## The Relation of Elementary Teachers' Experience, Stress, and Coping Resources to Burnout Symptoms

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### Abstract

Transactional models of stress posit that perceptions of both resources and demands determine whether stress will be experienced. To test this model and better understand teacher stress, we examined levels of elementary teachers' burnout symptoms: (1) between schools, with individual/teacher perceptions of demands and resources aggregated to the group level, and (2) at the individual teacher level within schools, where perceptions of classroom demands and resources, as well as teachers' personal coping resources and experience, were taken into account. We assessed the specific classroom demands and resources hypothesized to contribute to elementary teachers' burnout symptoms using the Classroom Appraisal of Resources and Demands (CARD), and we used the Preventive Resources Inventory (PRI) to measure teachers' psychological coping resources. Burnout symptoms were measured using the Maslach Burnout Inventory (MBI). Data were collected from 451 teachers in 13 elementary schools within 3 adjacent counties that comprise part of the metropolitan statistical area for a large urban region in the southeastern United States. We administered surveys at teacher staff meetings over 2 academic years, and the overall response rate was 77.62%. We used hierarchical linear modeling to nest teachers within schools. Although there was little variance in reported burnout symptoms between schools, each of the individual teacher-level variables was associated in the predicted direction with burnout symptoms. These findings may support transactional models of stress in that individual differences among teachers within schools in perceptions of demands and resources predicted burnout symptoms and differences in school context were not.

Teaching is widely considered to be a demanding profession with an attendant high risk for stress and burnout (Dunham & Varma, 1998; Kyriacou & Sutcliffe, 1977). Schaufeli and Enzmann (1998) noted that teachers represent the largest homogeneous occupational group investigated in burnout research, comprising 22% of all samples. Hughes (2001) suggested that only through aggressive intervention would it be possible to prevent the potential negative effect of burnout on both the teacher and the learning environment. However, to design effective interventions, it is essential that researchers understand the factors that contribute to burnout in educators.

Although considerable research has been devoted to studying teacher burnout, it is still unclear how best to help teachers prevent burnout (Lambert & McCarthy, 2006). This may be because job-burnout studies over the past 30 years have focused on workplace conditions (e.g., poor communication, lack of job role specification, layoffs) as the cause of burnout (Zellars, Hochwarter, & Perrewé, 2004) rather than on intra- and interpersonal factors. Zellars et al. (2004) noted in their review of the burnout literature that the role of individual differences has been largely ignored in favor of exploration into the systemic issues that occur at an organizational level. Just as with the burnout literature in general, the few extant investigations of stress in teachers of young children have focused mainly on external demands on teachers, including teaching children with problem behaviors (Pratt, 1978), larger class sizes (French, 1993), and administrative or policy-related issues (Moriarty, Edmonds, Blatchford, & Martin, 2001). The question still remains as to why some elementary teachers prosper in their jobs while others in the same or similar environments experience stress, exhaustion, and burnout.

One potential answer to this question may be found in the stress literature. Lazarus and Folkman (1984) proposed a transactional model of stress that hypothesized that when a person encounters life demands, a reflexive transaction occurs in which the person weighs perceived demands of the event against her/his perceived capabilities for coping with it. When the transaction results in a perception that one is facing demands that outweigh available resources for coping, the stress response ensues (Sapolsky, 1998). According to current models of stress and coping, then, burnout can be viewed as the result of unsuccessful attempts to deal with life demands (McCarthy, Kissen, Yadley, Wood, & Lambert, 2006). In other words, teachers may be more susceptible to burnout symptoms if they perceive an imbalance between the demands they face in their jobs and the resources they have for coping with these demands. Maslach and Leiter (1997) noted increasing interest in viewing burnout in terms of job-person fit, and in the elementary school context burnout could be viewed as a poor fit between the demands of the classroom and teachers' resources for coping with these demands.

To test the assumption that elementary teachers' experience of burnout symptoms on the job can be better understood by considering their perceptions of demands and resources, in this study we examined the burnout phenomenon in two ways: (a) across 13 schools, where only school factors were presumed to vary (i.e., climate, the effectiveness of school administrators, etc.) and not individual teacher perceptions, and (b) at the individual teacher level, where perceptions of classroom demands and resources, as well as teachers' personal coping resources and experience, were taken into account in the analysis. This study therefore had two research questions. First, is any of the variance in reported burnout symptoms among elementary teachers found between schools? And, second, are specific individual teacher factors (teaching experience, perceived classroom demands and the sufficiency of classroom resources for meeting those demands, and teachers' personal resources for preventing stress) associated with burnout symptoms? Elementary school teachers are particularly relevant for the second research question because their classroom set-up is unique in that the students remain in one classroom for instruction in most subjects, and generally with the same teacher. Therefore, the appraisals that elementary teachers make about classroom demands and resources could be interpreted as relatively stable throughout their workday, as opposed to a middle or high school teacher, who consistently works with different students and possibly different academic subjects and classrooms throughout the day.

Given the importance of burnout symptoms as an outcome variable for both research questions 1 and 2, we next describe the significance of the construct for elementary teachers. We then provide a rationale for the inclusion of the individual predictor variables in the analysis used to address research question 2.

### Occupational Burnout and Elementary Teacher Well-Being

Burnout seems a natural consequence when individuals do not have sufficient coping resources to deal with life demands. It is often defined as a loss of idealism and enthusiasm for work (Matheny, Gfroerer, & Harris, 2000), and the term was first coined by Freudenberger (1974), a psychiatrist who noticed the phenomenon among his clinical staff. As we noted, burnout has often been linked to the work of teachers. Pines (2002) suggested that burnout occurs in teachers when they no longer find significance in their work, and LeCompte and Dworkin (1991) noted powerlessness in defining professional roles as a contributor to burnout. Numerous researchers have cited both physical and mental exhaustion, aggravated by inconsistent expectations for teachers that are constantly in flux or in conflict with previously held beliefs, as influencing teacher burnout (Brown & Ralph, 1998; Bullough & Baughman, 1997; Esteve, 2000; Hinton & Rotheiler, 1998; Troman & Woods, 2001).

Teachers who remain in their jobs despite burnout symptoms may experience negative changes in attitudes and effort as well as a decline in performance (Burke & Greenglass, 1989, 1996). Burnout may also result in teachers leaving the profession. More recently, Ingersoll (2001) reviewed data suggesting that teacher shortages are not caused primarily by a lack of individuals entering the profession but instead are the result of a "revolving door" in which large numbers of teachers leave for reasons other than retirement.

Maslach and Jackson were pioneers in developing the meaning and measurement of burnout in the 1980s (Maslach & Jackson, 1981; Maslach & Schaufeli, 1993). The Maslach Burnout Inventory (MBI; Maslach, Jackson, & Leiter, 1996) is the foremost measure of burnout and has been used in over 90% of research on this topic (Hastings, Horne, & Mitchell, 2004; Schaufeli & Enzmann, 1998). The MBI assesses three core dimensions of burnout: emotional exhaustion, depersonalization, and personal accomplishment (Maslach, Schaufeli, & Leiter, 2001).

Emotional exhaustion (EE) involves a depletion of one's emotional resources and is perhaps the most obvious and central quality of the complex syndrome of burnout (Maslach et al., 2001). Persons experiencing EE report being exhausted and feeling less able to cope with external demands. Maslach and colleagues (2001) noted that EE is a necessary, but insufficient, criterion for burnout. Although it encompasses the stress-produced emotions caused by work demands, it fails to capture other important, and potentially problematic, aspects of the worker-workplace relation.

Depersonalization (DP) refers to distancing oneself from others, particularly clients, customers, and students with whom workers must interact in the performance of their jobs (Maslach et al., 2001). For elementary teachers, depersonalization may involve the development of negative, unfeeling, callous, and cynical attitudes toward students and the school environment. The risk of teachers developing a burnout symptom such as depersonalization looms large because much of their daily work occurs in professional isolation (McCarthy et al., 2006). Elementary teachers spend a great deal of time with students, of course, but in many cases these interactions can add to their daily stress. Even the physical layout of most schools, with teachers working in separate classrooms, and scheduling constraints that make finding time to meet with peers or administrators difficult, can cause teachers to feel disconnected and isolated (Bennett & LeCompte, 1990). Research has suggested the importance of support from coworkers and supervisors. which can lower depersonalization symptoms in teachers (Greenglass, Fiksenbaum, & Burke, 1996) by helping them attain a greater sense of control in the classroom.

The third construct assessed by the MBI is labeled personal accomplishment (PA), which is a reduced sense of efficacy and devaluing of one's work with others. A decline in personal accomplishment is associated with lower feelings of competence and personal achievement. Whereas emotional exhaustion and depersonalization may in part emerge from factors such as work overload and social conflict, the decreased efficacy associated with lower personal accomplishment seems to arise more clearly from insufficient personal resources (Maslach et al., 2001). Taris, Le Blanc, Schaufeli, and Schreurs (2005) noted that, although there is considerable theoretical interest in the possibility of causal relations between these three constructs, their review of the literature showed little in the way of convincing evidence for such theories. Accordingly, and in line with Maslach et al.'s (1996) suggestion, we analyzed each component of burnout separately for research questions 1 and 2.

The literature reviewed here suggests a number of factors, including school layout, interactions with coworkers and administrators, and professional isolation, that could lead to school-specific factors related to burnout. Therefore, research question 1 explored levels of elementary teachers' burnout symptoms across schools, with individual perceptions of demands and resources aggregated to the group school level. We included research question 2 in the study because of suggestions in the literature that stress and burnout among elementary teachers are still not well understood and because too much emphasis may have been placed on sources of external demands. In the following section, therefore, we provide a rationale for including individual teacher predictor variables in research question 2 that may be associated with burnout symptoms in elementary school teachers.

# Teacher-Specific Factors and Burnout Symptoms

We examined research question 2 because to help elementary teachers prevent excessive job stress it may be necessary to explore the role of individual perceptions of demands and resources that can lead to stress and burnout (Cocco, Gatti, de Mendonça, & Carles, 2003). Lazarus and Folkman (1984) and Sapolsky (1998) emphasized the importance of individual perception in determining whether a life event or situation will be viewed as stressful. According to this perspective, a situation can provoke a stressful reaction in one individual, whereas another person may view the same situation as unimportant or even as a welcome challenge. Such different outcomes result from an interaction between perceptions both of the nature of a demand and the resources one has for coping with it (McCarthy, Lambert, Beard, & Dematatis, 2002). A question still remains, however, about which individual factors in elementary teacher burnout symptoms are most important to address.

Given that stress results from a dynamic transaction between person (resources) and environment (demands), it is not surprising that the variables examined in stress research have varied considerably. Early stress instruments mainly measured the cumulative effects of life events (Holmes & Rahe, 1967), and, although later methods of assessing life demands attempted to take the respondent's perception into consideration (Derogatis, 1987), these measures still attended to only one-half of the stress equation—namely, demands.

Other research has addressed the resources side of the stress equation by measuring coping strategies (Carver, Scheier, & Weintraub, 1989), which are behaviors used to deal with a stressor, or coping resources, which are capacities, skills, and abilities that generally serve as the foundation for coping strategies (McCarthy, Lambert, & Brack, 1997). Regardless of the way in which stress is measured, it is often treated as a single construct rather than as the difference between two constructs: demands and resources.

In the current study we addressed this issue by examining both classroom demands and classroom resources hypothesized to contribute to elementary teachers' stress using the Classroom Appraisal of Resources and Demands (CARD, school-age version; Lambert, McCarthy, & Abbott-Shim, 2001). The CARD focuses on the demands of the elementary classroom environment and the material resources available to teachers to meet those demands.

In addition to examining workplacespecific demands and resources (as measured by the CARD), we also examined the role of teachers' psychological coping resources as predictors of burnout. More specifically, and in line with this study's focus on identification of early burnout symptoms, we studied psychological resources useful in preventing stress (McCarthy et al., 1997). The identification of coping resources most useful for preventing stress is based on a taxonomy Matheny, Aycock, Pugh, Curlette, and Canella (1986) developed that differentiates psychological coping resources according to their usefulness for either combating or preventing stress. This taxonomy suggests that people draw on combative coping resources after a

threatening event or circumstance has triggered the stress response. Such resources include the skills and abilities associated with traditional stress-management practices, such as having the ability to selfdisclose. lowering emotional arousal through relaxation procedures, and using problem-solving skills. In contrast, coping resources that are preventive allow the individual to recognize and deal with life demands so as to avoid the experience of stress in the first place (for a further review, see Matheny et al., 1986, and McCarthy et al., 2002).

Some research has supported the role of preventive coping in mitigating burnout. For example, Dorz, Novara, Sica, and Sanavio (2003) noted approaches to coping that were predictive factors of the three components of the Maslach Burnout Inventory (MBI). On the one hand, they found that planning (e.g., to reflect and develop a strategy to solve a problem) and restraint coping strategies (e.g., avoiding acting impulsively, waiting for the right moment to cope with the stress) predicted personal accomplishment (PA) scores on the MBI. On the other hand, denying the problem or using humor to face the situation was more related to emotional exhaustion (EE) and depersonalization (DP) scores on the MBI. Given such findings, in addition to the CARD, we used the Preventive Resources Inventory (McCarthy et al., 2002) to measure coping resources thought to be useful for preventing stress.

We included teacher experience because McCarthy et al. (2006) found that being a first-year teacher (as opposed to being a teacher with more experience) was a significant predictor of emotional exhaustion among preschool and elementary teachers. The literature, however, is mixed with respect to the effect of teacher experience on stress and burnout: Russell, Altmaier, and Van Velzen (1987) found a weak relation between teacher characteristics, including experience, and job-related stress, whereas Malik, Mueller, and Meinke (1991) found

Variable	Mean	SD	Minimum	Maximum
Years of teaching experience	12.80	8.94	.00	37.00
Years in current school	7.01	6.71	.00	34.00
Age	37.77	10.56	22.00	65.00
Maslach Burnout Inventory:				
Emotional exhaustion	20.56	10.11	.00	46.00
Depersonalization	4.46	4.41	.00	23.00
Personal accomplishment	13.28	5.33	.00	27.00
Total score	38.10	17.17	1.00	90.00
Classroom Appraisal of Resources and Demands:				
Demands	49.11	9.93	21.33	73.03
Stress	-3.25	14.12	-47.05	39.33
Preventive Resources Inventory:				
Total score	3.98	.40	2.70	4.98

TABLE 1. Teacher Characteristics and Scores on the Outcome Measures

NOTE.—n = 451.

no relation between experience and stress. We included experience as a predictor variable in the HLM model to help clarify its role as a predictor of burnout symptoms.

#### Method

#### Participants

The data for this study were collected from 451 teachers in 13 elementary schools within three adjacent counties that comprise part of the metropolitan statistical area for a large urban region in the southeastern United States. All counties contain both urban and suburban locations, serve a demographically diverse student population, and include many schools with high concentrations of children living in poverty. The present study is part of a larger international study on teacher stress that used some of the scales from the CARD; the PRI and MBI instruments were not part of the larger study.

Six of the schools (46.15%) were designated as Title I schools, four received targeted assistance (30.77%), and the percentage of minority students in a school ranged from 11% to as high as 52% (M = 28.17%, SD = 12.75). The state accountability testing system provides a composite score for elementary schools that represents the percentage of students who are performing at or above grade level. The mean composite

score was 88.33 (SD = 3.87) for the academic year preceding the study (range = 80.9–93.0). Four schools (30.77%) achieved their adequate yearly progress (AYP) goals for compliance with the No Child Left Behind federal guidelines. It is important to note that, although we attempted to gain access to all elementary schools in the cooperating counties, the sample of schools that agreed to participate cannot be considered representative of the districts involved and must be considered a sample of convenience.

Table 1 summarizes teacher characteristics; as can be seen, teachers had an average of 12.80 years of experience (SD = 8.94). Their experience ranged from less than 1 year to 37 years, and 5.76% of the sample were in their first year of teaching. The teachers had worked at their current school for an average of 7.01 years (SD = 6.71), with a range of less than 1 year to 34 years, and 14.19% of the sample were in their first year at their current school. The sample included 3.9% males and 96.1% females. The survey participants reported having the following degrees: associates (7.0%), bachelor's degree (62.9%), master's (30.1%), and currently working on an additional degree (11.6%). Teacher aides were included in the sample and thus explain the respondents with less than a 4-year degree. Teachers were not asked to report on their specific role in the classroom as part of the study, and thus we cannot precisely estimate how many teacher's aides were in the sample. However, it is very likely that the 7% of teachers with associate degrees comprise all of the aides in the sample.

There was a small amount of missing data. Eleven (2.44%) teachers did not respond to the question regarding years of experience in education, and 16 (3.55%) teachers did not respond to the question regarding years of experience in their current school. We retained these teachers in the study and substituted the school mean for each experience variable for the missing values.

#### Procedures

Data collection took place over 2 academic years, but each participant completed the surveys, which were administered at staff meetings, only once. The participants could return the surveys to us during the meeting or mail them to the university using a business reply envelope that was provided. This method ensured anonymity and confidentiality, and it separated ratings of the classroom from school administrators. In every participating school we obtained a 100% or nearly 100% cooperation rate among teachers who attended the staff meetings. When some teachers did not return surveys during the meeting, some business reply envelopes were returned to us with completed surveys. We left blank copies of the survey packet, along with business reply envelopes, with the school secretaries to distribute in the mailboxes of teachers who did not attend the staff meetings. However, we did not obtain exact information about the attendance rates at the meetings. We did obtain from the participating school systems total counts of eligible staff, teachers, and assistants, in order to determine response rates. The overall response rate was 77.62%, and the school response rates varied from 59.26% to 96.77%, illustrating that attendance rates at

the staff meetings when data were collected varied, as did the willingness of teachers to complete the surveys outside of the meetings.

Due to concerns related to confidentiality and anonymity, we chose not to ask participants to report their grade level or ethnicity. Within many elementary schools the combination of ethnicity and grade level can identify an individual. We obtained the ethnic composition of the eligible elementary staff from the school systems, which was as follows: European American (90.1%), African American (1.8%), Hispanic (0.5%), and other (7.5%). However, we are unable to determine if there was any disproportionate or systematic nonresponse from any subgroup.

#### Measures

Classroom Appraisal of Resources and Demands (CARD; Lambert et al., 2001). The item content of the CARD was developed based on both a review of the literature concerning stress among teachers of young children and interviews with teachers and administrators. During the development of the measure, the authors conducted several pilot studies and obtained feedback from participants about the content and format of both the items and the measure as a whole, as well as whether the measure seemed to cover the overall content domain of teacher stress in elementary schools (Lambert, McCarthy, O'Donnell, & Melendres, in press). The measure is divided into two sections, demands and resources. The demands scale consists of 35 ratings of the severity of demands associated with various aspects of the classroom environment using a five-point Likert scale that ranges from 1, "not demanding," to 5, "extremely demanding." The resources section contains 30 items consisting of ratings of the helpfulness of various administrator-provided resources using a five-point Likert scale that ranges from 1, "very unhelpful," to 5, "very helpful." Items for the demands scale were constructed such that they could only be viewed as

demands, not potential sources of support, and the resource items that were constructed were conceptually distinct from potential demands. The relatively low correlation between the scales (r = -.208) indicates that they were conceptually distinct.

Lambert et al.'s (2007) previous research using the CARD, elementary version, has demonstrated sample-specific reliability evidence for the demands ( $\alpha = .916$ ) and resources scale score information ( $\alpha$  = .954). In the same study, factor analysis results were presented that help define the construct validity of the measure. Criterion validity was demonstrated by associations in the expected direction between CARD scale scores and the number of children with problem behaviors and learning disabilities in a classroom. Specifically, teachers who rated classroom demands as higher than classroom resources also reported on average 2.020 more children with problem behaviors and 1.370 more children with learning disabilities in their classrooms than teachers who reported that classroom resources were at least equal to classroom demands.

In another study (Lambert, Kusherman, O'Donnell, & McCarthy, 2006), similar reliability and validity evidence was demonstrated for a preschool version of the CARD. Sample-specific reliability evidence was found for the demands ( $\alpha = .941$ ) and resources scale score information ( $\alpha$  = .950). In the same study, factor analysis results were also presented that helped define the construct validity of the measure. Criterion validity was demonstrated by associations in the expected direction between CARD scale scores and the number of children in a classroom with problem behaviors. Specifically, teachers who rated classroom demands as higher than classroom resources also reported on average 1.529 more children with problem behaviors than teachers who reported that classroom resources were at least equal to classroom demands.

Preventive Resources Inventory (PRI; McCarthy et al., 2002). We used the PRI to assess self-reports of preventive coping resources. Responses are indicated on a fivepoint Likert-like scale ranging from "strongly disagree" to "strongly agree," with "neutral" as a midpoint score. Participants are asked to describe the extent to which they agree with prevention-related statements. The measure contains 82 items about personal habits relating to the prevention of stress and includes a total scale, which was used in this study. The total preventive resources scale score is constructed from the mean of all 82 PRI items. In addition to including all the items from each of the scale scores, this total score also includes some additional items that relate to a generalized sense of one's ability to prevent stress.

Items from the five scale scores on the PRI measure perceived control, the belief that one can cope successfully with life demands and manage situations that could potentially become stressful; maintaining perspective, attitudes and beliefs consistent with preventing stressful situations and keeping stress-produced emotions at manageable levels; social resourcefulness, the ability to draw a social network of caring others who can act as a buffer against life demands; self-acceptance, the degree to which one can accept and overcome shortcomings, imperfections, and limitations in dealing with demanding life situations; and scanning, or one's perceived ability to recognize, anticipate, and plan for demands and potential stressors.

Validity evidence for the use of PRI scores has been demonstrated in previous research. Exploratory factor analysis (Mc-Carthy et al., 2002) yielded sample-specific evidence for the construct validity of the information from the measure. Correlations in the expected direction with other measures of stress and coping offered evidence of concurrent validity. A confirmatory factor analysis further supported the factor structure and construct validity of the measure (Lambert, McCarthy, Gilbert, Sebree,

Measure	1	2	3	4	5	6	7
Preventive Resources Inventory:							
1. Total score	.973						
Classroom Appraisal of Resources and Demands:							
2. Demands	113	.926					
3. Stress	170	.825	.945				
Maslach Burnout Inventory:							
4. Emotional exhaustion	306	.414	.415	.859			
5. Depersonalization	203	.262	.296	.574	.630		
6. Personal accomplishment	440	.374	.364	.683	.435	.623	
7. Total score	368	.429	.434	.946	.735	.821	.881

TABLE 2. Correlation Matrix and Reliability Coefficients for Each Scale Score Used in the Models

NOTE.—All correlation coefficients greater than or equal to .155 are statistically significant at p < .001 given n = 451. Reliability coefficients are reported in the main diagonal.

& Steinley-Bumgarner, 2006). In the same study, statistically significant group differences were demonstrated between respondents with known and varying levels of a variety of psychological complaints and symptoms. These differences were in the predicted directions, consistent across all scales and the total score, and moderate to large in magnitude. Standardized mean difference effect sizes between those reporting no symptoms and those with one symptom cluster ranged from .527 to .794. Standardized mean difference effect sizes between those reporting no symptoms and those with multiple symptom clusters ranged from .818 to 1.380. Concurrent validity was also demonstrated through the use of correlations in the expected directions with measures of psychological stress and personality traits.

The scales, along with the Cronbach's alpha values from previous research (Mc-Carthy et al., 2002) and this sample, respectively, are: perceived control (.909 / .914), maintaining perspective (.870 / .882), social resourcefulness (.873 / .865), self-acceptance (.708 / .848), and the total preventive resources score (.949 / .973). The Cronbach's alpha for scanning, a newer scale not used in the previous study (McCarthy et al., 2002), was .924 using this sample (see Table 2).

There were several reasons for using only the total preventive resources scale from the PRI in this study. In this study we attempted to test whether the general perception of one's ability to prevent stress was related to burnout among teachers, and we had no reason to hypothesize that specific coping resources or strategies for preventing stress, as represented by the scale scores, would relate to burnout in unique ways. Therefore the total scale served our purposes and led to a more parsimonious model.

Maslach Burnout Inventory—Educators Survey (MBI-ES; Maslach et al., 1996). The MBI—Educators Survey version (hereafter referred to as MBI) was used to assess burnout symptoms. Respondents are asked to indicate their agreement with statements about feelings related to their jobs, and the only modification of this version of the MBI for educators is that items refer to "students" instead of "recipients" (Maslach et al., 1996). The MBI consists of 22 items and yields scores along three dimensions described earlier: emotional exhaustion (EE), depersonalization (DP), and professional accomplishment (PA).

Each item comprising the MBI is rated on a seven-point frequency scale ranging from "never" (0) to "every day" (6). Nine items comprise the emotional exhaustion scale of the MBI, which asks respondents to rate how frequently they experience such things as fatigue, frustration, and interpersonal stress in their jobs. The depersonalization scale is composed of five items that ask respondents to rate how frequently they have negative experiences with colleagues and clients. The eight items on the personal accomplishment scale ask respondents to rate how frequently they have positive experiences in their jobs. For both MBI-EE and MBI-DP subscales, higher scores correspond to greater experienced burnout. For ease of interpretation in the current study, we reverse coded scores on the MBI-PA subscale so that higher scores correspond to higher experienced burnout (i.e., reduced personal accomplishment) on this dimension as well.

As we noted, the MBI is the foremost measure of burnout, has been used in over 90% of the research on this topic (Hastings et al., 2004; Schaufeli & Enzmann, 1998), and has generally been found to have strong psychometric properties (Maslach et al., 2001). The Maslach Burnout Inventory manual (Maslach, Jackson, & Leiter, 1997) reviews the extensive research on the MBI in many countries and notes that numerous psychometric studies have supported the validity of the three-dimensional structure of the measure.

Maslach et al. (1997) also reviewed studies on the validity and reliability of the MBI-Educators Survey used in this study and reported Cronbach's alphas ranging from .88 to .90 for emotional exhaustion, .74 to .76 for depersonalization, and .72 to .76 for personal accomplishment, which parallel findings for the more general version of the MBI. The overall Cronbach's alpha for the MBI with this sample (see Table 2) was .881, and we obtained values of .859, .630, and .623 for the EE, DP, and PA scales, respectively. With respect to validity evidence, Maslach et al. (1997) also noted that studies have supported the three-factor structure of the MBI-ES with samples of teachers (for a more extensive review, see Maslach et al., 1996, 2001).

#### Analyses

We used theoretical linear modeling (HLM) to nest 451 teachers within the 13 elementary schools where they worked at

the time of the study. We used HLM to facilitate variance decomposition in order to examine the source of variability in burnout responses between schools to address research question 1 and for teachers within schools to address research question 2. If we found between-school variance, this would suggest the importance of schoollevel demographic, organizational, and structural factors in contributing to teacher burnout in a school. Conversely, if little between-school variance was found in burnout symptoms, this would suggest the validity of the transactional model of stress and coping (Lazarus & Folkman, 1984; Mc-Carthy et al., 2002), which presumes that stress experiences leading to burnout are a result of appraisal transactions that the individual teacher makes about environmental conditions and the coping resources available.

We employed a multivariate three-level HLM measurement model to nest item responses within their scale scores, scale scores within teachers, and teachers within their schools. The highest two levels of the model, levels 2 and 3, may be thought of as a multivariate two-level model for the latent scores for each construct, with the lowest level, level 1, serving as a measurement model. Level 1 in this approach is used to estimate the latent scores for each construct. Level 2 serves as the betweenpersons model, much as does level 1 in many two-level HLM applications. Level 3 serves as the between-organizational unit model, as level 2 does in many HLM applications. The HLM measurement model approach allows the researcher to examine the correlations between measures of similar constructs in the context of a nested organizational structure. When data are collected in an inherently nested structure, scores may have different meanings and measurement properties at the level of different organizational units (in this case, teachers and schools) (Raudenbush, 2004). Furthermore, measurement error may function differently at the person and organizational levels and may even be correlated within organizational units. Singlelevel models using ordinary least-squares analyses cannot account for the potential effects of nesting within organizational units on the measurement properties of the information yielded by specific measures (Raudenbush & Bryk, 2002). For further details concerning this type of modeling and an example of this type of analysis, see Raudenbush, Rowan, and Kang (1991).

We specified an initial unconditional model. This model contained no predictors and was used to estimate the decomposition of the variance in the outcome measures into the components that were between MBI items within teachers, between teachers, and between schools. This analysis addressed the first research question.

Next, we specified the conditional models to include the predictor variables in order to address research question 2. The first level nested the items of the outcome measure, the Maslach Burnout Inventory (MBI). within their respective scales. An individual teacher's response to an individual MBI item was the dependent variable in this model. The model contained no intercept, and three uncentered dummy predictor variables, each indicating the scale score assignment for each given item response (Raudenbush & Bryk, 2002). The estimated coefficient for each of these three dummy variables  $(\pi_{pik})$  can be interpreted as the mean score for each person on one of the three MBI scales (emotional exhaustion, depersonalization, and personal accomplishment) and is the model estimated latent score for teacher i within school k on construct *p*. The model also includes a residual term that represents the item effect within respondent, or, in this case, the withinteacher error around a teacher's mean for each construct. The MBI total score was also modeled in a similar but separate univariate model where the level 1 model contained only an intercept and error term and in this way nested all item responses within

a single construct, overall burnout symptoms.

The second-level model was a multivariate one in which the dependent variables  $(\pi_{\textit{nik}})$  were the latent total scores for each teacher on each construct, in this case, the scale scores from the MBL Therefore, the level 2 models nested scale scores within teachers. Demographic predictor variables included the teachers' years of experience and the total number of years they had worked at their current school (each entered as group mean centered), a dummy variable indicating whether teachers were new to the profession (entered as uncentered), and a dummy variable indicating whether they were new to their current school (entered as uncentered). We also included three other predictors based on perceptions of demands and resources: the total preventive coping resource scale from the PRI, and two predictors derived from the CARD-the total scores for the classroom demands scale and a "classroom stress" score (entered as group mean centered). The CARD and PRI scale scores were standardized (M = 0, SD = 1) prior to entry into the models to enhance the interpretation of their coefficients as standardized beta weights. The models include intercepts ( $\beta_{vk}$ ) that can be interpreted as the mean for school k for construct p, that is, each MBI scale score. Due to the centering decisions we made, the intercepts in these models can be interpreted as the schoollevel mean for each construct for teachers who were not new to their schools or to the education profession and had the school mean number of years of experience. These models include residual terms that represent the teacher effect around the school mean.

The third level nested teachers within their schools. The dependent variables for these models were the school means ( $\beta_{pk}$ ). These models contained an intercept ( $\gamma_p$ ) that can be interpreted as the grand mean for construct *p*, or each MBI scale score. The residual term in these models represents the school-specific effect, or error around the grand mean. Given the relatively small number of level 3 units (schools), we did not enter any predictors into the level 3 models. Furthermore, the goals of the study were to test the transactional model of stress and coping by examining the variance decomposition and to determine whether there was sufficient betweenschool variance to warrant the measurement and modeling of school-level contextual variables in future research.

We obtained the classroom stress score from the CARD for each respondent by calculating the difference between her/his total score for the demands section of the CARD and the total score for the resources section of the CARD. We calculated this score because the transactional models of stress and coping described earlier would predict that teachers who rated demands greater than available resources would be at risk for experiencing occupational stress. We used the general form of the reliability of a difference score formula that allows for different variances for each of the component scale scores (Crocker & Algina, 1986) to examine the reliability of the stress score. Given the high reliabilities of the scale scores (demands,  $\alpha = .926$ , resources,  $\alpha =$ .940) and the relatively low correlation between the scales (r = -.208), the reliability of the difference score for this sample was .945. The reliability of the difference score, using the same method, in previous studies was .949 (Lambert et al., 2007) and .950 (Lambert, Kusherman, et al., 2006). Table 2 contains the reliability coefficients and the correlation matrix for all measures used in the models. It should be noted that these correlation coefficients reflect the ordinary relation between the variables, without respect to the nesting of teachers within schools.

### Results

Prior to beginning analysis, we examined whether the data conformed to the assump-

tions of using the proposed analytic strategies. HLM models assume that the level 1 error variance term is normally distributed with a mean of zero and a constant variance. As applied to the models tested in this study, this would be easiest to observe by examining the variances and distributional properties of the item responses. For most of the MBI items, the distributions of item responses were reasonably symmetric and the variances were very similar. For a few of the items, the teachers in this sample reported that the behaviors to which the items referred occurred less frequently than those addressed by the other items. These items, therefore, had smaller variances and more positively skewed distributions. However, we decided to proceed, using the item responses in their original scaling given that the estimation process in HLM models is likely to be unaffected to any substantial degree when the item responses have reasonably similar variances and approximately symmetric distributions (Raudenbush & Bryk, 2002).

## Variance in Burnout Symptoms between Schools

To answer research question 1, the next step in testing each HLM model was to fit unconditional models for both the MBI scale scores and the total score in order to exam variability in burnout between schools. This was initially done using a random-effects model for all three MBI scale scores. However, this model did not converge on an interpretable solution without extending the number of iterations for the algorithm to an unlimited number. This can often indicate model misspecification. In this case, the problem was with the lack of between-school variance to model several of the outcome measures. For the total score, most of the variance across the 9.922 item responses (22 items within 451 respondents) was between items within persons (84.01%). Differences between teachers accounted for 14.91% of the variance, and

Maslach Burnout Inventory Scale	Variance within Persons (%)	Variance between Persons (%)	Variance between Schools (%)	Person Mean Reliability	School Mean Reliability	Variance Reduction between Persons (%)
Emotional exhaustion	69	28.92	2.09	.716	.732	36.1
Depersonalization	87.48	11.29	1.23			
Personal accomplishment	89.96	9.59	.45			
Total score	84.01	14.91	1.08	.716	.732	37.3

TABLE 3. Variance Decomposition and Reliability for Scales on the Maslach Burnout Inventory

1.08% of the variance was between schools. Table 3 contains the equivalent values obtained from the unconditional models for each MBI scale score. Between-teacher variance ranged from as much as 28.9% of total variance for the emotional exhaustion scale to 9.6% for the personal accomplishment scale. The percentage of variance between schools ranged from as little as 0.5% for the personal accomplishment scale to 2.1% for the emotional exhaustion scale. These results suggest that in answer to research question 1, in this sample there was little variability in burnout between schools. The relatively small amount of between-school variance further confirmed our decision to enter no predictors into the level 3 models.

We found sufficient between-teacher variance for the emotional exhaustion and burnout (MBI total score) scores that we tested them within random-effects models. Person mean and school mean reliabilities exceeded .7 for both of these scale score models. However, not enough variance was found between teachers within schools for the depersonalization and personal accomplishment scale scores to use randomeffects models. In addition, the HLM persons mean and school mean reliabilities for both of these scales were less than .5 when the models were initially attempted as random-effects models, further confirming the decision to forgo using the randomeffects models for these outcomes. Because we did not use random-effects models for depersonalization and personal accomplishment, the variance-covariance matrices that were estimated, the  $\tau$  matrices, did

not include the covariances between these MBI scale scores or their respective school means. Therefore, one advantage of the HLM measurement model approach was not realized in this study. However, it is important to note that, when the unconditional models were initially estimated using random effects for all MBI outcomes, the correlations between the scale scores were considerably higher (above .7) than those presented in Table 2, indicating that the constructs may be more related when the nested structure of teachers within schools data set is considered than what has been reported in single-level analyses.

## Individual Teacher Factors and Burnout

Results of the analysis of the level 2 predictors used to answer research question 2 are reported in Table 4. The first two columns of this table show the intercepts, or grand means, for the unconditional and conditional models. The small differences in these values for each outcome indicate the difference between the overall mean for all teachers (the unconditional model) and the overall mean for teachers with the school in number of years of experience (conditional model). This small difference illustrates the relatively small explanatory power related to years of experience. The emotional exhaustion scale score from the MBI was related to years at current school  $(\beta = .024)$ , classroom demands  $(\beta = .224)$ , stress ( $\beta$  = .190), and preventive coping  $(\beta = -.305)$ . This model explained 36.1% of

			TABLE 4. Teache	r-Level Models					
Maslach Burnout Inventory Scale	Unconditional Model Intercept	Conditional Intercept	Years of Teaching Experience	Experience in Current School	Years as New Teacher	New to School	Classroom Demands	Stress	Preventive Resources
Emotional exhaustion: β	2.295	2.321	-000	.024	183	128	.224	.190	305
SE	060.	.092	.007	.010	.237	.164	.076	.079	.048
d	000.	000.	.193	.011	.442	.436	.004	.017	000.
Depersonalization:									
- <del>ପ</del>	.891	668.	001	.010	.038	074	.045	.169	154
SE	.033	.036	.005	.007	.174	.118	.056	.059	.035
d	000.	000.	897.	.142	.825	.533	.426	.004	000.
Personal accomplishment:									
1	1.670	1.669	005	.007	091	.043	.158	.037	280
SE	.026	.028	.004	900.	.137	.094	.044	.046	.028
d	000.	000.	.185	.201	.506	.647	.001	.426	000.
Total score:									
9	1.743	1.755	006	.015	071	073	.159	.129	261
SE	.064	.066	.005	.007	.163	.113	.052	.054	.033
d	000.	000.	.236	.027	.662	.517	.003	.018	000

NOTE.—n = 451 teachers within 13 schools.

the between-teacher variance in emotional exhaustion. The deviance test comparing the explanatory power of the conditional model with the unconditional model (no predictors) was statistically significant,  $\chi^2(21) = 394.13, p < .001$ , indicating the value of the predictors. The depersonalization scale score from the MBI was related to stress ( $\beta$  = .169) and preventive coping  $(\beta = -.154)$ . The personal accomplishment scale score from the MBI was related to classroom demands ( $\beta = .158$ ) and preventive coping ( $\beta = -.280$ ). The total burnout score from the MBI was related to years at current school ( $\beta$  = .015), classroom demands ( $\beta$  = .159), stress ( $\beta$  = .129), and preventive coping ( $\beta = -.261$ ). This model explained 37.3% of the between-teacher variance in burnout. The deviance test comparing the explanatory power of the conditional model with the unconditional model (no predictors) was statistically significant,  $\chi^2(7) = 154.44, p < .001$ , indicating the value of the predictors. The remaining predictors were not statistically significantly related to the outcome measures in either model.

#### Discussion

The results of using HLM analyses to facilitate variance decomposition suggested that, with respect to the first research question, very little of the variance in reported burnout symptoms was found to be between schools. Lazarus and Folkman (1984) suggested that stress results from individual appraisals of demands and resources, and it is interesting that, in addressing research question 2 of this study, most of the variance in burnout symptoms was explained by variance between teachers, not between schools (see Table 3). In other words, teachers' experience of stress appeared to have little to do with differences between the various elementary school contexts. Most variance was accounted for by individual differences between teachers, suggesting that individual perceptions of the balance between resources and demands were most predictive of burnout.

Researchers who study stress have consistently identified perceptions of the sufficiency of both perceived demands and perceived coping resources for dealing with life demands as critical variables in determining whether or not persons will experience harmful stress levels (Matheny et al., 1986; Sapolsky, 1998). A potential contribution of this study is that we found both aspects of this stress equation to be contributors to burnout symptoms. Given Ingersoll's (2001) finding that the primary cause of teacher shortages is not a lack of professionals entering the field but rather a "revolving door" created by teachers leaving the field for reasons other than retirement. it is important that researchers identify factors that lead to teacher burnout and presumably, in the long run, to the decision to leave the field.

Considering that our HLM analyses used a number of predictors of burnout in elementary school teachers (teacher experience, classroom demands, classroom stress, and teachers' preventive coping resources), it is interesting to consider which play an important role in the various components of burnout that Maslach and colleagues suggested (emotional exhaustion, depersonalization, personal accomplishment). Given that emotional exhaustion is widely considered the most central and obvious manifestation of the burnout syndrome (Taris et al., 2005), it is no surprise that in this study it was predicted by a number of variables: teachers' years at their current school, classroom demands, classroom stress, and preventive coping (see Table 4). This model explained more than one-third of the variance in emotional exhaustion and may suggest that the emotional symptoms of burnout (i.e., feeling emotionally drained and frustrated) are connected to perceptions of both demands and resources as Lazarus and Folkman (1984) suggested. It is not surprising that teachers who experience emotional exhaustion report higher perceived demands as well as an imbalance of such demands with classroom resources. What is perhaps more alarming is the relation of time spent in a school to such feelings—teachers in this sample appear to be at greater risk for burnout the longer they work at a school.

This finding is worthy of further investigation and may suggest that teachers' tenure in a school contributes to their perceptions of more demands, fewer resources, or both. Although it is beyond the scope of the current study to explain this finding, we can speculate that more experienced teachers are often given greater nonclassroom responsibilities and administrative functions and are assigned a proportionally greater number of challenging students. As we noted, Lambert, Kusherman, et al. (2006) and Lambert et al. (2007) found that teacher perceptions of stress are related to having higher numbers of challenging students and that the difference between teachers reporting high stress and moderate stress was on average just a few students with special needs.

Only the classroom stress score from the CARD and the total score from the PRI (preventive coping) predicted symptoms of depersonalization (see Table 4). Given Greenglass et al.'s (1996) finding that support from coworkers and supervisors buffered teachers from depersonalization, these results may suggest the need for administrators in schools such as those in this sample to facilitate more formal opportunities for teachers to support each other, perhaps through structured mentoring programs and attendance at staff development outside schools.

Finally, only classroom demands and preventive coping predicted symptoms of personal accomplishment (see Table 4). Given that a decline in personal accomplishment is associated with lower feelings of competence and personal achievement in one's work (Maslach et al., 2001), it is not surprising that excessive demands would lead to reduced feelings of accomplishment. However, Table 4 shows that teachers' self-reports of their preventive resources were an even stronger predictor of reduced personal accomplishment ( $\beta = -0.280$  vs.  $\beta = 0.158$  for demands). Whereas emotional exhaustion and depersonalization may emerge from external factors such as work overload and social conflict, the decreased efficacy associated with lower personal accomplishment seems to arise more clearly from insufficient personal resources (Maslach et al., 2001).

Taken together, these findings suggest that elementary school administrators should consider teacher stress as an important contextual variable when allocating classroom resources. Teachers' professional functioning may be affected by perceived inequalities between classrooms with respect to such factors as number of children with special needs, adult assistants in the classroom, and teacher duties that take place outside of the classroom. Administrators may need to assess the classroom social environment early in the academic year and consider reallocating resources so that teachers perceive equity in these factors. In addition, teachers with more experience should not be considered immune to the effects of stress-the results of this study suggest that increased time working at school can be associated with both symptoms of emotional exhaustion and overall feelings of burnout. Hopefully, a better understanding of elementary teachers' burnout symptoms will slow or halt the exodus of experienced teachers from the field.

#### Limitations

This study had several important limitations, including the convenience nature of the sample and the fact that it came from many (6 of 13) Title I schools. These limitations are particularly important to consider with respect to interpreting the results of research question 1, where we found no differences in burnout symptoms between schools. Our findings are limited by the fact that only three neighboring school systems in one geographic region were represented in the sample. Although we included schools from urban, suburban, and rural settings, the schools had similar demographic compositions in the students and families they served. It should also be noted that this study sampled only 13 schools, the overall response rate was 77.62%, and the school response rates varied from 59.26% to 96.77%. Although the sample of teachers was substantial, not every teacher at a given school participated, and because we sampled only 13 schools, this restricted our ability to examine school effects and include school organizational attributes in the model.

Teachers in the sample also had a wide range of years teaching, and our findings may not generalize to schools or systems with less variation in experience. The findings also may not generalize to teachers who work in other types of settings (i.e., with mostly middle- or upper-middle-class children). Further, we collected all of the data using self-report instruments, and because the findings were correlational, caution should be exercised in making causal inferences. However, given that the transactional model of stress emphasizes the role of the cognitive process by which perceived demands are weighed against perceived resources, self-report data are critical to understanding teacher stress and are an appropriate data-collection strategy given the nature of the research questions.

#### Future Research

Future research using mixed methods by adding some observational and interview data to the survey information may advance the understanding of characteristics of teachers who experience problematic levels of stress. Future research using the CARD and PRI will be most useful if it can extend the reliability and validity evidence for the use of the measure in various educational contexts. Additional studies are needed to increase the evidence for the construct validity of both measures, particularly by using them along with existing measures of coping, burnout, and stress.

It is critical to determine in future research whether a larger and more diverse sample of schools-demographically, regionally, and in terms of the socioeconomic status of the families-results in more between-school variability in the outcome measures than the limited variability we found. A larger and more diverse sample of schools might allow the measurement of school climate and organizational variables that may be associated with aggregate school-level teacher stress and burnout. By nesting teachers within schools in an HLM framework, and by measuring contextual variables such as aggregate school-level poverty, demographic characteristics, management climate and administrator traits, achievement status, and teacher characteristics, future researchers could elucidate relations between school characteristics and school means for the constructs investigated in this study.

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