Identification of Elementary Teachers' Risk for Stress and Vocational Concerns Using the National Schools and Staffing Survey

Richard G. Lambert
University of North Carolina at Charlotte

Christopher J. McCarthy
University of Texas at Austin

Paul G. Fitchett
University of North Carolina at Charlotte
&
Sally Lineback
Jenson Reiser
University of Texas at Austin

Abstract: Transactional models of stress suggest that elementary teachers who appraise classroom demands as higher than classroom resources are more vulnerable to stress and likely to experience vocational concerns. Previous research using the Classroom Appraisal of Resources and Demands (CARD), a measure designed to assess teacher perceptions of classroom demands and resources, has

supported transactional models with local samples. The current study replicated this previous research with two waves of large nationally representative data from the Schools and Staffing Survey (1999-2000 and 2007-2008). Theoretically-predicted differences were found, suggesting that an understanding of individual elementary teachers' perceptions of demands and resources in the classroom could have important implications for policy and research aimed at addressing teachers' vocational concerns.
Keywords: teacher; stress; appraisals; vocational concerns; job satisfaction; retention

El Uso de las *National Schools and Staffing Survey* para Identificar el Riesgo de Estrés y Preocupaciones Profesional de Maestros de Primaria
Resumen: Los modelos transaccionales de estrés sugieren que los maestros de primaria que consideran que las demandas de aula son mayores que los recursos que reciben se enfrentan a un mayor riesgo de estrés y son más propensos a tener inquietudes vocacionales. La investigación anterior utilizando la Evaluación de los Recursos y la Demanda en el Aula (CARD por sus siglas en Inglés), un sistema diseñado para evaluar la opinión de los profesores sobre las demandas y recursos, es compatible con los modelos transaccionales con muestras locales. Esta investigación replico la investigación anterior utilizando dos grupos de datos representativos a nivel nacional de las *Schools and Staffing Survey* (1999-2000 y 2007-2008). Se encontraron diferencias previstas en teoría, lo que sugiere que entender las opiniones individuales de los maestros de primaria sobre las demandas y recursos en el aula puede tener implicaciones importantes para la política educativa y de investigación que tiene como objetivo hacer frente a las preocupaciones de formación profesional de los docentes.
Palabras-clave: los maestros; el estrés; opiniones; inquietudes vocacionales; satisfacción laboral; retención

Usando o *National Schools and Staffing Survey* para Identificar o Risco de Estresse e Preocupações Vocacionais em Professores de Ensino Primário
Resumo: Modelos transacionais de estresse sugerem que professores de ensino primário que consideram que as demandas da sala de aula são maiores do que os recursos que eles recebem enfrentam um risco maior de estresse e são mais prováveis de terem preocupações vocacionais. Pesquisas anteriores usando a Avaliação de Recursos e Demandas da Sala de Aula (CARD por sua sigla em inglês), um sistema criado para avaliar a opinião dos professores sobre demandas e recursos, apoia modelos transacionais com amostras locais. Esta pesquisa reproduziu a pesquisa anterior usando dois grupos de dados representativos nacionais da *Schools and Staffing Survey* (1999-2000 e 2007-2008). Diferenças teoricamente que tinham sido previstas foram encontradas, sugerindo que compreender as opiniões individuais de professores de ensino primário sobre demandas e recursos na sala de aula pode ter consequências importantes para políticas e pesquisas educativas que tem como objetivo lidar com preocupações vocacionais de professores.
Palavras-chave: professores; estresse; avaliações; preocupações vocacionais; satisfação profissional; retenção

Kyriacou and Sutcliffe (1977) defined teacher stress as "a response by a teacher of negative affect …as a result of the demands made upon the teacher in his role as a teacher" which is determined by "the degree to which the teacher perceives that he is unable to meet the demands made upon him" (p. 299). While this definition emphasizes teachers' perceptions of the classroom, in subsequent years research has taken an education production function approach (Hanushek, 2008; Monk, 1988) by focusing on external workforce factors (Zellars, Hochwarter, & Perrewe´, 2004) such as having larger classes (French, 1993) and excessive administrative burdens (Lambert &

Ullrich, 2012; Moriarty, Edmonds, Blatchford, & Martin, 2001). This approach is followed in research on teacher job satisfaction and retention research as well (cf. Ingersoll, 2001; Liu, 2007; Liu & Ramsey, 2008). The resulting line of inquiry follows the historical trend of educational policy analysis and research by examining "inputs" (class size, administrative climate) that are presumed to lead to certain teacher "outputs," such as level of satisfaction and occupational commitment. This approach, while valuable, neglects consideration of the psychological factors associated with teachers' everyday experience of their classrooms.

Incorporating the predominant model of stress, transactional theory (Lazarus & Folkman, 1984), we conceptualize teacher stress as caused by a perceived imbalance of teachers' classroom demands and resources. Meyer (2003) noted that early stress researchers such as Wheaton (1999) used an engineering analogy for stress, "explaining that stress can be assessed as a load relative to a supportive surface" (p. 675). How people appraise their "load" relative to support is a key determinant of vulnerability to stress and recent research has examined the role of appraisals that teachers make of their classroom (Chang, 2009; Chang & Davis, 2009; Kokkinos, Panayiotou, & Davazoglou, 2005). However, much of this research fails to capture the central proposition of transactional models: teacher perceptions of classroom demands vis-à-vis perceived classroom resources are what puts them at risk for stress (Moore, 2006). In other words, it is not appraisals of high demands alone that are hypothesized to lead to stress, but rather a teacher's perceptions that the level of demands exceeds their perceived classroom resources. Accounting for such factors could lead to a better understanding of why some teachers are more vulnerable to stress than others when experiencing the same workforce realities.

Lambert, McCarthy, O'Donnell, and Wang (2009) developed the Classroom Appraisal of Resources and Demands (CARD) to measure both classroom demands and resources with the goal of identifying which elementary teachers view demands as outstripping their classroom resources. The CARD was originally developed for elementary teachers because they are more likely than teachers at other levels to spend most of their workday in the same classroom with the same students, allowing for a more stable context in which demands and resources can be assessed (McCarthy, Lambert, O'Donnell, & Melendres, 2009). A recent meta-analysis of 18 CARD studies using a range of local samples of teachers (many of them elementary level) across various districts and states provided evidence that the CARD measures teachers' appraisals of their classroom demands and resources reliably (McCarthy, Lineback, Lambert, Allender, Reiser, & Murphy, 2014). Further, the validity of the transactional approach for assessing elementary teachers' risk for stress was supported with consistent findings in these studies that elementary teachers perceiving the highest levels of demands with respect to classroom resources were also likely to experience concerns related to student behaviors, report more job dissatisfaction, and less occupational commitment (McCarthy, Lambert, & Reiser, 2014). In other words, such teachers are more likely to report the symptoms associated with stress.

This study examined whether transactional stress research with local samples of elementary teachers using the CARD can be replicated nationally. Fortunately, the Schools and Staffing Survey (SASS) dataset contains many items similar to the CARD Demands and Resources scale. Administered by the National Center for Education Statistics, SASS is the largest and most comprehensive data source available on teachers and schools (Ingersoll & Smith, 2003). Items from the SASS survey addressing similar classroom demands and resources to those measured in the CARD were identified, and this information was used to classify teachers according to stress vulnerability. In addition to surveying teachers about classroom demands and resources, which allows for a replication of the CARD classification strategy, the SASS also includes questions about teachers' vocational concerns (specifically, questions about intentions to remain in teaching, job

security and job satisfaction), classroom characteristics (specifically, questions about class size and composition), and professional autonomy. Examination of whether teachers classified according to level of risk (i.e., vulnerability) for stress was associated with scores on these constructs was considered evidence of stress symptoms and therefore formed the basis for three main research questions investigated.

Background

Examining Teacher Perceptions Using the Transactional Model

The CARD was developed to measure teachers' appraisals of both classroom demands and resources in order to operationalize transactional models of stress (Lambert et al., 2009). Teachers are classified into three groups based on their responses to the CARD: (1) those perceiving classroom resources as greater than demands (labeled the Resourced group), (2) those perceiving classroom demands as equal to resources (labeled the Balanced group), and (3) those perceiving classroom demands as greater than resources (labeled the Demands group). According to transactional models of stress, this last group is theorized to most likely to experience stress symptoms (McCarthy, Lambert et al., 2014; McCarthy, Lineback et al., 2014). This process is represented in Figure 1.
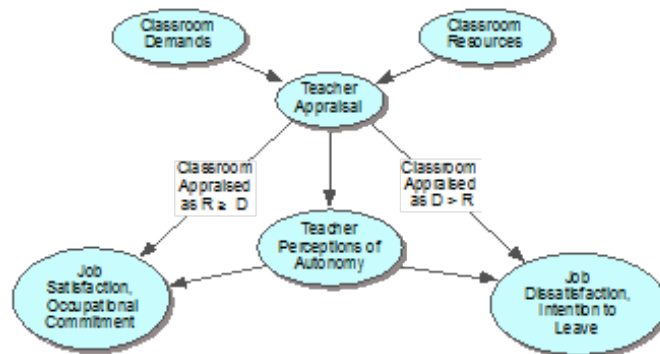
Figure 1. Hypothesized model of teacher risk for stress

As can be seen in the Figure, elementary teachers appraising overall classroom resources as equal to, or exceeding classroom demands, are hypothesized as less vulnerable to stress symptoms. Such teachers are predicted to report higher levels of satisfaction and occupational commitment. As will be described further, a similar pattern for professional autonomy is hypothesized in this study.

Conversely, teachers appraising overall classroom resources as insufficient for classroom demands are hypothesized to be most vulnerable to stress symptoms (McCarthy et al., 2009).

As was noted above, a unique feature of the CARD is that it operationalizes transactional models by accounting for perceived imbalances in teachers' classroom demands. This is accomplished by creating a score for each teacher based on the difference between the Demands and Resources scale scores. This is labeled an Appraisal Index, as it represents the teachers' overall appraisal of whether their classroom resources are sufficient for the magnitude of classroom demands (McCarthy, Lambert et al., 2014). The Appraisal Index therefore serves as a measure of the extent to which teachers experience demand imbalances in their classroom at the level of specific demands and resources, allowing for a more granular understanding of their everyday classroom experience.

In this approach to understanding teacher stress, appraisals are seen as central to understanding why some elementary teachers become dissatisfied with teaching and consider leaving the profession (Folkman & Moskowitz, 2004; McCarthy, Lineback et al., 2014). In the context of this study, it is expected that teachers classified in the Demands group will be more likely to report (a) being dissatisfied with their jobs, (b) more vocational concerns, and (c) lower levels of professional autonomy.

Given that research with the CARD has only been conducted with local samples of elementary and secondary teachers (McCarthy, Lineback et al., 2014), an important question is whether support for transactional models using this methodology can be found in a national sample. The similarity of the SASS to variables investigated in CARD research allowed us to replicate of the classification strategy used to place teachers in the three Appraisal groups: Demands, Balanced, and Resourced. Both the 1999-2000 and 2007-2008 SASS surveys[1] were used in this study because there is some evidence that increased high-stakes testing and accountability brought on by No Child Left Behind (NCLB) has led to increased stressors and demands on many teachers (Berryhill, Linney, & Fromewick, 2009; Grissom, Nicholson-Crotty, & Harrington, 2014). Utilizing the 2000 and 2008 surveys provided information about teachers' perceptions of classrooms, both before and after implementation of the No Child Left Behind Act. The 2007-2008 timeframe was also important to include as it is contemporaneous with recent CARD studies (c.f. McCarthy et al., 2009; McCarthy, Lambert, Crowe, & McCarthy, 2010). The rationale for examining Appraisal group differences in risk for stress with SASS questions about teachers' vocational concerns, classroom characteristics, and autonomy, which formed the three main research questions in this study, will be provided next.

Teacher Vocational Concerns

Ingersoll (2012) noted the United States currently has a significant teacher turnover problem, and labeled the phenomenon of early career teachers exiting as the "greening" of the field. Ingersoll also posited that this greening is mostly due to teacher dissatisfaction and the pursuit of other employment, despite new teachers being hired at an accelerated pace. This attrition rate is considerably higher than other professional occupations (Ingersoll, 2003) and has a detrimental impact on students, teachers, and the overall school climate (Béteille & Loeb, 2009; Guin, 2004; Hong, 2012; Johnson, Craft & Papay, 2012; Ronfeldt, Loeb, & Wyckoff, 2013).

The greening problem may be explained, at least partially, by falling levels of teacher satisfaction. According to the Metlife Survey of the American Teacher (2012), teacher satisfaction has fallen to a 25-year low: only 39% of respondents report that they are very satisfied. In general, job satisfaction research conceptualizes the construct as either overall satisfaction (usually only one question on a survey), or as a construct involving multiple components, including satisfaction with

[1]We will hereafter refer to these datasets as the 2000 SASS and the 2008 SASS.

salary, promotion, working conditions, benefits, and organizational climate (Koeske, Kirk, Koeske, & Rauktis, 1994; Liu & Ramsey, 2008).

Not surprisingly, research using the SASS has consistently demonstrated that satisfaction is related to both intentions to leave and attrition itself. Ingersoll (2001) used the 1990-1991 SASS and the 1991-1992 Teacher Follow-Up Survey to show that job dissatisfaction, or the desire to pursue other employment, accounted for most of the variance in why teachers left their teaching positions. Another more recent study using SASS data found that a teacher's job satisfaction was the most significant predictor of a teacher's intentions to stay in teaching (Tickle, Chang, & Kim, 2011).

Surprisingly, however, we found scant research using the SASS to evaluate the role of stress in teacher dissatisfaction or intention to leave the field. Grissom et al. (2014) used the SASS data to investigate teacher work environments across several administrations of the SASS and defined teacher demands as the number of hours in the week teachers spend working and support from the school, but did examine teacher resources. Interestingly, they found that while teachers' reported weekly work increased 2 hours between 2000 and 2004 (just before No Child Left Behind was enacted), work hours leveled off between 2004 and 2008. This suggests teacher work hours have not necessarily increased since the Act was implemented.

Transactional theorists would suggest that teachers' appraisals of the classroom environment could explain why some teachers become dissatisfied and make plans to leave the profession (McCarthy, Lineback, et al., 2014). A primary question in this study, therefore, is whether teachers classified in the Demands group report more vocational concerns, which are defined as teachers' dissatisfaction with, and intention to leave, the teaching profession (McCarthy, Lambert et al., 2014). Research using the CARD (McCarthy, Lineback, et al., 2014) with local samples has consistently demonstrated that teachers classified in the Demands group report more job dissatisfaction and lowered occupational commitment (Lambert, McCarthy, McCarthy, Crowe, & Fisher, 2012; McCarthy et al., 2009; McCarthy, Lambert, O'Donnell, Villarreal, & Melendres, 2012; McCarthy, Lambert et al., 2014). Further, although based on correlational analyses, one study found that teachers classified in the Demands group reported lowered satisfaction, which in turn was associated with more plans to leave the profession (McCarthy, Lambert, Crowe, & McCarthy, 2010). In other words, teachers' appraisals of high demand vis-à-vis their resources could be antecedent to, and possibly be the reason for, higher levels of dissatisfaction. Therefore a primary goal of this study was replication of our findings connecting teacher's risk for stress and vocational concerns with the SASS.

Classroom Structural Characteristics and Student Behavioral Tendencies

Though salary is frequently referenced as a substantial predictor of where and how long one remains in the classroom (Guarino, Santibãnez, & Daley, 2006; Hanushek & Rivikin, 2007), Béteille and Loeb (2009) note in their review of educational policy literature that "non-wage characteristics" are important to consider in determining professional trajectory of teachers. Research has specifically connected classroom working conditions and climate to teacher satisfaction, mobility, and attrition (Ingersoll, 2001; Johnson, Berg, & Donaldson, 2005; Simon & Johnson, 2013). Classroom management issues, particularly with respect to student behavior, is a common source of teacher stress (Chang, 2009; Eskridge & Coker, 1985; Lewis, Roache, & Romi, 2011; Sutton, Mudrey-Camino, & Knight, 2009). Here again, it is important to understand which teachers are most vulnerable to stress caused by classroom factors: as Chang asked with respect to stress caused by disruptive behaviors, "how does one teacher manage to survive while another is depleted by it?" (Chang, 2009, p. 202).

Research using the CARD has demonstrated that teachers in the Demands group experience their classrooms differently (McCarthy, Lineback et al., 2014): they perceive more challenges due to

student behavior and tend to report larger classroom sizes. In this replication study, we asked if appraisal group differences (Demands, Balanced, and Resourced) could be found in teachers' self-reports about classroom characteristics and student behavioral characteristics contained in the 2000 and 2008 SASS. Both the 2000 and 2008 SASS datasets included numerous questions about teachers' classroom characteristics and the behavioral tendencies of their students (class size, students with learning issues, students with attendance issues, students with problem behaviors, having been attacked or threatened, satisfied with class size, and wasting time as a teacher) and previous studies have examined whether classroom characteristics are linked to teacher turnover. For example, Feng (2010) utilized the 2000 SASS dataset along with a state data set from Florida to show that higher levels of teacher-specific disciplinary incidents were associated with greater levels of teacher turnover. Likewise, Ingersoll and May (2012) found that for both math and science teachers, the incidence of student discipline problems was positively associated with teacher turnover. Examining class size, Schcrff and Hahs-Vaughn (2008) indicated that a minority (40%) of SASS-surveyed English teachers were satisfied with their class size. In a study of teachers in Florida using a statewide data set, teachers who were less experienced (defined as 1-5 years of teaching) had higher percentages of students with Individualized Education Plans and Language Education Plans (Feng, 2010). Once again, however, stress has not been examined as a possible factor in SASS research establishing connections between classroom variables and vocational concerns.

As was noted, studies using the CARD have explored the link between stress and classroom factors by examining whether Demands teachers' classroom characteristics differ in significant ways from Resourced and Balanced teachers. CARD research on this topic has provided mixed findings: Lambert, McCarthy et al. (2012) found that teachers classified as Resourced reported smaller classrooms and teachers in the Demands group reported greater percentages of students with learning disabilities, problem behaviors, and poor attendance. However, while Lambert, McCarthy, O'Donnell, and Melendes (2007) also found that teachers classified in the Demands group reported more students with problem behaviors and learning disabilities, they found no differences in class size or reported percentages of students who were English language learners or had poor attendance. Given such equivocal findings using the CARD, and the lack of research on teacher stress with the SASS, the current study sought to examine whether differences in classroom characteristics and student behavioral tendencies exist between teachers classified in each of the Appraisal groups using SASS data.

Teacher Autonomy

SASS items related to teacher autonomy allowed for an extension of teacher stress research with an important construct not addressed in prior transactional stress CARD studies. A teacher's sense of autonomy at work, which entails pedagogical, organizational, principle, and routine decision-making (Friedman, 1999), correlates highly with job satisfaction and other teacher attitudes (Pearson, 1998). Lam and Yan (2011) found that professional autonomy significantly influenced job satisfaction and teaching motivation. Research by Pearson and Moomaw (2005) examined the relationship between teacher autonomy and job stress, work satisfaction, empowerment, and professionalism, and found that as teachers' autonomy over curriculum increased, job stress decreased. Additionally, Jiang (2005) found that involving teachers in curriculum reform facilitated teachers' autonomy and reduced levels of burnout.

Research using the SASS has examined two types of autonomy variables: school influence and classroom control. Though they have varying names in the literature, researchers have typically used the same or similar questions from the SASS in order to develop scales around these constructs (e.g. Ingersoll & May, 2012; Jackson, 2012; Liu, 2007).

School influence. Research on school influence using SASS data defines school influence as the perception that teachers have over school policy decisions and involves items relating to teachers' perceived influence over school-wide issues such as hiring, policies, and non-teaching related duties (Jackson, 2012). Higher levels of school influence have been associated with a greater likelihood of teachers staying in their current positions than either to move schools or leave teaching (Jackson, 2012), with higher retention of specifically math and science teachers (Ingersoll & May, 2012), and with greater intentions of remaining in the teaching profession (Sedivy-Benton, Boden, & McGill, 2012). Liu (2007) also found that having school influence rapidly decreases the attrition rate for first year teachers. Lastly, Price and Collett (2012) conducted a structural equation modeling study using data from elementary teachers in the 2004 SASS dataset. They uncovered a construct operationalized as interdependence (which uses the same questions on the SASS that others have termed "school influence") was positively related to commitment to stay in the profession directly and also through the additional variables of increased interaction with colleagues, positive affect, enthusiasm, and satisfaction.

Classroom control. Classroom control, also called instructional autonomy, is commonly defined as a teacher's sense of authority and control over her or his own classroom decision-making, including both teaching and testing (Pearson & Hall, 1993; Pearson & Moomaw, 2005). Ingersoll and May (2012) found that for math teachers, classroom control was the single greatest predictor of a teacher remaining in the same teaching position, higher than school influence. Sedivy-Benton et al. (2012) found that for teachers responding in the 2008 SASS dataset, classroom control was positively associated with intentions of remaining in the teaching profession. Grissom et al. (2014) found that feelings of classroom control have increased overall from 1994-2008, but classroom control has fallen between 2004 and 2008. They also found evidence that NCLB positively affected perceptions of classroom control between 2000 and 2004.

Given that teacher autonomy has not been explored in previous CARD research, the current study examined possible differences in school influence, classroom control, and an overall composite of teacher autonomy (school influence plus classroom control) among the three Appraisal groups. For teachers in the 2000 SASS dataset, both school influence and classroom control were examined. Given that the 2008 SASS did not include the questions comprising the school influence scale, we examined only classroom control for that data set.

Goals of the Current Study

The current study was designed to replicate the three-group classification system used in previous CARD research (Demanded, Balanced, and Resourced) with elementary teachers in the SASS data set. Three questions guided the research:

1. Are Appraisal group differences (Demands, Balanced, and Resourced) observed in questions regarding teachers' perceived vocational concerns contained in the 2000 and 2008 SASS (specifically, questions relating intentions to remain in teaching, job security and job satisfaction)?
2. Are Appraisal group differences (Demands, Balanced, and Resourced) observed in questions regarding teachers' classroom characteristics and student behavioral characteristics contained in the 2000 and 2008 SASS?
3. Are Appraisal group differences (Demands, Balanced, and Resourced) observed in questions reporting teachers' perceived autonomy contained in the 2000 and 2008 SASS?

Methods

Participants and Materials

The participants in this study were elementary teacher respondents to the 2000 and 2008 Schools and Staffing Survey (SASS). As was noted previously, the CARD was originally developed with elementary teachers given their relatively intact classrooms. CARD surveys also include questions about teacher demographic and professional background, certification and training, and professional development activities, and this type of information is summarized for the elementary teacher respondents from the SASS in this study in Table 1. Extensive sets of questions also address classroom organization, available resources, assessment activities, working conditions, school policy and decision-making, and general employment information.

Both waves of the SASS used a complex multi-stage sampling procedure in which buildings were sampled and then samples of teachers were selected from within each sampled school. The SASS was designed to create a nationally representative sample of teachers and to collect data regarding their perceptions of school climate, overall employment and working conditions, and descriptive data about school contexts throughout the nation (NCES, 2007). Low incidence groups of teachers were oversampled.

Since many, though not all, previous CARD studies included full-time elementary school regular classroom teachers, the full SASS teacher data file was reduced to a sample of full-time public school elementary teachers (n=9,300).[2] Weighted percentages are reported using the normalized version of the final teacher weight to adjust the sample to be nationally representative of the teacher population at the time the survey responses were collected.

Procedures

First, our research team reviewed items from the Classroom Appraisal of Resources and Demands (CARD) along with items from the SASS Public School Teacher Questionnaire in order to identify items with theoretical, conceptual, and thematic similarity of content. A total of 21 SASS items were identified by overall thematic content as possible matches to the Demands items from the CARD in the 2000 SASS, and 13 items in 2008 SASS (see Appendix B for a list of all items from the SASS selected to match the Demands and Resources scales from the CARD). A total of 15 SASS items were identified as possible matches to the content of items from the Resources section of the CARD in 2000 SASS and 11 items in 2008 SASS and were used to form the Resources scale (see Appendix B).

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[2] [2]All sample sizes were rounded to the nearest 10 in keeping with NCES policies of data disclosure.

Table 1
Demographic Characteristics of the Samples

Demographic variable	Category	1999-2000 Weighted %	2007-2008 Weighted %
Urbanity of school	Central city	29.3	27.2
	Urban fringe	50.2	49.1
	Small town or rural	20.5	23.6
Census region	Northeast	18.4	18.9
	Midwest	22.0	21.4
	South	38.1	40.8
	West	21.5	19.0
Ever taught in a private school	Yes	12.8	11.0
	No	87.2	89.0
Years of teaching experience	Less than two	7.0	11.4
	Two or more	93.0	88.6
Highest educational degree	Bachelor's only	58.4	49.6
	Graduate degree	41.6	50.4
Union member	Yes	80.7	76.8
	No	19.3	23.2
Gender	Male	9.7	15.6
	Female	90.3	84.4
Race	Native American	0.8	1.1
	Asian or Pacific Islander	2.4	1.9
	African American	8.7	7.9
	European American	88.0	90.1
Hispanic	Yes	6.6	7.9
	No	93.4	92.1

Next, we conducted a content validity study in which we surveyed a panel consisting of educational research experts (*n*=5), elementary teachers (*n*=3), and school administrators (*n*=4). The 12 member panel was provided with the elementary version of the CARD and the proposed items from the SASS. The panel members were asked to indicate the extent to which they agreed that CARD items measured classroom Demands and Resources respectively. They were also asked the extent to which they agreed that the proposed SASS items focused on similar themes to those addressed by the CARD. The panelists were also asked a series of open-ended questions focusing on their general opinions about classroom resources and demands for elementary teachers. Almost all of the panelists (91.67%) answered "Agree" or "Strongly Agree" to the question about whether CARD Demands items address classroom demands. Similarly, 91.67% of the panelists answered "Agree" or "Strongly Agree" to the question about whether CARD Resources items address classroom resources. A majority of panelists (72.73%) answered "Agree" or "Strongly Agree" to the

question about SASS demands items being thematically consistent with CARD Demands items. Similarly, a majority of panelists (83.33%) answered "Agree" or "Strongly Agree" to the question about SASS resource items being thematically consistent with CARD Demands items. Based on these results, we proceeded with the development of SASS Demands and Resources scales.

A specific case of the one parameter item response theory (IRT) model, the Rasch rating scale model, was used through the WINSTEPS software package to combine the SASS responses to the identified items for each data set into scale scores and estimate ability parameters for each teacher. The scores were scaled to have a mean of 500 and a standard deviation of 100. The resulting Demands and Resources scale scores were moderately correlated in both waves (r_{2000}=-.404; r_{2008}=-.479). The two waves of data provided scores on the SASS Demands scales that were adequately reliable (α_{2000}=.898, α_{2008}=.870). The two waves of data provided scores on the SASS Resources scales that were adequately reliable (α_{2000}=.837, α_{2008}=.832).

In order to match the previous protocol for classifying teachers using the CARD, an Appraisal index score was created based on the difference between the Demands and Resources scale scores in both waves (reliability$_{2000}$=.906; reliability$_{2008}$=.900). This reliability coefficient is based on the reliability of a difference score. Also following the CARD scoring protocol, a 95% confidence interval was formed around no difference between the Demands and Resources scale scores (McCarthy, Lambert et al., 2014). Teachers who provided difference scores greater than the upper limit of this interval were classified in the Demands group, those who provided difference scores below the lower limit of the confidence interval were classified in the Resourced group, and those with difference scores within the interval were classified in the Balanced group.

The third goal of this study also necessitated scale creation, and SASS items that address teacher perceptions about their autonomy in the school and classroom were formed. For 2000 survey, items reporting teachers' perceptions on their influence over school-wide issues such as staffing, budgeting, and instructional policy were used to form the School Influence (Cronbach's alpha=.807) scale score using Rasch IRT modeling. Both surveys include items that address teachers' perception of control over instructional materials, teaching strategies, and student discipline issues within the classroom. Through the Rasch model, these items were used to form the Classroom Control scale scores (Cronbach's α_{2000} =.759; Cronbach's α_{2008} =.726) scale score. The Rasch model was also used to form the Total Autonomy scale score (Cronbach's alpha=.830), a total score for the 2000 SASS dataset only.

Given the complex, multi-stage sampling procedures, the purposeful oversampling, and the varying non-response rates across subgroups of teachers, specialized statistical procedures were necessary in order to both weight the results to be nationally representative and to calculate the appropriate standard errors and significance tests. The AM software was used for these purposes. Throughout the results section whenever robust percentages, means, or standard errors are referred to, these values were obtained from AM by using the final teacher sampling weights and the replicate weights with the Balanced Repeated Replication estimation method.

Results

Teachers were classified into groups based on their Appraisal index score according to the CARD scoring protocol, as described in the previous section, resulting in the following sample sizes in the three groups the 2000 data: Resourced *n*=2,860 (30.7%), Balanced *n*=4,020 (43.2%), and Demands *n*=2,420 (26.1%). Classification frequencies were similar in the 2008 data: Resourced *n*=2,900 (24.2%), Balanced *n*=5,930 (49.5%), and Demands *n*=3,150 (26.3%). These national data suggest approximately a quarter of elementary teachers can be considered as at risk for occupational

stress. These values reflect the results of the CARD classification strategy when applied to the total sample of teachers across each of the waves. The reported sample sizes may vary from these values in subsequent analyses due to missing data.

Appraisal Group Differences Across Teachers' Perceived Vocational Concerns

Prior to examining our research questions, we investigated whether there were differences between the three teacher stress groups according to location of the teacher's school. Using the 2000 SASS data, the weighted results indicate that there were statistically significant associations between membership in the three stress groups and both census region ($\chi^2_{(6)}$=108.59, p<.000) and urbanicity ($\chi^2_{(4)}$=217.55, p<.000) of school location. Of teachers working in urban schools, 34.3% of them were in the Demands group and 20.9% were in the Resourced group. In contrast, only 20.4% of teachers in suburban schools were in the Demands and 34.3% were in the Resourced group. Similarly, in rural schools 23.3% of teachers were in the Demands group and 27.9% were in the Resourced group. For teachers working in the Northeast, 35.9% were in the Resourced group and 22.3% were in the Demands group. A similar pattern was found in the Midwest where 32.5% were in the Resourced group and 19.9% were in the Demands group. However, in the South and West, the pattern was quite different. In the South, 27.4% were in the Resourced group and 27.7% were in the Demands group. In the West, 22.8% were in the Resourced group and 27.7% were in the Demands group.

Similar patterns were found when using the 2008 SASS data. The weighted results indicate that there were statistically significant associations between membership in the three stress groups and both census region ($\chi^2_{(6)}$=96.60, p<.000) and urbanicity ($\chi^2_{(4)}$=424.03, p<.000) of school location. Of teachers working in urban schools, 38.3% of them were in the Demands group and 16.9% were in the Resourced group. In contrast, only 21.7% of teachers in suburban schools were in the Demands and 31.1% were in the Resourced group. Similarly, in rural schools 25.6% of teachers were in the Demands group and 23.0% were in the Resourced group. For teachers working in the Northeast, 32.1% were in the Resourced group and 24.0% were in the Demands group. In the Midwest where 25.7% were in the Resourced group and 24.0% were in the Demands group. In the South, 24.5% were in the Resourced group and 27.6% were in the Demands group. In the West, 22.2% were in the Resourced group and 31.9% were in the Demands group.

We addressed the first research question by investigating Appraisal group differences in vocational concerns (see Table 2 for SASS items utilized in these analyses). Each of these SASS items was used as an outcome measure to test for differences between the three CARD Appraisal groups. Given previous findings with the CARD, we hypothesized that teachers in the Demands group would rate their occupational conditions more negatively than their colleagues in the other Appraisal groups.

As can be seen in Table 2, there were statistically significant and large differences in the expected directions between the Demands and the two other Appraisal groups on outcomes for vocational concerns for both the 2000 and the 2008 data sets. Several of the SASS questions show in Table 2 focused specifically on retention issues, and teachers in the Demands group were much less likely to report they would become a teacher again (75.3% for 2000 SASS and 76.6% for 2008 SASS) than those classified in the Resourced group (94.3% for 2000 SASS and 94.5% for 2008 SASS) and much less likely to report they would return to teaching the next year (65.1% for 2000 SASS and 67.2% for 2008 SASS) than Resourced teachers (86.0% for 2000 SASS and 85.2% for 2008 SASS). Teachers in the Demands group were also more likely to agree or strongly agree that they were worried about their job security than their peers in the Balanced or Resourced group (see Table 2).

   SASS questions asking about satisfaction and wasting time as a teacher also revealed large differences between the Appraisal groups. While overall most teachers in both the 2000 and 2008 SASS reported they were at least somewhat satisfied with their jobs, an inspection of Table 2 reveals that the modal response of teachers in the Resourced and Balanced groups was "Strongly agree" while for Demand teachers it was "Somewhat agree." While only the 2000 SASS included questions about satisfaction with class size and perceptions of wasting time as a teacher, once again the modal response of teachers in the Resourced and Balanced groups was "Strongly agree" while the Demands group was evenly split between "Strongly" and "Somewhat" agree for satisfaction with class size. Teachers in the Demands group were also much more likely to report feeling like they were wasting time as a teacher.

Table 2.
Teacher Vocational Satisfaction by Appraisal Group

Item	Response		**2000 SASS**			**2008 SASS**		
			Resourced Group *n=2,310*	**Balanced Group** *n=3,880*	**Demands Group** *n=2,090*	**Resourced Group** *n=3,090*	**Balanced Group** *n=5,660*	**Demands Group** *n=3,230*
Would become a teacher again	Yes	Weighted %	94.3	85.9	75.3	94.5	87.2	76.6
		Robust se	0.67	0.62	1.29	0.66	0.67	1.35
	No	Weighted %	5.7	14.1	24.7	5.5	12.8	23.4
		Robust se	0.67	0.62	1.29	0.66	0.67	1.35
Will return to teaching next year	Yes	Weighted %	86.0	77.1	65.1	85.2	78.3	67.2
		Robust se	0.95	0.93	1.18	1.22	1.02	1.76
	No	Weighted %	14.0	22.9	34.9	14.8	21.7	32.8
		Robust se	0.95	0.93	1.18	1.22	1.02	1.76
Worried about job security	Strongly agree	Weighted %	5.0	7.7	15.3	3.0	6.6	14.8
		Robust se	0.63	0.70	1.06	0.57	0.68	1.38
	Somewhat agree	Weighted %	18.9	25.4	32.1	18.2	25.8	31.6
		Robust se	1.06	0.96	1.24	1.23	1.02	1.56
	Somewhat disagree	Weighted %	22.9	32.4	26.6	25.2	33.1	29.3
		Robust se	1.08	0.92	1.23	1.35	1.03	1.50
	Strongly disagree	Weighted %	53.3	34.5	26.0	53.6	34.5	24.4
		Robust se	1.34	1.03	1.21	1.59	1.25	1.55

Table 2. (Cont'd)
Teacher Vocational Satisfaction by Appraisal Group

Item	Response		2000 SASS			2008 SASS		
			Resourced Group n=2,310	**Balanced Group** n=3,880	**Demands Group** n=2,090	**Resourced Group** n=3,090	**Balanced Group** n=5,660	**Demands Group** n=3,230
Satisfaction with	Strongly agree	Weighted % Robust se	88.3 0.88	59.3 1.22	21.4 1.11	93.0 0.88	64.5 1.18	24.3 1.34
	Somewhat agree	Weighted % Robust se	10.9 0.85	36.4 1.13	49.9 1.44	6.5 0.86	32.9 1.13	54.1 1.36
	Somewhat disagree	Weighted % Robust se	0.2 0.11	3.3 0.40	20.7 1.32	0.3 0.23	2.2 0.33	15.8 1.27
	Strongly disagree	Weighted % Robust se	0.6 0.17	0.9 0.17	8.0 0.83	0.1 0.08	0.5 0.14	5.8 0.91
Satisfaction with class size*	Strongly agree	Weighted % Robust se	53.0 1.40	38.6 0.92	28.8 1.38			
	Somewhat agree	Weighted % Robust se	27.1 1.00	29.7 0.84	27.4 1.35			
	Somewhat disagree	Weighted % Robust se	11.4 0.80	15.3 0.75	16.7 1.06			
	Strongly disagree	Weighted % Robust se	8.4 0.71	16.4 0.65	27.1 1.32			

Table 2. (Cont'd)
Teacher Vocational Satisfaction by Appraisal Group

			2000 SASS			2008 SASS		
			Resourced Group *n*=2,310	**Balanced Group** *n*=3,880	**Demands Group** *n*=2,090	**Resourced Group** *n*=3,090	**Balanced Group** *n*=5,660	**Demands Group** *n*=3,230
Item	**Response**							
Wasting time as a teacher*	Strongly agree	Weighted %	1.5	1.9	7.7			
		Robust se	0.28	0.28	0.82			
	Somewhat agree	Weighted %	3.6	13.0	27.6			
		Robust se	0.52	0.71	1.42			
	Somewhat disagree	Weighted %	6.8	16.7	18.6			
		Robust se	0.63	0.83	1.15			
	Strongly disagree	Weighted %	88.2	68.4	46.0			
		Robust se	0.88	1.01	1.63			

Note.* Denotes items that appeared on the 2000 SASS only

Appraisal Group Differences among Classroom and Student Behavioral Characteristics

Table 3 provides results for questions about whether teachers were ever threatened or attacked from the 2000 and the 2008 SASS data sets, and it is clear from these results that teachers classified in the Demands group were much more likely to report both. The 2000 SASS included questions about attendance problems (tardiness) and behavior problems (interruptions) (see Table 4). The following differences between the Demands and Resourced groups, reported as effect sizes, were found: tardy students ($d = .711$), and interruptions due to problem behaviors ($d = .550$). The 2008 SASS did not include these questions. Both the 2000 and the 2008 SASS data sets also included questions about classroom size, number of students with an Individualized Education Plan (IEP), and number of Limited English Proficiency (LEP) students. In Table 4, statistically significant differences between the three Appraisal groups are shown across each classroom variable for the 2000 SASS.

All the differences indicated higher concentrations of demanding student behaviors and students with an IEP or LEP in the classrooms of Demands teachers. The following differences between the Demands and Resourced groups, reported as effect sizes, were found: class size ($d = .142$), children with an IEP ($d = .182$), children with an LEP ($d = .396$). The 2008 SASS also included these questions, but differences were only found for children designated LEP ($d = .467$).

Table 3.

Teacher Experience with Threatening Behavior by Appraisal Group

Item	Response		2000 SASS			2008 SASS		
			Resourced Group *n*=2,310	**Balanced Group** *n*=3,880	**Demands Group** *n*=2,090	**Resourced Group** *n*=3,090	**Balanced Group** *n*=5,660	**Demands Group** *n*=3,230
Ever threatened	Yes	Weighted %	7.1	14.2	28.3	6.7	15.2	32.3
		Robust se	0.62	0.71	1.28	0.85	0.96	1.38
	No	Weighted %	92.9	85.8	71.7	93.3	84.8	67.7
		Robust se	0.62	0.71	1.28	0.85	0.96	1.38
Ever attacked	Yes	Weighted %	7.6	11.1	19.7	5.9	11.1	18.4
		Robust se	0.68	0.60	1.20	0.71	0.69	1.16
	No	Weighted %	92.4	88.9	80.3	94.1	88.9	81.6
		Robust se	0.68	0.60	1.20	0.71	0.69	1.16

Table 4.
Classroom Structural Characteristics and Behavioral Tendencies

2000 SASS		Resourced Group (R) n=1,810	Balanced Group (B) n=3,060	Demands Group (D) n=1,660	Contrasts	F	Demands vs. Resourced Effect Size
Class size	Unweighted mean	20.247	20.626	20.844			
	Weighted mean	20.843	21.084	21.737	D > R,B	3.789*	0.142
	Robust sd	5.602	14.307	6.944			
	Robust se	0.158	0.509	0.279			
Students with an IEP	Unweighted mean	2.649	2.896	3.367			
	Weighted mean	2.687	2.929	3.353	D > B > R	8.807***	0.182
	Robust sd	3.293	3.502	4.034			
	Robust se	0.093	0.078	0.119			
LEP students	Unweighted mean	1.592	2.426	3.636			
	Weighted mean	1.453	2.153	3.547	D > B > R	27.624***	0.396
	Robust sd	3.793	4.86	6.547			
	Robust se	0.107	0.118	0.278			
Tardy students	Unweighted mean	1.867	2.639	3.7			
	Weighted mean	1.869	2.706	3.885	D > B > R	121.411***	0.711
	Robust sd	1.957	3.107	3.565			
	Robust se	0.06	0.07	0.133			
Interruptions due to problem behaviors	Unweighted mean	10.598	14.539	19.159			
	Weighted mean	11.017	15.055	20.428	D > B > R	58.724***	0.55
	Robust sd	14.307	16.231	19.767			
	Robust se	0.509	0.37	0.676			

Table 4. (Cont'd)
Classroom Structural Characteristics and Behavioral Tendencies

2008 SASS		Resourced Group (R) $n=1,652$	Balanced Group (B) $n=3,060$	Demands Group (D) $n=1,465$	Contrasts	F	Demands vs. Resourced Effect Size
Class size	Unweighted mean	20.194	20.308	20.237			
	Weighted mean	20.489	20.425	20.32		0.248	-0.027
	Robust sd	6.371	6.656	6.01			
	Robust se	0.282	0.208	0.334			
Students with an IEP	Unweighted mean	2.534	2.737	2.876			
	Weighted mean	2.58	2.78	2.68		0.935	0.047
	Robust sd	3.116	3.141	3.096			
	Robust se	0.143	0.093	0.137			
LEP students	Unweighted mean	1.213	1.939	2.912			
	Weighted mean	1.673	2.942	3.928	D > B > R	21.978***	0.467
	Robust sd	3.682	5.242	5.864			
	Robust se	0.186	0.215	0.323			

Note. * - *p*<.05, ** - *p*<.01, *** - *p*<.001.

Table 5.
Autonomy Scale Scores by Appraisal Group

2000 SASS		Resourced Group (R) n=2,310	Balanced Group (B) n=3,880	Demands Group (D) n=2,090	Contrasts	F	Demands vs. Resourced Effect Size
School Influence	Unweighted mean	542.429	502.808	447.432			
	Weighted mean	537.573	495.981	440.510	D > B > R	341.578***	-1.073
	Robust sd	86.309	87.818	94.769			
	Robust se	2.029	1.491	3.023			
Classroom Control	Unweighted mean	538.813	499.862	465.124			
	Weighted mean	532.975	494.005	454.618	D > B > R	215.505***	-0.825
	Robust sd	101.561	92.679	86.990			
	Robust se	2.723	1.877	2.296			
Total Autonomy	Unweighted mean	544.076	502.058	450.300			
	Weighted mean	539.164	495.763	441.069	D > B > R	415.143***	-1.148
	Robust sd	87.207	78.082	83.393			
	Robust se	2.177	1.623	2.495			
		(R) n=3,150	(B) n=5,930	(D) n=2,900	Contrasts	F	Effect Size
2008 SASS Classroom Control	Unweighted mean	533.377	500.476	469.020			
	Weighted mean	527.209	493.016	459.627	D > B > R	114.875***	-0.762
	Robust sd	98.740	94.590	94.705			
	Robust se	3.517	2.510	3.774			

*Note. * - p<.05, ** - p<.01, *** - p<.001.*

Appraisal Group Differences and Teachers' Perceived Autonomy

As was noted above, items examining Classroom Control were available for both the 2000 and 2008 SASS (see Appendix A).

Noted in Table 5, Demands group teachers reported statistically significantly lower scores in the 2000 SASS on all three measures as compared to Resourced teachers: School Influence ($d =$ -1.073), Classroom Control ($d = -.825$), and Total Autonomy ($d = -1.148$); further, the same pattern of difference was found for Classroom Control for the 2008 SASS ($d = -.762$).

Discussion

Two important patterns to the results of this study are worthy of note. First, the results were not appreciably different across the 2000 SASS and the 2008 SASS, suggesting that the pattern of results in this study have not changed appreciably during the intervening years. Grissom et al. (2014) also found no differences in job satisfaction reported by teachers in SASS surveys before and after NCLB. Second, this pattern of findings replicates previous research with the CARD using local samples of teachers; specifically teachers classified in the Demands group had lower levels of job satisfaction and were more likely to be planning to leave the profession (AUHTOR, 2012b, 2014a).

The findings were more equivocal with respect to Appraisal group classifications and classroom characteristics. While previous CARD research using local samples of teachers has indicated that teachers classified in the Demands group report students with problem behaviors and learning disabilities in greater frequency (AUHTOR, 2007a), in this study a consistent pattern of theoretically-predicted group differences was found only in the 2000 SASS. However, the 2008 SASS only contained items on class size and percentage of students with an IEP or LEP. Statistical significance across groups was only found for the LEP percentage. It is important to note that such associations, statistically significant or not, do not imply that students with special needs are the cause of teacher stress. Rather, these patterns, especially for the 2000 SASS, suggest that classroom characteristics are an important factor in teachers' everyday experience of their work environment. As noted in previous studies (Béteille & Loeb, 2009; Boyd, Lankford, Loeb, & Wyckoff, 2005; Hanushek & Rivkin, 2007), school context can have a significant effect on teachers' professional trajectory and vocational concerns. Specifically, more recent research suggests that working conditions, rather than the student demographics, are better predictors of teacher attrition and mobility (Johnson, et al., 2012; Simon & Johnson, 2013). While not the primary focus of this study, findings from our analyses suggest that particularly challenging school environments frequently associated with high minority, high poverty schools might place teachers at risk for stress—thus potentially exacerbating teacher mobility and attrition.

Research question three extended previous research by examining classroom variables not investigated in previous research with the CARD. Again, we found that the Demands group differed in important ways from the other groups. The results provided in Table 5 support previous research examining teacher autonomy and its association with teacher welfare and stress (Jiang, 2005; Pearson & Moomaw, 2005). Hargreaves (1994) suggested that taking measures to increase the professionalism of teaching, particularly in teachers' control over instructional decision-making, may reduce teacher pressure, stress, and the perception of the inadequacy of time, a suggestion supported in this study. Providing opportunities for teachers to take on leadership roles within the school is associated with improved commitment to the profession, perceived autonomy, and efficacy (Smylie & Denny, 2001; York-Barr & Duke, 2004). Specifically, fostering environments of distributed leadership that give teachers greater professional responsibilities and control over their workplace

environments has the potential to improve workplace climate and alleviate teacher stress (Hulpia, Devos, & Rosseel, 2010; Spillane, 2012).

These results support evidence than has been found in previous research with the CARD – teachers classified in the Demands group have different perceptions of their professional environment and work under conditions substantially different from other teachers. The results suggest that if administrators, and society at large, is interested in retaining a higher proportion of their teachers, it can be important to address perceived imbalances in workloads for teachers. In other words, considering how teachers perceive their workplace climate can be a valuable asset for school- and district-level leaders interested in retention and curtailing mobility.

Instead of pursuing unilaterally "top-down" educational mandates that do not take into account how the aims align with the capabilities of teachers, policymakers should consider pursuing "bottom-up" approaches toward policy implementation (Cohen & Moffitt, 2010; Cohen, Moffitt, & Goldin, 2007). The importance of administrators and other support professionals developing strategies to professionally enfranchise teachers so that they may take part in decision-making processes is implied from our findings. For example, involving teachers in the process of assigning children to classrooms, giving them the freedom to make their own decisions regarding curriculum and instruction (Jiang, 2005) and including them in hiring decisions can offer teachers an enhanced sense of professionalism and autonomy; thus potentially reducing occupational stress.

Furthermore, the framework of understanding teachers' perceptions suggested by transactional models of stress can guide administrators through a process of carefully evaluating the areas in which their teachers feel the need for more resources, do not feel that existing resources are helpful enough, and areas where teachers may not recognize or be fully utilizing existing resources. Similarly, these findings suggest that administrators make efforts to identify classroom characteristics that teachers are likely to perceive as most demanding and to those individual teachers who perceive an imbalance between resources and demands. Acknowledging which teachers are more at-risk for occupational stress can inform leadership on best to distribute resources among and within schools. Such bottom-up resourced-based incentives can contribute toward a stable professional climate and are potentially much more economical than wage-based policies, which have a mixed record in retaining teachers (Béteille & Loeb, 2009; Fowler, 2003).

The results of this study also suggest that a more granular understanding of elementary teachers' perceptions of demands and resources in their classroom could help explain why some teachers are more vulnerable to stress even when working under similar occupational conditions. The education production function approach (Hanushek, 2008; Monk, 1988) has been valuable in identifying external workforce factors such as school and administrative climate that are linked to trends such as teacher dissatisfaction, burnout, and turnover (Ingersoll, 2012; Tickle et al., 2011; Zellars, Hocwarter, & Perrewe´, 2004). External realities such as being in a lower performing school, lacking administrative support, and increased pressure related to student performance on standardized exams are clearly important to elementary teachers' occupational well-being. However, our findings suggest that by looking at factors rooted in the perceived classroom experience of elementary teachers, we may be better able to understand the mismatch that some teachers experience and perhaps develop policies that address this imbalance.

The identification of elementary teachers experiencing high demand levels vis-à-vis their resources could be critical in an era in which turnover is high and demands are unlikely to abate. The overall pattern of results in this study suggested that teachers classified as at risk for stress were also those most likely to be experiencing vocational concerns. Rather than measuring teacher stress in terms of its global sequalea such as lowered student achievement, job satisfaction, burnout, or intention to leave the profession, the CARD provides actionable feedback to teachers, administrators, and policy makers regarding the specific classroom demands and resources that are

at the root of the subjective perception and experience of stress for individual teachers and groups of teachers within schools. Moreover, it can help account for why some teachers persevere in the face of high demands, a burgeoning issue in the research of early-career educators (cf. Robertson-Kraft & Duckworth, 2014).

Limitations and Future Directions

A number of cautions should be observed in interpreting the results of this study. First, the results are based on responses to survey self-reported data. Therefore, considerations regarding the potential for measurement error should be considered in the interpretation of our research findings. Second, this exploratory study aimed to replicate previous CARD research using similar analyses and variable. It was therefore beyond the scope of this research to include multi-level, multivariate models that contained teacher and school control variables. Future research could examine the interaction of variables such as vocational concerns, autonomy, and particularly classroom characteristics, since the latter were not clearly linked to teacher stress in the 2008 SASS. Additional research is also warranted to examine building-level variance in teacher stress to determine if teachers nested within schools' with similar characteristics vary in their stress levels compared to teachers in other schools. Multi-level models that include building, district, and even state policy and climate variables that were not included in the present study may offer additional evidences for the antecedents to and possible supports to prevent teacher stress. This is particularly important given recent findings, which emphasize the importance of building-level conditions in predicting turnover and mobility. Furthermore, causality among the patterns in the data should not be inferred given the absence of experimental designs. This caution is particularly important with respect to the pattern of findings using the 2000 and 2008 SASS – while examination of teacher responses at these two time intervals reveals important information, causality about effects of policies such as No Child Left Behind should not be inferred.

These limitations suggest a number of avenues for future research. In addition to the Schools and Staffing Survey, the Teacher Follow-Up Survey and Beginning Teacher Longitudinal Study were conducted the following years with a subsample of respondents who both left and remained in the profession. Future research could utilize the classification system from this study to analyze whether teachers in the Demands group actually left the profession the following year or transferred schools.

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Appendix A

Autonomy Scale Items from SASS Surveys

<u>SASS Items Comprising School Influence (no influence = 1; a great deal of influence = 5)</u>
Setting performance standards for students in this school[2k]
Establishing curriculum[2k]
Determining the content of in-service professional development programs*
Evaluating teachers[2k]
Hiring new full-time teachers[2k]
Setting discipline policy[2k]
Deciding how the school budget will be spent[2k]

<u>SASS Items Comprising Classroom Control (no control = 1, complete control = 5)</u>
Selecting textbooks and other instructional materials
Selecting content, topics, and skills to be taught
Selecting teaching techniques
Evaluating and grading students
Disciplining students
Determining the amount of homework to be assigned

<u>Autonomy= Classroom control +School influence (Note: only 2000 SASS)</u>

[2k]Denotes 1999-2000 only

Appendix B

Demands and Resources Scale from the SASS and the CARD

SASS Demands Scale
Demands (recoded strongly disagree 1 to strongly agree 4)
The level of student misbehavior in this school interferes with my teaching
Routine duties and paperwork interfere with my job of teaching
The amount of student tardiness and class cutting in this school interferes with my teaching

Demands (serious problem 1 to not a problem 4)
Student tardiness
Student absenteeism
Teacher absenteeism
Students cutting class
Physical conflicts among students[2k]
Robbery or theft[2k]
Vandalism of school property[2k]
Student pregnancy[2k]
Student use of alcohol[2k]
Student drug abuse[2k]
Student possession of weapons[2k]
Student disrespect for teachers[2k]
Students dropping out
Student apathy
Lack of parental involvement
Poverty
Students come to school unprepared to learn
Poor student health

[2k] denotes 1999/2000 only

CARD Demands Scale
How Demanding Are the Following? (rated not demanding 1 to extremely demanding 5)
Number of children in the classroom
Children with limited English skills
Children from diverse cultural backgrounds
Range of developmental levels
Number of children performing below grade level
Children with learning disabilities
Children with physical disabilities
Gifted and talented children
Homeless or transient children
Children who do not follow directions
Children with problem behaviors
Children who require more time and energy than most children
Number of program/administrative disruptions to the daily schedule

CARD Demands Scale (Cont'd)
Amount of physical classroom space
Classroom environment conditions
Availability of instructional resources
Availability of instructional materials
Availability of instructional supplies
Availability of instructional technology
Instructional resources and materials that are outdated
Time and effort working with protégé teachers
Meetings you are required to attend
Time spent performing non-teaching related duties
Parent conferences and contacts
Formal testing and objective assessments
Portfolios, performance assessments, or teacher ratings of children's achievement
Grading student work
Preparing lessons
Setting up classroom for instructional activities
Preparing classroom materials
Externally imposed changes to the expectations for your job performance
Overall, how demanding is your classroom
Disruptive children & children with problem behaviors
Paperwork requirements
Children with poor attendance

SASS Resources Scale
Resources (recoded strongly disagree 1 to strongly agree 4)
The principal lets staff members know what is expected of them[2k]
The school administration's behavior toward the staff is supportive and encouraging
I am satisfied with my teaching salary
I receive a greater deal of support from parents for the work I do
Necessary materials such as textbooks, supplies, and copy machines are available as needed by the staff
My principal enforces school rules for student conduct and backs me up when I need it
The principal talks with me frequently about my instructional practices[2k]
Rules for student behavior are consistently enforced by teachers in this school, even for students who are not in their classes
Most of my colleagues share my beliefs and values about what the central mission of the school should be
The principal knows what kind of school he/she wants and has communicated it to the staff
There is a great deal of cooperative effort among the staff members
In this school, staff members are recognized for a job well done
I am given the support I need to teach students with special needs
I make a conscious effort to coordinate the content of my courses with that of other teachers[2k]
I plan with the library media specialist/librarian for the integration of library media services into my teaching[2k]

[2k] denotes 1999/2000 only

CARD Resources Scale

How helpful are the following resources? (rated very unhelpful 1 to very helpful 5)

Aides/Assistants

Parent volunteers in the classroom

Parent support of school learning activities

Parent support of learning activities at home

adult mentors from the community

Support personnel for children with physical disabilities

Support personnel for gift or talented children

Support personnel for children with limited English skills

Support personnel for children from diverse cultural backgrounds

Support personnel for children with problem behaviors

Support personnel for children performing below grade level

Support personnel for computers and instructional technology

Counselors or family services workers

Special area teachers

Mentor teachers

Staff development opportunities

Materials for children with learning disabilities

Materials for gift or talented children

Materials for children with limited English skills

Materials for children from diverse cultural backgrounds

Materials for children with problem behaviors

Materials for children performing below grade level

Instructional materials

Instructional supplies provided by your school or program

Overall, how would you rate the resources available to help you with the demands of your
    classroom?

Administrators at your school

Instructional resources provided by your school or program

Support personnel for children with learning disabilities

About the Authors

Richard G. Lambert
University of North Carolina at Charlotte
rglamber@uncc.edu
Dr. Richard Lambert is a Professor of Educational Research at the University of North Carolina at Charlotte. He specializes in applied statistics, teacher stress and coping, and assessment for young children.

Christopher McCarthy
University of Texas at Austin
cjmccarthy@austin.utexas.edu
Christopher J. McCarthy is a Professor in the Department of Educational Psychology at the University of Texas at Austin. He studies stress and coping, particularly in educational contexts.

Paul G. Fitchett
University of North Carolina at Charlotte
Paul.Fitchett@uncc.edu
Paul G. Fitchett is an Associate Professor in the Department of Middle, Secondary, and K12 Education at the University of North Carolina at Charlotte. He studies the intersections between teacher working conditions, student learning outcomes, and educational policy.

Sally Lineback
University of Texas at Austin
sallylineback@gmail.com
Sally Lineback is a doctoral student in Counseling Psychology at the University of Texas at Austin. She is a former teacher and currently studies teacher stress and coping, with a particular interest in gay and lesbian teachers' experiences with stress.

Jenson Reiser
University of Texas at Austin
jenson.reiser@gmail.com
Jenson Reiser is a doctoral candidate in Counseling Psychology at the University of Texas at Austin. Her research interests include stress and coping in educational settings; specifically, the research and development of in-school interventions to help teachers reduce and manage stress.

Please contribute commentaries at http://epaa.info/wordpress/ and send errata notes to Gustavo E. Fischman fischman@asu.edu

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