

**Principal Time Management Skills:
Explaining Patterns in Principals' Time Use, Job Stress, and Perceived Effectiveness**

Jason Grissom, Susanna Loeb, Hajime Mitani

Purpose. Time demands faced by school principals make principals' work increasingly difficult. Research outside education suggests that effective time management skills may help principals meet job demands, reduce job stress, and improve their performance. This study investigates these hypotheses. **Design.** We administered a time management inventory to nearly 300 principals in Miami-Dade County Public Schools, the fourth-largest school district in the U.S. We analyzed scores on the inventory descriptively and used them to predict time-use data collected via in-person observations, a survey-based measure of job stress, and measures of perceived job effectiveness obtained from assistant principals and teachers in the school. **Findings.** Principals with better time management skills allocate more time in classrooms and managing instruction in their schools but spend less time on interpersonal relationship-building. Perhaps as a result of this tradeoff, we find that associations between principal time management skills and subjective assessments of principal performance are mixed. We find strong evidence, however, that time management skills are associated with lower principal job stress. **Practical implications.** Findings suggest that building principals' time management capacities may be a worthwhile strategy for increasing time on high-priority tasks and reducing stress. **Originality.** This study is the first to empirically examine time management among school principals and link time management to key principal outcomes using large-scale data.

In pursuit of a more nuanced understanding of school leadership practice and the connection between leadership practice and school improvement, several recent studies have focused on how principals allocate their time within the work day (e.g., Camburn *et al.*, 2010; Goldring *et al.*, 2008; Grissom *et al.*, 2013; Horng *et al.*, 2010; Spillane *et al.*, 2007; Spillane and Hunt, 2010). These studies highlight the large and diverse set of school functions with which principals engage on a daily basis, spanning instruction, personnel, budgeting, student services, external relations, and a host of other areas. The large set of job responsibilities with which principals are faced make time a scarce resource—and one that is only becoming scarcer as federal, state, and district policies create more comprehensive teacher observation and evaluation systems that require substantial time investment from school leaders (Donaldson, 2011). Given this scarcity, principals must make decisions about how to allocate their time among competing

job demands. These time use decisions are important for effective leadership, as evidenced by the relationship between principal time use and school outcomes (e.g., Grissom *et al.*, 2013; Horng *et al.*, 2010).

The connection between time use and performance motivates the present study. We proceed from the expectation that some principals have a greater capacity for investing their time on productive activities. This greater capacity for using time effectively is known both colloquially and in a relatively large literature in psychology and organizational behavior as *time management*. That literature suggests that better time management skills—which include the ability to set achievable goals, identify priorities, monitor one’s own progress, and remain organized (Claessens *et al.*, 2007)—can lead to more effective time use and ultimately more positive outcomes, including reduced job stress and increased job performance, in some settings (e.g., Britton and Tesser, 1991; Jex and Elacqua, 1999). Time management and its relationship to time use and other outcomes, however, have largely been ignored in school leadership research.

This paper helps fill this gap by examining principals’ time management skills and their associations with other outcomes using rich data from Miami-Dade County Public Schools (M-DCPS), the nation’s fourth-largest school district. In the spring of 2011, we conducted a survey of M-DCPS principals that included a time management inventory used to measure four components of principals’ time management skills (N = 287). We then merged principals’ scores on this inventory with several other data sources, including administrative data on personnel and schools provided by the district, surveys of assistant principals (APs) and teachers, and in-person observational data we collected for a subset of M-DCPS principals over full days, also in the spring of 2011.

We use this unique data source to answer four research questions. First, how are time management skills distributed across M-DCPS principals, particularly with respect to school and

principal characteristics? Second, how do time management skills predict observed principal time use? Third, how are time management skills associated with principal job stress? And finally, to what degree, if any, are time management skills predictive of APs' and teachers' perceptions of principal effectiveness?

The next section grounds these questions in existing research on time management and the connections psychologists and scholars of organizational behavior have made between time management and personal and organizational outcomes. We then describe the data sources, construction of measures, and empirical approach before presenting our results. The final section discusses the implications of our results for school leadership practice.

Time Management and Its Link to Outcomes

High demands on one's time are characteristic of many professions. As Britton and Glynn (1989: 429) put it, "intellectually productive people usually have more things that they would like to do, or need to do, than they have time." This description applies to the job of most school principals, who have responsibility for the time-intensive tasks of managing school operations, overseeing instructional programs, building relations among staff members, and so forth (Horng *et al.*, 2010). In such professions, becoming more productive means finding ways to accomplish more given limited time. Managing one's time more ably is one way to fulfill this goal.

Time management means those behaviors "that aim at achieving an effective use of time while performing certain goal-directed activities" (Claessens *et al.*, 2007: 262). Although little work has examined time management in the context of school administration, a relatively large literature has investigated the concept in the management of organizations more broadly. We draw on this literature in describing the characteristics of positive time management behaviors in

schools and developing expectations about the role of time management among school principals in affecting their capacity to promote school improvement.

Components of Good Time Management

Research identifies a number of techniques and behaviors associated with effective management of time. For example, studies find that one can use time efficiently and productively by setting short-term and long-term goals, keeping time logs, prioritizing tasks, making to-do lists and scheduling, and organizing one's workspace (Claessens *et al.*, 2007; Macan, 1994). These time management techniques and behaviors tend to share some underlying traits in common and can be classified into several groups. Britton and Tesser (1991) proposed three facets of time management: short-range planning, long-range planning, and time attitudes. Short-range planning is the ability to set out and organize tasks in the short run (e.g., within a day or a week). Long-range planning is the capacity to manage tasks over a longer time horizon (e.g., in a quarter or a year) by setting goals, keeping track of important dates and limiting procrastination. Positive time attitudes indicate that a person is oriented towards using their time constructively and maintaining agency over how their time is spent.

Employing a different conceptualization, Macan (1994) identified three components of time management: (1) setting goals and priorities, (2) mechanics (i.e., making lists and scheduling), and (3) preference for organization. The first includes such behaviors as setting goals one wants to accomplish and prioritizing tasks to achieve these goals. The second includes behaviors associated with managing time such as making to-do lists and scheduling. The final factor includes one's preference for organization in his or her workspace and approach to projects. While this categorization differs somewhat from Britton and Tesser's (1991), the themes of goal-setting, prioritization, and organization are common to both schemas.

Studies suggest that people vary systematically in their time management behaviors and techniques. For example, Macan *et al.* (1990) compared time management behaviors across demographic groups in a sample of undergraduate students. While time management behaviors did not differ by race, older and female subjects were more likely to be good time managers. Older students also had greater preference for organization. Other studies of undergraduate students found similar results (Trueman and Hartley, 1996; Misra and McKean, 2000). Researchers have also explored the relationship between time management and other dispositional characteristics such as self-esteem, sense of purpose in life, polychronicity (i.e., multi-tasking), impatience, and propensity to procrastinate (e.g., Bond and Feather, 1988; Francis-Smythe and Robertson, 1999). For example, Lay and Schouwenburg (1993) found that students prone to procrastination exercised fewer time management techniques while also tending to be further behind on work and to study fewer hours.

Time Management and Job Outcomes

Several studies demonstrate that time management predicts job performance. For example, car salesmen with better time management skills have higher sales (Barling *et al.*, 1996). College students with better time management skills report higher grade point averages (Britton and Tesser, 1991; Macan *et al.*, 1990). County extension directors with better time management skills are rated higher by their superiors (assistant regional directors) (Radhakrishna *et al.*, 1991).

To understand the association between time management and job performance, researchers have investigated a series of possible linkages. Most clearly, time management helps improve job efficiency by enabling professionals to allocate adequate time to their job's most important tasks (Hall and Hirsch, 1982; Orpen, 1994; Schuler, 1979). This greater attention to

high-priority work areas improves worker outcomes. The expectation that increased time management will increase worker productivity by enabling employees to “work smarter” has driven widespread investment in time management training in the private sector (Green and Skinner, 2005).

Studies also suggest that effective time management reduces job stress, which can be an important impediment to job performance (e.g., Jamal, 1984). An important source of job stress in the workplace is the perception for an individual that what he or she needs to accomplish outpaces the time available (Schuler, 1979). Time management can help reduce this discrepancy. Using path analysis, Macan (1994) found that subjects with better time management skills perceived that they had greater control over their time and how they spend it, which was in turn associated with both reduced feelings of job-induced tension and lower reports of *somatic tension*, or physical symptoms of stress such as insomnia and headaches. Job-induced stress was then negatively correlated with self-assessed job performance. Claessens *et al.* (2004) documented similar paths from time management to perceived time control to reduced work strain and higher job performance in a study of engineers in a semiconductor manufacturer. Other studies have documented the positive association between time management and employee health, mediated by other factors such as perceived control and conflicts between the demand between work and family (e.g., Adams and Jex, 1999; Jex and Elacqua, 1999).

Time management is also predictive of other factors that might influence job performance. Professionals who manage time better report lower emotional exhaustion, the most important dimension of job burnout (Peeters and Rutte, 2005). They also report higher overall job satisfaction (Macan *et al.*, 1990). Participants in time management training also report greater work/home balance (Green and Skinner, 2005). A long literature shows that satisfaction and satisfaction-related factors contribute to employee performance (see Judge *et al.*, 2001).

Of course, better time management need not lead to better job performance under all conditions. Increasing job performance requires engaging in more productive behaviors. According to Ajzen (1991), human behavior is a function in part of how much control one perceives he or she has over that behavior. Control is constrained by resources, including time and skills; time management increases perceptions of control by relaxing some of these constraints (Macan, 1994). Workers may face other kinds of constraints on their behavior, however, such as institutional limits on their autonomy, that time management can do little to address. Moreover, behavior change requires intent (Ajzen, 1991). If workers do not intend to engage in new behaviors or do not know which behaviors will be more productive, we would not expect better time management to enhance performance.

Studies of Time in Educational Administration

Although typically overlooking time management specifically, research in educational administration has documented the importance of how principals organize and allocate their time (Martin and Willower, 1981). Studies of principal time use using in-person observations and daily logs show that principal time spent on organizational management (e.g., personnel, budgeting) and operations predicts student achievement and other school outcomes (Horng *et al.*, 2010; May *et al.*, 2012). Studies also find that principals' time investments in some instruction-related tasks, including coaching and teacher professional development, are associated with more positive student outcomes (Grissom *et al.*, 2013). A long literature on instructional leadership suggests a connection between principals' involvement in instructional matters in their schools and positive school performance (see Robinson *et al.*, 2008).

Yet studies also suggest that finding time to devote to tasks more closely associated with improving student learning is a consistent challenge. The principal work day is hectic, filled with

frequent interruptions and problems that require attention (Blendinger and Snipes, 1996; Hallinger and Murphy, 2013). Principals are often called on to meet with parents or deal with parental concerns (Miller, 2001). They spend large portions of their days in planned and unplanned meetings and on completing administrative duties (Morris *et al.*, 1981; Horng *et al.*, 2010). Manasse (1985) notes that “the nature and pace of events often appear to control principals rather than the other way around” (p. 442). Indeed, Hallinger and Murphy (2013) identify finding time to lead in the face of principals’ job pressures as among the central challenges of leadership for school improvement.

Given the importance of principal investment in organizational management and instruction for school performance, a reasonable presumption is that principals who are able to overcome constraints imposed on their work day by other time demands would reallocate their time towards these areas. Insofar as greater time management skills provide a strategy for overcoming time pressures, we hypothesize that time management will be positively associated with time spent on management and instruction and negatively associated with time allocated to less “productive” tasks. Following the research reviewed above, we also investigate the hypotheses that better principal time management is associated with lower job stress and increased job performance, at least as perceived by others in the school.

Data, Measures, and Methods

This study relies on data from an intensive data collection effort undertaken in Miami-Dade County Public Schools (M-DCPS), a large urban district educating approximately 350,000 students each year. Nearly two-thirds of the M-DCPS student population are Hispanic, and three-fourths are eligible for subsidized lunches. The data include survey responses, time-use data from in-person observations, and administrative records.

Surveys. We measured principals' time management skills and job stress using instruments (described below) embedded in a larger web-based survey of all principals of non-special schools in the district that we conducted in the spring of 2011. We received responses from 287 principals for a response rate of 86%. Incomplete responses and other missing data further reduced the analytic sample to 247 principals. A comparison of school and principal characteristics for respondents and non-respondents showed no evidence of significant differences between the two.

We also conducted surveys of all M-DCPS assistant principals (APs) and teachers in conjunction with the principal survey. We received 411 usable responses to the AP survey for a response rate of 74%. Teacher response rates were much lower; we received partial or full responses from 8,055 teachers, for a response rate of 33%; differences across school levels (e.g., elementary) were minimal, ranging from 32% to 36%. Low teacher response rates increase the likelihood of bias from non-representativeness of the teacher sample. Models utilizing teacher survey responses include controls for teacher characteristics to partially address biases that might arise from, for example, more experienced teachers being more likely to respond. We cannot rule out other potential selection issues, such as, for example, a greater likelihood of responses from teachers who are more critical of their principals.

We make use of a three-item subjective assessment of the principal's performance included on both the AP and teacher survey: "My principal is doing a good job," "I am pleased with the way my principal runs this school," and "I would be happy to continue working with my principal in the future." Respondents' four-point Likert responses (*strongly disagree* to *strongly agree*) showed high inter-item reliability (Cronbach's $\alpha = 0.95$ for APs and 0.94 for teachers), so we used factor analysis to extract a single subjective performance factor separately from APs and

teachers; we then calculated factor scores for each principal and standardized them for ease of interpretation.

Observations. Next, we utilized data from in-person observations of a sample of 98 M-DCPS principals that a team of observers conducted between late March and early April of 2011. The time period was chosen to come in the middle of the semester and before the district's period of intensive standardized testing and also to coincide with university breaks for the observers, many of whom were graduate students. The observation sample included principals from each of the district's high schools¹ plus a random sample of 30 elementary and 30 middle schools stratified by the district's administrative regions. For each of the 98 observed principals, who were instructed to conduct their day as usual, trained observers used a standardized protocol (available upon request) to capture time on approximately 50 job-related tasks in five-minute increments over a full school day. We aggregated the observation data to capture time allocations across five broad areas according to the classification used by Grissom and Loeb (2011). These areas are: organizational management, instructional management, administration (e.g., compliance, scheduling), internal relations (i.e., maintaining positive relationships among staff), and external relations (i.e., making connections to outside stakeholders, such as parents). We also utilize measures of time spent transitioning from place to place around the school building and personal time, or time spent on non-work activities. We then calculated the percentage of the work day the principal spent in each area. Table 1 gives descriptive statistics for these variables for the 83 principals who could be matched to other data sources. Principals spent the largest portion of their day on administration (33%), followed by internal relations (22%).

[Table 1 about here]

Administrative Data. Lastly, we use comprehensive administrative data on district personnel and students provided to us by M-DCPS central staff for the years 2003-04 to 2010-11.

Administrative data files are the source of a variety of control variables included in the analysis at both the personnel level (e.g., gender, race, age, education level, tenure in school) and school level (e.g., percent free/reduced lunch, percent Hispanic, enrollment size, Florida school accountability grade). Table 1 provides descriptive statistics for the 2010-2011 school year for the principals included in our analysis and the schools in which they work (accountability grades are from the prior year).

Measuring Principal Time Management

To assess principals' time management skills, our principal surveys included a modified version of Britton and Tesser's (1991) Time Management Questionnaire (TMQ). The TMQ was developed to measure time management among college students, so we adjusted the wording of some items and dropped two others to make the instrument appropriate for school principals. In Britton and Tesser's (1991) study, factor analysis of the TMQ identified three dimensions of time management: short-range planning, long-range planning, and time attitudes. Hypothesizing that principals' positions as managers mean that—unlike college students—they may use delegation of tasks to others as a strategy for managing their time, we also added 4 original items to capture this construct. The 21 items were preceded by the prompt, "How frequently would you say you do each of the following?" Principals responded on a four-point scale (*never, sometimes, frequently, always*). Table 2 shows the items and their means.

[Table 2 about here]

Exploratory factor analysis of principals' responses showed evidence of four underlying factors. Given low correlations among the factors (Tabachnick and Fidell, 2012), we used varimax rotation to assess patterns in the factor loadings; differences in the item patterns from those described by Britton and Tesser (1991) necessitated a renaming of our constructs. The first

factor aligns closely with Britton and Tesser's (1991) *short-range planning* factor, so we maintain this nomenclature. The items that load highest on this factor are *planning your day before you start it* (factor loading = 0.83), *making a list of the things you have to do each day* (0.82), and *making a schedule of the activities you have to do on work days* (0.82).

We label the second dimension *poor time consciousness*. These items relate to not approaching time as a resource to be actively managed, such as *finding yourself working on assignments or reports the night before they are due* or *finding yourself being late for a meeting or event*. This dimension comes closest to what Britton and Tesser (1991) describe as *time attitudes*.

The third factor is a new factor, delegation, and all four survey items meant to measure the factor loaded well, as we expected. Among the items, three have factor loadings greater than 0.6: *asking your assistant principal to handle a situation so you can direct your attention elsewhere* (0.81), *delegating minor issues to an administrative assistant or other staff* (0.79), and *relying on an administrative assistant to screen out less important issues before they reach your desk* (0.62).

The final factor, which we label *focus*, reflects the degree to which principals are able to maintain concentration and control over how their time is spent. The items that load most highly onto this factor are *keeping your desk clear of everything other than what you are currently working on*, *making the most constructive use of your time*, *feeling you are in charge of your own time*, and, negatively, *finding yourself getting diverted from the task at hand*. Each of these items loads onto this factor at approximately 0.6.

We also created an overall summative *time management* measure via factor analysis with a single-factor solution. The single-factor solution assumes time management skills are

unidimensional. Inter-item reliability for this scale was high (Cronbach's $\alpha = 0.76$). Loadings for this measure are shown to the right in Table 2.

Job Stress Measures

Studies of psychological and biological stressors suggest that job stress is associated with four situational characteristics: lack of control, unpredictability, social-evaluative threat (i.e., the prospect of being evaluated by others), and novelty or change, which are more likely to cause job stress (Averill 1973; Dickerson *et al.*, 2009; Dickerson *et al.*, 2004; Lazarus and Folkman, 1984; Masserman, 1971; Nicolson, 2008). To operationalize principals' job stress, we designed a short survey instrument to measure these four predictors of job stress based on a teacher stress survey developed by National Union of Teachers (2007). Their survey was designed to measure six key job stressors: demands, control, support, relationships, role, and change. These concepts overlap a great deal in three of the above four predictors (i.e., lack of control, unpredictability, and novelty/change), so we selected survey items that closely aligned and then edited them appropriately for school principals. We added three original items to capture social-evaluative threat. In total, we included 12 job stress items, shown in Appendix Table 1. Principals' agreement with each item was elicited via a four-point scale (*strongly disagree, disagree, agree, strongly agree*).

Exploratory factor analysis of the 12 stress items (and analysis of accompanying scree plot) uncovered only one clear job stress factor. We used the resulting factor scores to construct a single job stress variable (Cronbach's $\alpha = 0.79$), which we standardized to ease interpretability.

Methods

The three research questions we ask require a mix of analytical approaches. For the first question, which asks how time management skills are distributed with respect to school and principal characteristics, we conduct *t*-tests for differences in time management skills by these characteristics. For the remaining questions, which ask how time management skills predict time allocation and whether time management skills are associated with principal job stress and subjective assessment of principal job performance by teachers and assistant principals, we use a multivariate regression approach. In particular, we model outcomes—either time allocation, job stress, or subjective assessment—as a function of time management and a set of school and principal control variables (shown in Table 1) obtained from administrative data. In this way, we ask whether similarly situated principals who are better at time management allocate their time differently, have differential stress, or are assessed differentially by their teachers and assistant principals.

Examining Time Management across Principals and Schools

Principals' time management behaviors could be different among principals with different personal characteristics or in different job settings (Claessens *et al.*, 2007). For example, more experienced principals may have better time management practices as they have had more time to adjust to job demands. Similarly, principals in more difficult school environments may have adapted different time management practices to cope with job demands. To test for such differences, we conducted simple two-sided *t*-tests to compare principals' scores on each of the five time management measures (the overall scale and the four subscales) by selected principal and school characteristics. Table 3 displays the results. The first column reports the result for the overall time management factor, while the remaining four columns report the findings for the subscales.

[Table 3 about here]

Among principal characteristics, only gender shows significant differences for the summary time management measure, with men reporting lower time management scores than women. However, using the subscale, while men score lower on short-range planning, they score higher on delegation. There are no significant differences in the subscales by race. Principals with only Bachelor's degrees score lower on focus relative to higher levels of education. Interestingly, a longer tenure in the same school is associated with higher degrees of delegation, whereas it is also associated with less short-range planning behavior.

Among school characteristics, we find no significant differences by past school performance (as proxied by the school accountability grade) or student demographics (not shown), though there are some differences by school level and size. In particular, principals in elementary schools and smaller schools report better time management. Elementary and middle school principals report more short-range planning behavior than do high school principals. Small school principals report greater task focus, while principals at mid-size school score higher on short-range planning.

Time Management as a Predictor of Principal Time Allocation

To investigate whether principals with better time management skills allocate their time differently across different areas of job demands—and specifically towards areas more closely associated with school performance—we rely on the in-person observation data. We ran separate regression models with the percentage of time spent in each of the seven time-use categories (e.g., organizational management, instructional management) as the dependent variable and including time management measures and school and principal controls as regressors. Table 4

gives the results for the overall time management score. Each model includes school and principal characteristics.

[Table 4 about here]

Our main interests are in time spent on organizational management and instruction, as prior work has connected investments in those areas to student outcomes. Results for the former show no evidence that principals exercising greater time management spend more time on organizational management tasks. They do, however, appear to spend more time on instruction in their schools. This category of tasks includes coaching, classroom walk-throughs, and planning teacher professional development. A one standard deviation increase in time management skills is associated with an increase of about 2 percent of the day spent on instruction management. Given that only about 13 percent of the average principal's day is spent on instruction-related tasks, this association is both statistically significant and practically meaningful.

In contrast, we find that a 1-s.d. increase in time management is associated with 3% *less* of the work day spent on internal relations in the school, suggesting internal relations is the area that the increase in instructional time is traded off against. Tasks in this category include interacting socially with staff, attending school activities, and counseling staff and/or students. It may be that principals with poorer time management practices are pulled into internal relations tasks when they mean to be focusing more on instruction. Time management is not significantly correlated with time use for other task categories.

We next investigated the relationship between time management and instructional management and internal relations further by re-running the models replacing the time management summary measure with the four subscale measures. Table 5 provides the results. The table shows that a 1-s.d. improvement in time consciousness is associated with an increase of 2.3 percentage points in instructional time, which is an increase of approximately 18 percent.

We also find evidence that short-range planning skills are associated with more time on instruction. The other two subscales (delegation and focus) are found to be uncorrelated with instructional time, although the sign of both coefficients are positive. For internal relations, short-range planning skills primarily drive the decrease in time spent on internal relations ($\beta = -2.54, p < 0.10$). On the other hand, improvement in time consciousness reduces the time spent on internal relations. Delegation and focus are also negatively associated with time on internal relations tasks but are not statistically significant at conventional levels.²

[Table 5 about here]

The positive association between time management and overall time spent on instructional tasks raises the question of which areas of principal instructional investments are driving this relationship. To answer this question, we disaggregated the instructional management category into six subcategories: classroom observations; evaluation of teachers, curriculum, and educational programs; coaching teachers; developing educational programs; professional development for teachers; and other instructional tasks (e.g., reviewing student data, fulfilling special education duties). We then ran separate models for each of these variables. The results, which are omitted for brevity, suggest that better time management is positively associated with time spent on the “other instructional tasks” category ($\beta = 1.2, p < 0.05$). The time management coefficient is also positive in the models for classroom observations, evaluation, coaching, and developing educational programs, and although these coefficients are not statistically significant at conventional levels, their relatively low p -values, especially those on evaluation and coaching—0.20 and 0.13, respectively—are suggestive of a relationship that might be more apparent in a larger sample.

As an additional look at principal time use, we also ran models examining principal location, which observers coded throughout the observation period. Prior studies have found that

the average principal spends more than 50 percent of the day in his or her office, which may be inconsistent with a hands-on instructional leadership role (e.g., Horng *et al.*, 2010). In our sample, principals spent about 41 percent of their day in their offices and 10 percent in classrooms. We broke location down into *principal's office*, *classrooms*, and *other locations* and estimated models of time spent in each one. Although again omitted for brevity, results show that principals with 1-s.d. higher time management scores spend 4.6 percentage points *less* time in their offices ($p < 0.10$). Their time in classrooms is higher (1.1 percentage points), as is their time elsewhere (approximately 4 percentage points).

Time Management and Job Stress

Research outside education suggests that good time management helps reduce the job stress that accompanies the pressures of needing to accomplish more than can be done in the time available (Jex and Elacqua, 1999). We test this hypothesis for principals by estimating models of job stress as assessed by the stress inventory we included in the principal surveys. Table 6 reports the results. The first two columns show models using the summary time management measure, and the next two columns show models for the four time management components. Even-numbered models include principal characteristics.

[Table 6 about here]

Our hypothesis is strongly supported by the data. Principals with strong time management skills report much lower job stress, regardless of whether or not we control for principal characteristics. A 1-s.d. improvement in time management skills is associated with a reduction in job stress of about a fourth of a standard deviation ($p < 0.01$). Models 3 and 4 show that better short-range planning and focus are negatively associated with job stress, while poorer time consciousness predicts greater stress. Only delegation is uncorrelated with the stress

measure. We caution, however, that common-source bias may inflate the correlations among the time management and job stress measures.

Is Time Management Correlated with Perceived Effectiveness?

Differences in time allocation and job stress for principals with strong time management skills suggests that time management can play a role in how the principal runs the school. Time management may thus help explain principal job performance. Although objective measures of job performance are unavailable, we investigate the hypothesis that time management positively predicts performance by estimating models of job performance as assessed by APs and teachers.

Table 7 displays the results. The AP assessment results are shown in the upper rows, and the teacher assessments in the lower rows. In each case, we show results first for all schools combined, then separately for elementary/middle schools and high schools. All models include controls for characteristics of schools and assistant principals or teachers, though these coefficients are omitted from the table for brevity.

[Table 7 about here]

The coefficients reveal a nuanced pattern of results. Model 1 suggests that, on average, principal time management is associated with *negative* assessments of principal effectiveness from their APs ($\beta = -0.13, p < 0.10$). Splitting the schools by level, however, we see that, in fact, the association is positive for high school principals ($\beta = 0.17, p < 0.10$), where the complexity of the work environment makes principal time management arguably more important. The negative association is driven by elementary and middle principals ($\beta = -0.27, p < 0.01$). In analysis of the subscale measures (not shown), we find that this negative association results from a negative association with short-range planning, while the positive association for high schools comes primarily from an association with delegation skills.

The results for teachers' subjective assessments show no evidence of an association between time management and principal performance in the sample of all schools, but, as with the AP assessments, pooling the schools masks a positive association for high schools. For these schools, a 1-s.d. increase in the time management factor is associated with a 0.10 standard deviation increase in the subjective assessment ($p < 0.05$). The point estimate for the sample of elementary and middle schools is negative but not statistically significant. Secondary analysis (not shown) suggests that high school teachers' positive assessments are most clearly correlated with short-range planning.

Discussion and Conclusions

Research outside of education has shown that time management skills can provide professionals in demanding workplaces with strategies for making more out of scarce time resources, allowing them to focus attention on high-priority matters in ways that may improve their overall job performance (Claessens *et al.*, 2007). The goal of this study was to assess whether these claims apply to school leaders, a group for whom increasing job demands and expectations are raising concerns that “the job simply is not doable” (Institute for Educational Leadership, 2000:12).

Modifying an instrument used in numerous prior settings to assess time management capacities (Britton and Tesser, 1991), we find principal time management to be arguably multidimensional, encompassing skills and behaviors related to short-range planning, time consciousness, delegation, and focus. Moreover, better time management is associated in some ways with what prior studies might describe as more “productive” time investments (Grissom *et al.*, 2013; Horng *et al.*, 2010; Robinson *et al.*, 2008). In particular, principals capable of managing their time better spend more time on instruction and less time on internal relations in

their schools. The connection between time management and instruction supports the idea that principals consider instruction their highest priority area, on average; principals with the skills to prioritize and “find” time within their work day typically allocate those found resources to instructional leadership tasks.

We also examined whether good time management skills are associated with lower principal job stress, finding strong evidence of a relationship. Our results are consistent with previous studies that found that good time management leads to perceived time control, which leads to less job-induced stress (Macan, 1994; Claessens *et al.*, 2004). Job stress is important both as a predictor of performance and other outcomes, such as turnover (Jamal, 1984).

Whether better time management ultimately translates into better job performance is a challenging question to answer, in part because reliable measures of principal job performance are difficult to construct. Our results might therefore best be described as suggestive. Subjective job assessments from APs and teachers show positive correlations with time management for high school principals. In contrast, for elementary and middle principals, associations are null or even negative. It may be that time management is more important for high school principals who face a larger number of competing time demands. The inconsistency of this result mirrors the mixed evidence on the time management–job performance link in other research (e.g., Barling *et al.*, 1996; Macan, 1994). Job performance is a function of a large number of factors, many of which are difficult to observe, and may be especially difficult to measure in a profession in which the influence of one’s performance on outcomes are mediated and indirect (Hallinger and Heck, 1998).

Still, the themes of the findings we present—that principal time management is associated with more productive work behaviors and positive assessment of job performance—provide initial evidence that time management matters for principal work. One reason this

connection deserves further attention is that time management is a relatively straightforward set of skills that can be learned and developed (Macan *et al.*, 1990). A large number of training modules and workshops are available and have been widely utilized in the private sector, though these programs vary in their efficacy (Claessens *et al.*, 2007). With relatively small time and resource costs, even modest benefits of time management training for school principals can make such investments worth consideration.

Several limitations of this study should be underscored. Perhaps most important is the issue of measurement error, present to some degree in each of the main variables utilized in this analysis. For example, self-ratings on the time management instrument are likely to be imperfect assessments of actual time management skills and behaviors, raising the potential for bias. As another example, subjective assessments of principal performance by others in the school may be colored by interpersonal relationships or the fact that APs and teachers cannot observe every dimension of their principal's work. Similarly, our measures of time use are based single-day snapshots of principal activities. Given day-to-day and seasonal variation in principals' leadership activities (Camburn *et al.*, 2010) and the possibility that principals altered their time use on the day of the observation, our measures may not necessarily represent principal behaviors on other days. Although measurement error in dependent variables generally is less concerning, these examples nonetheless suggest some caution in interpreting the results. Also, the study focuses on a single school district with unique demographic characteristics, and we cannot be sure that our findings would generalize to principals in other contexts.

For these reasons, further exploration of the role of time management in the work of school administrators using more refined or validated time management instruments, alternative outcome measures, and larger samples would be worthwhile. Future research might also consider factors mediating the relationship between time management and outcomes (e.g., Macan, 1994)

or examine whether time management is more closely associated with outcomes under some conditions. Workload and job autonomy, for example, may influence the degree to which time management skills are useful (Claessens *et al.*, 2007).

[Appendix Table 1 here]

References

- Adams, G.A. and Jex, S.M. (1999), "Relationships Between Time Management, Control, Work-family Conflict, and Strain," *Journal of Occupational Health Psychology*, Vol. 4 No. 1, pp. 72-77.
- Ajzen, I. (1991), "The Theory of Planned Behavior," *Organizational Behavior and Human Decision Processes*, Vol. 50 No. 2, pp. 179-211.
- Averill, J.R. (1973), "Personal Control over Aversive Stimuli and Its Relationship to Stress," *Psychological Bulletin*, Vol. 80 No. 4, pp. 286-303.
- Barling, J., Cheung, D. and Kelloway, K.E. (1996), "Time Management and Achievement Striving Interact to Predict Car Sales Performance." *Journal of Applied Psychology*, Vol. 81 No. 6, pp. 821-826.
- Blendinger, J. and Snipes, G. (1996), "Managerial Behavior of a First-Year Principal," available at <http://www.eric.ed.gov/ERICWebPortal/contentdelivery/servlet/ERICServlet?accno=ED404726>.
- Bond, M.J. and Feather, N.T. (1988), "Some Correlates of Structure and Purpose in the Use of Time," *Journal of Personality and Social Psychology*, Vol. 55 No. 2, pp. 321-329.
- Britton, B.K. and Glynn, S.M. (1989), "Mental Management and Creativity: A Cognitive Model of Time Management for Intellectual Productivity," in Glover, J.A., Ronning, R.R. and Reynolds, C.R. (Ed.), *Handbook of Creativity*, Plenum, New York, NY, pp. 429-440.
- Britton, B.K. and Tesser, A. (1991), "Effects of Time-management Practices on College Grades," *Journal of Educational Psychology*, Vol. 83 No. 3, pp. 405-410.
- Camburn, E.M., Spillane, J.P. and Sebastian, J. (2010), "Assessing the utility of a daily log for measuring principal leadership practice," *Educational Administration Quarterly*, Vol. 46 No 5, pp. 707-737.
- Claessens, B.J.C., van Eerde, W., Rutte, C.G. and Roe, R.A. (2007), "A Review of the Time Management Literature," *Personnel Review*, Vol. 36 No. 2, pp. 255-276.
- Claessens, B.J.C., van Eerde, W., Rutte, C.G. and Roe, R.A. (2004), "Planning Behavior and Perceived Control of Time at Work," *Journal of Organizational Behavior*, Vol. 25 No. 8, pp. 937-950.
- Dickerson, S.S., Gable, S.L., Irwin, M.R., Aziz, N. and Kemeny, M.E. (2009), "Social-Evaluative Threat and Proinflammatory Cytokine Regulation An Experimental Laboratory Investigation," *Psychological Science*, Vol. 20 No. 10, pp. 1237-1244.
- Dickerson, S.S., Gruenewald, T.L. and Kemeny, M.E. (2004), "When the Social Self Is Threatened: Shame, Physiology, and Health," *Journal of Personality*, Vol. 72 No. 6, pp. 1191-1216.

- Donaldson, M. (2011), "Principals' Approaches to Developing Teacher Quality." Center for American Progress, Washington, DC.
- Francis-Smythe, J. and Robertson, I. (1999), "Time-Related Individual Differences," *Time & Society*, Vol. 8 No. 2–3, pp. 273–292.
- Goldring, E.B., Huff, J., May, H. and Camburn, E. (2008), "School Context and Individual Characteristics: What Influences Principal Practice?," *Journal of Educational Administration*, Vol. 46 No. 3, pp. 332-352.
- Green, P. and Skinner, D. (2005), "Does Time Management Training Work? An Evaluation," *International Journal of Training and Development*, Vol. 9 No. 2, pp. 124–139.
- Grissom, J. A., and Loeb, S. (2011), "Triangulating Principal Effectiveness: How Perspectives of Parents, Teachers, and Assistant Principals Identify the Central Importance of Managerial Skills," *American Educational Research Journal*, Vol. 48 No. 5, pp. 1091–1123.
- Grissom, J.A., Loeb, S. and Master, B. (2013), "Effective Instructional Time Use for School Leaders: Longitudinal Evidence from Observations of Principals," *Educational Researcher*, Vol. 42 No. 8, pp. 433-444.
- Hall, B.L. and Hursch, D.E. (1982), "An Evaluation of the Effects of a Time Management Training Program on Work Efficiency," *Journal of Organizational Behavior Management*, Vol. 3 No. 4, pp. 73–96.
- Hallinger, P. and Heck, R.H. (1998), "Exploring the Principal's Contribution to School Effectiveness: 1980-1995," *School Effectiveness & School Improvement*, Vol. 9 No. 2, pp. 157.
- Hallinger, P. and Murphy, J.F. (2013), "Running on Empty? Finding the Time and Capacity to Lead Learning," *NASSP Bulletin*, Vol. 97 No. 1, pp. 5-21.
- Hornig, E.L., Klasik, D. and Loeb, S. (2010), "Principal's Time Use and School Effectiveness." *American Journal of Education*, Vol. 116 No. 4, pp. 491–523.
- Institute for Educational Leadership. (2000), *Leadership for Student Learning: Reinventing the Principalship*, Institute for Educational Leadership, Washington, DC.
- Jamal, M. (1984), "Job Stress and Job Performance Controversy: An Empirical Assessment," *Organizational Behavior and Human Performance*, Vol. 33 No. 1, pp. 1–21.
- Jex, S.M. and Elacqua, T.C. (1999), "Time Management as a Moderator of Relations Between Stressors and Employee Strain," *Work & Stress*, Vol. 13 No. 2, pp. 182–191.
- Judge, T.A., Thoresen, C.J., Bono J.E., and Patton, G.K. (2001), "The Job Satisfaction–job Performance Relationship: A Qualitative and Quantitative Review," *Psychological Bulletin*, Vol. 127 No. 3, pp. 376–407.

- Lay, C.H. and Schouwenburg, H.C. (1993), "Trait Procrastination, Time Management, and Academic Behavior," *Journal of Social Behavior & Personality*, Vol. 8 No. 4, pp. 647–662.
- Lazarus, R.S. and Folkman, S. (1984), *Stress, Appraisal, and Coping*, Springer Publishing Company, New York, NY.
- Macan, T.H. (1994), "Time Management: Test of a Process Model," *Journal of Applied Psychology*, Vol. 79 No. 3, pp. 381–391.
- Macan, T.H., Shahani, C., Dipboye, R.L. and Phillips, A.P. (1990), "College Students' Time Management: Correlations with Academic Performance and Stress," *Journal of Educational Psychology*, Vol. 82 No. 4, pp. 760–768.
- Manasse, L.A. (1985), "Improving Conditions for Principal Effectiveness: Policy Implications of Research," *The Elementary School Journal*, Vol. 85 No. 3, pp. 439–463.
- Martin, W.J. and Willower, D.J. (1981), "The Managerial Behavior of High School Principals," *Educational Administration Quarterly*, Vol. 17 No. 1, pp. 69-90.
- Masserman, J.H. (1971), "The Principle of Uncertainty in Neurogenesis," in Kimmel, H.D. (Ed.), *Experimental Psychopathology: Recent Research and Theory*, Academic Press, New York, NY.
- May, H., Huff, J. and Goldring, E. (2012), "A Longitudinal Study of Principals' Activities and Student Performance," *School Effectiveness and School Improvement*, Vol. 23 No. 4, pp. 417–439.
- Miller, A.W. (2001), "Finding Time and Support for Instructional Leadership," *Principal Leadership*, Vol. 2 No. 4, pp. 29–33.
- Misra, R. and McKean, M. (2000), "College Students' Academic Stress and Its Relation to Their Anxiety, Time Management, and Leisure Satisfaction," *American Journal of Health Studies*, Vol. 16 No. 1, pp. 41-51.
- Morris, V.C., Crowson, R., Hurwitz, E.Jr. and Porter-Gehrie, C.C. (1981), *The Urban Principal: Discretionary Decision-Making in a Large Educational Organization*, University Illinois at Chicago Circle, Chicago, IL.
- National Union of Teachers. (2007), *Teacher Stress - 2007 Update: NUT Guidance to Divisions and Associations*, available at <http://local.teachers.org.uk/templates/asset-relay.cfm?frmAssetFileID=5894>, National Union of Teachers, London, UK
- Nicolson, N.A. (2008), "Measurement of Cortisol." in *Handbook of Physical Research Methods in Health Psychology*, Sage Publications, Inc., Thousand Oaks, CA, pp. 37-73.
- Orpen, C. (1994), "The Effect of Time-management Training on Employee Attitudes and Behavior: A Field Experiment," *Journal of Psychology*, Vol. 128 No. 4, pp. 393.

- Peeters, M.A. and Rutte, C.G. (2005), "Time Management Behavior as a Moderator for the Job Demand-Control Interaction," *Journal of Occupational Health Psychology*, Vol. 10 No. 1, pp. 64–75.
- Radhakrishna, R.B., Yoder, E.P. and Baggett, C. (1991), "Time Management and Performance," *Journal of Extension*, Vol. 29 No.2.
- Robinson, V.M.J., Lloyd, C.A. and Rowe, K.J. (2008), "The Impact of Leadership on Student Outcomes: An Analysis of the Differential Effects of Leadership Types," *Educational Administration Quarterly*, Vol. 44 No. 5, pp. 635–674.
- Schuler, R.S. (1979), "Managing Stress Means Managing Time," *Personnel Journal (pre-1986)*, Vol. 58 No. 12, pp. 851-854.
- Spillane, J.P., Camburn, E.M. and Pareja, A.S. (2007), "Taking a Distributed Perspective to the School Principal's Workday," *Leadership and Policy in Schools*, Vol. 6 No. 1, pp. 103–125.
- Spillane, J.P. and Hunt, B.R. (2010), "Days of Their Lives: a Mixed-methods, Descriptive Analysis of the Men and Women at Work in the Principal's Office," *Journal of Curriculum Studies*, Vol. 42 No. 3, pp. 293–331.
- Tabachnick, B.G. and Fidell, L.S. (2012), *Using multivariate statistics*. 6th edition. Pearson Education, Inc., Upper Saddle River, NJ.
- Trueman, M. and Hartley, J. (1996), "A Comparison Between the Time-management Skills and Academic Performance of Mature and Traditional-entry University Students," *Higher Education*, Vol. 32 No. 2, pp. 199–215.

TABLE 1: Descriptive Statistics

Variables	N	Mean	SD	Min	Max
<i>School characteristics</i>					
Fraction Hispanic students	247	0.59	0.32	0.03	0.99
Fraction Black students	247	0.32	0.34	0.00	0.96
Fraction free/reduced lunch students	247	0.77	0.20	0.10	0.99
School size (in 100s)	247	9.37	6.67	0.64	42.83
2009-10 School accountability grade (F = 1...A = 5)	238	4.04	1.13	1	5
Elementary school	247	0.66	0.47	0	1
Middle school	247	0.17	0.37	0	1
High school	247	0.15	0.36	0	1
Combination (K-12) school	247	0.02	0.13	0	1
<i>Principal characteristics</i>					
Female	247	0.69	0.46	0	1
American Indian	247	0.00	0.06	0	1
Black	247	0.31	0.46	0	1
Hispanic	247	0.46	0.50	0	1
White	247	0.23	0.42	0	1
Number of years in current school (top-coded at 8)	247	3.56	2.17	1	8
Holds bachelor's degree	247	0.08	0.27	0	1
Holds master's degree or education specialist degree	247	0.70	0.46	0	1
Holds doctoral degree	247	0.21	0.41	0	1
<i>Principal time use (percentages)</i>					
Management	83	20.71	13.33	1.16	59.26
Administration	83	33.43	13.40	3.70	62.96
Instructional management	83	12.80	9.51	0.00	41.67
Coaching	83	0.64	1.82	0.00	10.59
Evaluation of teachers	83	1.84	4.41	0.00	21.78
Classroom observation	83	5.71	5.86	0.00	26.67
Professional development for teachers	83	0.31	1.05	0.00	7.06
Developing education programs	83	1.23	2.25	0.00	10.53
Other	83	4.86	5.02	0.00	32.14
Internal relations	83	22.25	11.56	4.35	61.36
External relations	83	4.06	5.87	0.00	37.84
Transition	83	8.63	5.85	0.00	24.18
Personal time	83	5.84	4.98	0.00	22.37
<i>Principal location of work</i>					
Principal's office	83	41.32	18.47	0.00	78.05
Classroom	83	9.91	7.87	0.00	34.57
All other (e.g., main office, hallway, off-site)	83	46.45	16.73	14.81	96.30

Principal time use measures do not sum to 100% because time increments could be coded to multiple tasks.

TABLE 2: Factor Analysis of Time Management Instrument

	<i>Four-Factor Solution (Subscales)</i>					<i>Single-Factor Solution</i>
	Item mean	Short-range Planning	Poor Time Consciousness	Delegation	Focus	Time Management (Summary Measure)
Plan your day before you start it	3.14	0.83				0.80
Make a list of the things you have to do each day	3.09	0.82				0.66
Make a schedule of the activities you have to do on work days	3.01	0.82				0.69
Write a set of daily goals for yourself	2.65	0.76				0.64
Spend time each day planning	2.75	0.68				0.67
Have a clear idea of what you want to accomplish during the next week	3.30	0.63				0.66
Have an explicit set of goals for the current month	2.93	0.48				0.56
Find yourself continuing in unproductive routines or activities	1.82		0.79			
Find yourself being late for a meeting or event	1.42		0.74			
Find yourself working on assignments or reports the night before they are due	1.93		0.71			
Find yourself spending a lot of time transitioning from place to place	2.03		0.67			
Believe there is room for improvement in how you manage your time	2.93		0.36	0.37		
Ask your assistant principal to handle a situation so you can direct your attention elsewhere	2.72			0.81		
Delegate minor issues to an administrative assistant or other staff	2.89			0.79		0.46
Rely on an administrative assistant to screen out less important issues before they reach your desk	2.48			0.62		
Try to limit the amount of time you spend on routine paperwork	2.61			0.52	0.43	0.46
Keep your desk clear of everything other than what you are currently working on	2.28				0.59	0.59
Make the most constructive use of your time	3.10	0.42			0.59	0.69
Feel you are in charge of your own time, by and large	2.65				0.59	0.46
Find yourself getting diverted from the task at hand	2.43				-0.56	
Set and honor priorities	3.19	0.42			0.52	0.65

Items are on a 1-4 scale. Four-factor solution employs varimax rotation. Eigenvalues for these 4 factors are (in order) 5.3, 3.0, 2.1, and 1.2. Loadings lower than 0.35 not shown.

TABLE 3: Principal Time Management by Principal and School Characteristics

	Time Management (Summary Measure)	Subscale Measures			
		Short-range Planning	Poor Time Consciousness	Delegation	Focus
<i>Principal characteristics</i>					
<i>Gender</i>					
Male	-0.16*	-0.21**	0.00	0.18*	-0.10
Female	0.08	0.11	0.01	-0.08	0.02
<i>Race</i>					
Black	-0.04	0.04	0.12	-0.20	0.03
Hispanic	0.08	0.07	-0.02	0.12	-0.04
White	-0.08	-0.11	-0.10	0.02	-0.03
<i>Highest degree</i>					
Bachelor's degree	-0.29	-0.04	0.24	-0.06	-0.44**
MA or education specialist degree	0.09	0.10	0.01	0.06	-0.03
Doctorate	-0.14	-0.23	-0.09	-0.16	0.19
<i>Number of years in current school</i>					
1 - 3 years	0.04	0.16	0.03	-0.16	-0.09
4 - 7 years	-0.05	-0.15***	0.01	0.24***	0.00
8+ years	-0.02	-0.21*	-0.13	0.06	0.24*
<i>School characteristics</i>					
<i>School accountability grade</i>					
A	0.09	0.09	-0.13	0.00	-0.02
B	-0.25	-0.25	0.19	0.08	-0.09
C	0.03	0.08	0.17	0.09	-0.09
D or F	-0.16	-0.16	0.08	-0.13	0.06
<i>School level</i>					
Elementary	0.09**	0.12***	-0.07*	-0.05	-0.01
Middle	0.01	0.10**	0.11	0.20	-0.26*
High	-0.33	-0.44	0.27	0.11	0.09
<i>School size</i>					
Small (Fewer than 525)	0.12**	0.02*	0.03	-0.06	0.29**
Middle (526-1,150)	0.09**	0.18***	-0.05	-0.03	-0.12
Large (1,151+)	-0.25	-0.28	0.10	0.17	-0.12

Asterisks indicate significant differences from the final category within groupings. * $p < .10$. ** $p < .05$. *** $p < .01$. We also tested for differences by quartiles of student free/reduced lunch eligibility and student race/ethnicity but found no significant differences (omitted for brevity).

TABLE 4: Principals' Time Allocated to Different Task Areas as a Function of Time Management Skills

	Organization management	Instructional management	Admini- stration	Internal relations	External relations	Transition time	Perso tim
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Time management (summary measure)	0.71 (1.57)	2.06** (1.00)	-1.57 (1.55)	-3.12** (1.28)	0.32 (0.67)	0.81 (0.60)	-0.6 (0.6)
School with Grade D/F	0.34 (4.49)	4.60 (3.57)	-3.63 (3.61)	-1.66 (4.22)	-1.15 (1.43)	1.33 (1.63)	-0.3 (1.6)
Fraction free/reduced lunch students	-14.99* (7.83)	0.98 (5.36)	20.78** (8.70)	10.88 (7.15)	-2.53 (4.03)	1.68 (3.28)	1.7 (3.1)
Fraction Hispanics students	-6.87 (5.41)	-6.73 (4.55)	3.19 (5.64)	-0.21 (5.35)	1.56 (2.29)	-1.87 (2.71)	2.4 (2.2)
School size (in 100s)	0.01 (0.15)	0.09 (0.13)	0.14 (0.20)	0.16 (0.20)	-0.16 (0.18)	0.07 (0.09)	-0.22 (0.0)
Middle school	3.12 (3.74)	-1.61 (2.43)	-2.45 (4.37)	-2.01 (3.22)	1.18 (1.45)	-2.86* (1.63)	-0.0 (1.8)
High school	5.55 (3.66)	-6.38** (3.08)	-0.61 (4.23)	-0.61 (3.99)	6.03* (3.40)	0.09 (1.99)	0.8 (1.4)
Female	1.51 (3.12)	0.48 (2.09)	-4.16 (3.63)	0.56 (2.86)	2.26 (1.57)	-1.71 (1.36)	0.4 (1.1)
Black	0.18 (4.86)	-1.21 (3.98)	6.62 (4.09)	-6.40 (4.62)	-2.53 (1.53)	-0.19 (2.08)	-1.0 (1.9)
Hispanic	10.78*** (3.58)	0.09 (2.19)	-0.34 (3.46)	-1.27 (2.86)	-0.77 (1.99)	-1.63 (1.87)	-0.8 (1.2)
Doctorate	8.34** (3.71)	5.85** (2.58)	-7.98** (3.65)	-5.80* (3.16)	-0.92 (1.81)	-0.25 (1.64)	0.1 (1.1)
Years at current school: 4th to 7th year	-1.76 (3.11)	3.06 (2.22)	2.10 (3.49)	-3.54 (2.73)	1.01 (1.20)	-1.33 (1.56)	1.3 (1.2)
Years at current school: 8th year or beyond	-8.39** (3.29)	-1.92 (3.45)	-3.94 (4.77)	2.42 (5.55)	-1.93 (1.59)	5.19** (2.16)	3.7 (2.7)
Constant	26.46***	15.06***	18.28**	16.42**	4.12	10.10***	5.15

	(7.29)	(5.12)	(8.47)	(6.47)	(3.60)	(3.24)	(2.77)
Observations	83	83	83	83	83	83	83
Adjusted R ²	0.09	0.13	0.07	0.02	0.02	0.05	0.00

Robust standard errors are reported in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. The time management measure is standardized. Time use is measured as a percentage of time spent on each category.

TABLE 5: Components of Time Management and Selected Time Allocation

	Instructional management		Internal relations	
	(1)	(2)	(3)	(4)
Short-range Planning	1.53*	1.70**	-2.25*	-2.54*
	(0.91)	(0.83)	(1.28)	(1.31)
Poor Time Consciousness	-2.33**	-2.53**	2.13	2.71*
	(0.95)	(1.01)	(1.47)	(1.52)
Delegation	0.92	0.66	-1.49	-1.49
	(1.05)	(1.18)	(1.20)	(1.31)
Focus	0.53	0.12	-1.05	-0.31
	(1.14)	(1.01)	(1.41)	(1.40)
Constant	15.64***	14.61***	15.95**	16.94***
	(4.89)	(5.09)	(6.26)	(5.92)
<i>School characteristics included</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
<i>Principal characteristics included</i>	<i>No</i>	<i>Yes</i>	<i>No</i>	<i>Yes</i>
Observations	83	83	83	83
Adjusted R ²	0.13	0.17	0.00	0.04

Robust standard errors are reported in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. The time management measure is standardized. Time use is measured as a percentage of time spent on each category.

TABLE 6: Principal Time Management and Job Stress

	(1)	(2)	(3)	(4)
Time management (summary measure)	-0.28*** (0.07)	-0.28*** (0.07)		
Short-range planning			-0.14** (0.06)	-0.13** (0.06)
Poor Time Consciousness			0.35*** (0.06)	0.35*** (0.06)
Delegation			-0.02 (0.06)	-0.04 (0.06)
Focus			-0.26*** (0.06)	-0.26*** (0.06)
School with Grade D/F	-0.05 (0.23)	-0.05 (0.23)	0.03 (0.19)	0.05 (0.21)
School with missing grades	0.05 (0.28)	-0.06 (0.29)	0.09 (0.27)	-0.04 (0.29)
Fraction free/reduced lunch students	0.89*** (0.29)	0.71** (0.32)	0.67** (0.29)	0.56* (0.31)
Fraction Hispanics students	0.41* (0.22)	0.54** (0.25)	0.47** (0.20)	0.57** (0.23)
School size (in 100s)	-0.02** (0.01)	-0.02** (0.01)	-0.02* (0.01)	-0.02** (0.01)
Middle school	0.05 (0.18)	0.05 (0.18)	-0.08 (0.16)	-0.07 (0.16)
High school	0.50** (0.21)	0.53** (0.23)	0.42** (0.20)	0.44** (0.21)
Constant	-0.79*** (0.28)	-0.87*** (0.32)	-0.65** (0.28)	-0.75** (0.35)
<i>Principal characteristics included</i>	<i>No</i>	<i>Yes</i>	<i>No</i>	<i>Yes</i>
Observations	247	247	247	247
Adjusted R ²	0.11	0.11	0.21	0.21

Robust standard errors are reported in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

TABLE 7: Time Management and Subjective Assessment of Principals by Assistant Principals and Teachers

	Subjective assessment by assistant principals		
	(1)	(2)	(3)
	All schools	Elementary and middle school	High school
Time management (summary measure)	-0.13*	-0.27***	0.17*
	(0.07)	(0.09)	(0.09)
Observations	314	227	87
Adjusted R ²	0.03	0.06	0.00

	Subjective assessment by teachers		
	(4)	(5)	(6)
	All schools	Elementary and middle school	High school
Time management (summary measure)	0.00	-0.02	0.10**
	(0.03)	(0.03)	(0.05)
Observations	3627	2645	982
Adjusted R ²	0.03	0.03	0.08

Robust standard errors are reported in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Models include school and principal characteristics.

APPENDIX TABLE 1: Factor Analysis of Job Stress Items

	Item mean	Factor loading
I sometimes feel anxious about the stability of my job.	2.41	0.75
I have difficulty coping with the pace of organizational change.	1.97	0.72
I often struggle with uncertainty about my role and duties.	1.95	0.71
I feel overwhelmed by unrealistic improvement targets or initiatives.	2.32	0.70
I lack control over important decisions that affect the quality of my work.	2.20	0.68
I enjoy a reasonable degree of autonomy to do my work as I think best.*	3.13	0.61
I usually feel secure that my job conditions will not worsen.*	2.66	0.58
My ability to take initiative in my job is hindered by how I am monitored and evaluated.	2.05	0.58
Changes in my job are accompanied by appropriate support and training.*	2.76	0.58
I cope well with changes in my job.*	3.17	0.57
I feel confident that the quality of my work has the reputation it deserves.*	3.16	0.57
I am often aware of how others are judging the quality of my work.	2.89	

Items followed by * are reverse-coded in the creation of the factor score. Eigenvalue = 4.6; Cronbach's α = 0.79. Items are on a 4-point scale. Loadings lower than 0.35 not shown.

Notes

¹ We attempted to schedule observations with each of the district's 43 high schools but were only able to schedule observations at 38.

² We also investigated whether other task categories were associated with the four subscale measures but found that none of them were correlated with the four measures.