their work will be saved. The respondent may re-enter the survey multiple times by re-entering their ID number. Once a survey has been completed, all persistent cookies from the survey will be removed from the respondent's computer.

Teacher ID #: _____

Teacher Name: _____

Building: _____

- ☐ I agree to take this survey. [Goto question QA1]
- ☐ I decline to take this survey.

Appendix D. Selection of Measures (cont.)

Welcome to the PATHS Curriculum Teacher Opinion Questionnaire!

Thank you again for participating in this survey. Your responses are very valuable in helping us improve the PATHS curriculum.

The survey has been set up so you can complete the survey during more than one sitting; however, we encourage you to complete this questionnaire all at once if possible to prevent accidentally omitting any questions. This survey contains 7 sections (A-G). Each section contains a different number of questions. Please be sure that each section is complete before submitting the survey. If you do have to complete the survey in more than one sitting, your computer will keep a record of where you last stopped in the survey, and start at that point again. If you are unsure if you completed all the questions in prior sections or want to review your answers at any point in the survey, you can use the "back" button on your internet browser to look through the previous sections.

General Directions:
Please read each question carefully and respond to the questions in each section with answers that best reflect your own thoughts or opinions. Please note any additional directions at the beginning of each set of questions, and note the response scales may change from question to question. There are no right or wrong answers, and again, your answers will be confidential.

Appendix D. Selection of Measures (cont.)

Demographic Information

Instructions: We would like to ask you some questions about yourself including your education and teaching experience.

Q. A1
What grade(s) do you teach this year?

- Grade K
- Grade 1
- Grade 2
- Grade 3
- Grade 4
- Grade 5

Q. A4
Including this year, how many years have you been teaching?

___ years

Q. A9
What is your age?

___ years

Q. A10
What is your marital status?

- Single
- Long-term partner
- Non-married
- Married
- Divorced
- Widowed
- Did not answer

Appendix D. Selection of Measures (cont.)

Q. A12
How would you rate your overall health?

- 1 - Poor
- 2
- 3
- 4
- 5 - Excellent
- Did not answer

Appendix D. Selection of Measures (cont.)

PATHS Technical Support

Instructions: Teachers who agreed to receiving individual consultation (i.e. support) as seen in this first questions here were asked the following two questions, which comprised the technical support measure in the current study, with regard to the past year of support (2004-2005).

Q. This past year (2004-2005), did you agree to receive individual consultation from a PATHS Coordinator?

- Yes [Goto question QC2a]
- No
- Did not answer

Q. How well did the PATHS training prepare you to use the curriculum? (select best response)

- Not at all
- A little
- Somewhat
- Quite a bit
- Extremely
- Did not answer

Q. Overall, how useful was the consultation time with your PATHS Coordinator? (select best response)

- Not at all
- A little
- Somewhat
- Quite a bit
- Extremely
- Did not answer

Appendix D. Selection of Measures (cont.)

PATHS Principal Support

Note: All teachers were asked to respond to the amount of principal support they were experiencing at the present time.

Q. Please read the following response options and pick the one that best reflects the degree of PATHS support provided by the administration in your building:

- 1 — Not at all supportive: Does not make PATHS a priority. There is limited discussion of PATHS with staff and the curriculum is not mentioned during observations.
- 2 — Not very supportive: Occasional support for PATHS in faculty and staff discussions, but does not see success of PATHS and social-emotional learning as central to the school's mission.
- 3 — Supportive: Principal is supportive of teacher's efforts, speaks positively about PATHS with staff, problem-solves obstacles to implementation, uses PATHS material and observes PATHS lessons.
- 4 — Very supportive: Is a "cheerleader" for the program, supports staff effectively to use PATHS, and sees it as central to school mission.
- Did not answer
- Extremely
- Did not answer

Appendix D. Selection of Measures (cont.)

PATHS Implementation Dosage

Instructions: The following questions are designed to gather your satisfaction with the PATHS curriculum.

Q. On average, how often do you actually use the PATHS Curriculum Lessons and Generalization techniques (e.g., PATHS Kid of the Day, Problem Solving Sessions) in your classroom?

- Not at all
- Rarely: only when problems arise
- Occasionally: a few times a month
- Regularly: 1-2 lessons a week and some generalization techniques (PATHS Kid of the Day & Problem Solving Sessions)
- Frequently: weekly lessons and frequent generalization techniques
- Did not answer

Q. How often do you use the supplemental activities that are designed to integrate PATHS with academics (consider both your own activities and those provided by the PATHS Coordinator)?

- Not at all
- Rarely
- Occasionally
- Regularly
- Frequently
- Did not answer

Appendix D. Selection of Measures (cont.)

PATHS Implementation Quality

Instructions: The following questions are designed to gather your satisfaction with the PATHS curriculum.

	Not at all	Not very Well	Somewhat	Fairly Well	Very Well
Q. How well do you feel you are implementing the lessons in the PATHS manual?	□	□	□	□	□
Q. How well do you feel you are generalizing PATHS concepts throughout the day?	□	□	□	□	□

Appendix D. Selection of Measures (cont.)

Work Pressure

Instructions: Teachers were asked to indicate how true the following statements are in the school where you worked this year:

Example Item:

	Very True	Somewhat True	Somewhat Untrue	Very Untrue
E1. There is constant pressure to keep working.	□	□	□	□

Teaching Efficacy

Instructions: Teachers were asked to indicate how much you agree or disagree with the following statements:

Example Item:	Strongly Disagree	Moderately Disagree	Disagree slightly more than Agree	Agree slightly more than Disagree	Moderately Agree	Strongly Agree
F1. When a student does better than usual, many times it is because I exerted a little extra effort.	□	□	□	□	□	□

Appendix D. Selection of Measures (cont.)

Teacher Burnout

Instructions: Teachers were asked to rate how frequently the following statements have applied to you in the past year:

Example Item:	Never	A few times per year	Monthly	A few times per month	Every week	A few times per week	Every day
G1. I feel emotionally drained from my work.	□	□	□	□	□	□	□

CURRICULUM VITAE

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Education

2004 – 2007	The Pennsylvania State University	Ph.D. Expected 5/07 Human Development & Family Studies
2002 – 2004	The Pennsylvania State University	M.S. 8/04 Human Development & Family Studies
1994 – 1998	Rhodes College	B.A. 5/98 Psychology with Honors Elementary Education Teaching Certification

Research Experience

Research Assistant

2005 – present	*Safe Schools/Healthy Students Project*, Prevention Research Center Dr. Mark T. Greenberg
2004-2005	*Family Foundations Project*, Prevention Research Center Dr. Mark Feinberg
2002-2005	*Family Relationships Project*, Center for Work and Family Research Drs. Ann C. Crouter and Susan M. McHale

Data Management and Analysis

- Data management experience with longitudinal, nested, and cross-sectional data
- Data analysis experience with multilevel modeling, multivariate hierarchical regression, ANOVA, factor analysis, and correlational analyses.

Project Management

- Managed, trained and participated in data collection and participant recruitment teams
- Developed research measurement surveys and training materials for intervention

Instructional Experience

Elementary Teacher

1998-2002	1st grade classroom teacher, Memphis City Schools

Teaching Assistant

Fall 2006-present	HDFS 495A/B: Internship Advanced Project
Fall 2003	HDFS 229: Infancy and Child Development

Publications

Ransford, C. R., Crouter, A.C., & McHale, S.M. (in press). Implications of Work Pressure and Supervisor Support for Fathers', Mothers', and Adolescents' Relationships and Well-being in Dual-earner Families, *Community, Work & Family*.

Selected Honors, Awards, and Scholarships

2004 – 2005: Prevention Research Center Fellowship: Fellowship awarded by Penn State Prevention Research Center to advanced graduate students who show excellence in academic coursework and promising research in the field of prevention to support them in pursuing their independent research interests in prevention science