

Assessing the Utility of a Daily Log for Measuring Principal Leadership Practice

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Abstract

Purpose: This study examines the feasibility and utility of a daily log for measuring principal leadership practice. **Setting and Sample:** The study was conducted in an urban district with approximately 50 principals. **Approach:** The log was assessed against two criteria: (a) Is it feasible to induce strong cooperation and high response rates among principals with a daily instrument? and (b) Can daily logs accurately measure important aspects of principal leadership? The first criterion was assessed through a discussion of data collection procedures and results. The second criterion was assessed through mixed-method analyses comparing daily logs, observations, and an experience-sampling instrument. **Results:** The authors found that substantial participant contact time and strategic follow-up achieved strong cooperation and yielded high response rates. The accuracy of the log was confirmed through comparisons with an experience-sampling instrument and direct observations. The results also contribute to a broader understanding of how principals allocate their time across leadership domains. Like earlier structured observation studies, the authors found that principals spend more time on management, personnel issues, and student affairs and less time on instructional leadership than

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advocated by leadership scholars and professional standards. **Implications for Research and Practice:** Daily logs appear to be a viable means of measuring important aspects of principal practice and overcoming measurement errors associated with one-time surveys that are common in leadership research. Strategies used to maintain high participation rates are discussed in detail, and an example of a district's adaptation of the daily log methodology is provided.

Keywords

principal practice, measurement, logs

Executives are crucial informants in research on organizations. From their unique vantage point, executives' knowledge and perceptions can provide important insight into organizational functioning (Bednar & Westphal, 2006; Norburn & Birley, 1988). Executives clearly are also critical informants in research that assesses the impact of programs that target them.

Self-report surveys are commonly used to gather information from executive informants. Their relatively low cost and ease of administration make self-report surveys an attractive choice for collecting quantitative outcomes. However, such surveys have two limitations that restrict their ability to yield valid evidence on this population. First, there is evidence that response rates of self-report surveys of executives are generally low and have been declining over time. In a meta-analysis of 231 executive surveys, Cycyota and Harrison (2006) found an average response rate of 32% and that response rates generally declined between 1992 and 2003. Low response rates among this population are perhaps not terribly surprising, given the substantial constraints on executives' time. But high rates of unit nonresponse can lead to invalid inferences when the causes of nonresponse are correlated with substantive variables of interest (Groves et al., 2004).

A second problem with self-report surveys is that the accuracy with which they measure behavior is reduced in certain conditions. In general, the farther back in time a behavior occurs, the more difficult it is for respondents to accurately report the behavior. People also tend to be less accurate at reporting less distinctive events and events that occur with less regularity.

Cycyota and Harrison (2002, 2006) found that many follow-up strategies that have proven to be effective at boosting response rates with samples taken from the general population were ineffective with samples of executives. These researchers did find that topic salience and tapping into executives' social networks tended to result in increased response rates. However, these results

suggest that to validly measure this population, researchers need to employ measurement strategies that take into account the unique schedules, interests, and incentives of executives.

This study examines the utility of a daily log as a tool for measuring principal leadership practice. The log was assessed against two criteria: (a) Is it feasible to induce strong cooperation and high response rates among school principals with a daily instrument? and (b) Can a daily log provide accurate estimates of the practice of school principals? The first criterion was assessed through a presentation of the data collection procedures and results. The second criterion was assessed through mixed-method analyses comparing data from daily logs, observations, and an experience-sampling instrument.

We begin by placing the daily log instrument in a broader context by discussing methods that have been used in prior research to measure management and leadership practice. In doing so, we discuss the strengths and limitations of each method. Next, we describe the log instrument and the setting in which the study was conducted. We conclude by examining the extent to which the daily log, which was developed for an evaluation of an executive development program for principals, met the two criteria outlined above.

Methods for Measuring Management and Leadership Used in Prior Research

Researchers have used several different strategies to measure leadership and management practice, including observations, one-time self-report surveys, daily instruments, and experience-sampling methods (ESMs). In this section, we place the daily log in a broader context by considering the major strengths and weaknesses of these strategies. Our discussion draws from and extends a review conducted by Gronn (2003).

Observations

Observations have been a mainstay in research on what leaders, managers, and executives do. Observation strategies in this field have generally been of two sorts: open-ended observations and structured observations. A number of important studies have used prolonged observations to illuminate the work of managers and executives (Kotter, 1982; Sayles, 1964). For example, Sayles (1964) spent several years observing a sample of 75 managers in a single U.S. firm. Arguing that open-ended observations produced an overwhelming amount of data that required observers to make strong inferences, Mintzberg (1973) developed a structured observation approach in which participants were observed many

fewer times and for short durations. With structured observations, observers record events and activities that are then categorized by researchers after the observation.

Much of what we know about how principals typically allocate their time across major areas of responsibility comes from structured observations. Examples of influential studies that used this method include Peterson (1977), Martin and Willower (1981), and Kmetz and Willower (1982). A major finding that emerged from these studies was that principals tend to spend significantly more time running the school building and dealing with student discipline and personnel issues than on instruction-related issues. For example, Peterson found that principals spent 12% to 25% of their time on general administrative tasks, 30% to 46% of their time working with students, 26% to 36% of their time working with professional staff, but only 6% of their time planning and coordinating curricular and instructional programs. Kmetz and Willower found that principals spent 37% of their time on organizational maintenance, which included running the building and dealing with school personnel, 24% on pupil control, and 27% of their time on curriculum and instruction issues. The generalizability of the results of these studies and others like them are significantly limited, given the small number of principals observed. For example, Peterson observed 2 principals, and Martin and Willower and Kmetz and Willower observed 5 principals apiece.

Gronn (2003) argues that direct observations are useful because information is collected in real time (enhancing ecological validity), and independent observers are able to record events and details that participants themselves might forget or might not be aware of. Extended observation is believed to be well suited to providing insight into the complexities of the work of leaders because it exposes researchers to the networks of leaders' interpersonal relationships (Kotter, 1982; Sayles, 1964).

The main disadvantages of observations is that they are more expensive and time intensive than other measurement strategies. Observations can also miss important information because observers are often outsiders who do not have knowledge of the history and traditions of the groups they observe (Bourdieu, 1977). Camburn and Barnes (2004), for example, documented how classroom observations were sometimes inaccurate because observers were unaware of prior events, which colored teachers' accounts of what occurred.

One-Time Self-Report Surveys

Self-report surveys are one of the most common ways of measuring principal leadership practice (Hallinger & Heck, 1996). One-time surveys have the

advantages of being less expensive and less burdensome than other methodologies. Because of their low cost and burden, one-time surveys can be affordably implemented on a large scale and are thus particularly well suited to examining variation in practice across large samples of people and settings.

Research on the survey response process indicates that when surveys require people to report past behaviors across long recall periods (as principal surveys typically do), the ensuing responses are often impressionistic reports of generalities rather than precise recall of specific events (Menon, 1994; Tourangeau, Rips, & Rasinksi, 2000). A number of studies that compare respondents' answers on daily and one-time instruments have found the reports from the daily instruments to be more accurate (Hoppe et al., 2000; Leigh, Gillmore, & Morrison, 1998; Lemmens, Knibbe, & Tan, 1988; Ramjee, Weber, & Morar, 1999). Daily instruments have also been shown to more accurately capture more frequently occurring behavior than one-time surveys (Groves et al., 2004).

Some of the best documented evidence of leadership practice from a principal survey comes from an instrument developed by Hallinger and Murphy (1985). These researchers thoroughly assessed the validity and reliability of the survey statistically and triangulated principals' reports against the survey reports of teachers. On the basis of principals' scores on 11 scales, Hallinger and Murphy concluded that principals "frequently engage in instructional management behavior" (p. 236). The authors further argued that structured observation studies may underestimate the emphasis principals place on instructional matters because they miscategorize as management activities that in fact focus on instruction and curriculum. However, given their susceptibility to recall errors, point estimates from surveys such as the one used by Hallinger and Murphy may themselves misestimate the frequency of principal practices. Moreover, like the Hallinger and Murphy survey, many principal surveys focus on only one domain of principal leadership practice, thus making assessment of the relative frequency of principal practice in a particular domain difficult.

ESM

ESM has recently been used to measure principal practice (Spillane, Camburn and Pustejovsky, 2008), but this approach does not appear to be common in studies of managers and executives. ESM is a time-sampling strategy that measures behaviors, attitudes, beliefs, and feelings as they occur within the context of people's daily routines in natural settings (Csikszentmihalyi & Csikszentmihalyi, 1988; Csikszentmihalyi & Larson, 1987). In ESM designs, respondents are typically prompted to provide a report several times per day during the course of several days. Pagers and handheld computers are used to

randomly signal respondents when to report. A distinctive feature of ESM is that estimates of the incidence with which a respondent engages in a behavior are based on random samples of that behavior rather than retrospective recall.

An important advantage of this methodology is that it reduces biases associated with retrospective recall (Schwartz & Stone, 1998; Stone & Shiffman, 1994). A second advantage is that data produced by this method are believed to have greater ecological validity than other self-report methods. According to the ecological validity perspective, outcomes (behaviors, beliefs, emotional responses, etc.) are assumed to respond to environmental stimuli. Instruments are considered ecologically valid to the extent that they capture a representative sample of stimuli and subsequent responses to stimuli in an environment. ESM studies seek to attain ecological validity by randomly sampling slices of social life as it unfolds in a natural environment (Hormuth, 1986).

Studies have demonstrated ESM to be a reliable and valid approach for the assessment of mood, cognition, personality attributes, and behavior (Csikszentmihalyi & Larson, 1987; Hurlburt, 1997; Klinger & Kroll-Mensing, 1995). ESM participants themselves say the methodology tends to provide an accurate portrayal of their experiences (Csikszentmihalyi & Larson, 1987; Swendsen, 1997). Indeed, Delespaul, Reis, and DeVries (1995) contend that the research base attesting to the validity of ESM is sufficiently strong to warrant using ESM instruments to validate other modes of measurement.

ESM has a number of limitations. Depending on the frequency of measurement, time sampling may under- or overestimate the prevalence of what is measured (Mann, Ten Have, Plunkett, & Meisels, 1991). Short and rare events are particularly prone to inaccurate measurement. In addition, some studies have found that participants have difficulty using ESM instruments. Some participants have been found to use only a subset of response choices, and some fail to complete instruments when expected (Hormuth, 1986).

Daily Logs and Diaries

The principal log that is the focus of this study is an instrument that captures principal leadership practice on a daily basis. Daily instruments are used in a wide range of fields, including medicine, nutrition, labor studies, and occupational research. In the case of school-based studies, respondents are usually asked to complete instruments at the end of the school day while memories of the day are still fresh. Although a handful of studies in education research have used closed-ended daily logs to measure teachers' instructional practice (see, e.g., Smithson & Porter, 1994; Rowan, Camburn and Correnti, 2008), to date,

these kinds of daily instruments have not been used to study principal practice.

Daily instruments have a distinct advantage compared to annual surveys in that respondents have to consider many fewer behavioral episodes and much shorter time frames when formulating their answers. Daily instruments are also less costly to administer than observations because they do not require the presence of a researcher. Thus, like annual surveys, the relatively lower cost per case of daily self-report instruments means that they are well suited for investigating patterns across multiple cases and settings.

One of the most significant advantages of daily instruments compared to one-time surveys is that the former strategy yields direct evidence of how practices vary over time. Such evidence is not only substantively meaningful but also gives investigators a window into the reliability of their measures by examining temporal variation within participants (Rowan, Camburn and Correnti, 2004).

Limitations of closed-ended daily instruments are that they provide a description of practice that is less rich and nuanced than descriptions provided by open-ended instruments and observation and that they are more costly and burdensome to administer than one-time surveys.

The Validity of Daily Instruments

The principal log used for this study can be considered a closed-ended time allocation diary. As the name suggests, such diaries are used to capture how people allocate their time across activities and tasks. Whereas most time diaries are nondirected (Juster, Ono, & Stafford, 2003), the daily log investigated for this study uses a closed-ended format. A potential disadvantage of the closed-ended format is that the fixed categories may not define practice in the same way principals do. However, because it is less time-consuming to complete than open-ended diaries, it was possible to have respondents complete the daily log on more days.

A diary from 1 day may misrepresent a person's weekly schedule. Whereas most diaries collect data for 1 day, the daily log for this study was completed on 15 school days per year. By collecting data on multiple days, and at multiple periods throughout the school year, the daily log minimizes this kind of error.

Considerable evidence attests to the validity of time allocation diaries. For example, Juster (1985) found that respondents were able to recall with considerable accuracy what they did the day before and report it on a diary. ESM has become a common standard to validate diaries. In a review of time allocation studies, Juster et al. (2003) concluded that both ESM and time diaries provide

unbiased estimates of time spent on activities. Klumb and Baltes (1999) compared estimates of time usage from a retrospective diary with ESM measurements and found the correspondence to be acceptable.

Data and Method

The principal daily log instrument examined for this study log was developed for an evaluation of an executive leadership development program for principals. The evaluation was conducted with 48 principals in a mid-sized urban school district. The daily log is a web-based self-administered instrument designed to cover an exhaustive range of principal practices while also measuring practices advocated by the professional development program that was the focus of the evaluation. We conceived of principal leadership practice as actions taken by principals to influence people, processes, and organizational structures. We further viewed principals as exercising influence through nine domains of responsibility: (a) building operations, (b) finances, (c) community or parent relations, (d) school district functions, (e) student affairs, (f) personnel issues, (g) planning and setting goals, (h) instructional leadership, and (i) professional growth. These domains were based on a review of a range of studies containing comprehensive frameworks classifying principals' work into major areas of responsibility (Drake & Roe, 2003; Hallinger & Murphy, 1985; Heck & Marcoulides, 1992; Larsen & Hartry, 1987; Martin & Willower, 1981; Peterson, 1977; Pitner & Hocevar, 1987). The domains are believed to fairly exhaustively cover the range of principal responsibilities.

Domains of Responsibility

Simply describing principal practice in an exhaustive fashion does not necessarily tell us much about how different dimensions of leadership affect what goes on in schools. In the paragraphs that follow, we briefly discuss the importance of the nine domains for teaching, learning, and school operations. To streamline the discussion, we organize the domains into five broad areas: school management, instructional leadership, planning and setting goals, boundary spanning, and personal development.

School management. The daily log categories of building operations, finances, personnel issues, and student affairs can be considered as part of a broader domain of managing the school. One of the basic responsibilities of principals is to manage the school building, staff, and student affairs in a manner that school operations support teaching and learning (Leithwood, Seashore Louis, Anderson, & Wahlstrom, 2004). Sufficient equipment, a safe climate, and effective schedules

and the like combine to create conditions that can affect all walks of school life. Principals' work in this area affects not only the physical environment but also school culture, and principals have been shown to play an integral role in this regard (Leithwood, Jantzi, Silins, & Dart, 1993). Principals' managerial work also affects the quality of instructional resources available in the school through human resource practices and policies (Heneman & Milanowski, 2004). By affecting the quality of instructional resources, such practices and policies are also believed to indirectly bear on student achievement.

Instructional leadership. Instructional leadership was measured as a separate category on the daily log. Leadership scholars have long held that instructional leadership is one of the greatest sources of leverage principals have on student learning (Leithwood & Jantzi, 2000). Key aspects of instructional leadership include coordinating the school's curriculum, creating opportunities and conditions in which teachers can improve their teaching practice, and monitoring the quality of classroom instruction. One of the key findings to emerge from the effective-schools literature was that effective schools tended to have principals who regularly interacted with teachers and who monitored instruction and student progress (Purkey & Smith, 1983). Research has demonstrated that principals can support instructional improvement by working to develop opportunities for teacher collaboration (Johnson, 1990; Louis, Marks, & Kruse, 1996; Rosenholtz, 1989) and establishing channels for teachers to gain access to new information about instruction (Smylie & Hart, 1999).

Planning and setting goals. Planning and setting goals was measured as a separate category on the daily log. This third domain of principal responsibility involves setting a school vision and engaging in long-term planning that directs a school's efforts toward achieving that vision. Principals who actively shape their school's vision thus not only plan for the future but also focus their school on long-term goals. The importance of principals' role in organizational goal setting is borne out in two research syntheses that summarize evidence on the relationship between principal leadership and student achievement. Both summaries identified communicating goals and a school mission as the leadership strategy that has the greatest effect on achievement (Hallinger & Heck, 1998; Witziers, Bosker, & Kruger, 2003). Principals can communicate cultural values and norms and, in turn, desired behaviors through their direct interactions with teachers and students and through policies (Smylie & Hart, 1995). Research has also demonstrated the importance of principals' communication of clear expectations in instructional improvement efforts (Bryk, Bender-Sebring, Kerbow, Rollow, & Easton, 1998; Elmore, Peterson, & McCarthy, 1996).

Boundary spanning. This fourth area of principal leadership was measured with two categories on the daily log: community or parent relations and school

2. Please indicate when and for how long you worked on each of the following areas today. Within each hour block in which you worked on an area, indicate whether you worked on it for:

1 = 1-14 minutes; 2 = 15-29 minutes; 3 = 30-44 minutes; 4 = 45 minutes to 1 hour

	6-7 am	7-8 am	8-9 am	9-10 am	10-11 am	11-12 am	12-1 pm	1-2 pm	2-3 pm	3-4 pm	4-5 pm	5-6 pm	6-7 pm	After 7pm
Building operations (schedules, space allocation, building maintenance, restrooms)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Finances and financial support for the school (preparing budgets, budget reports, seeking grants, managing contracts)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Community or parent relations (formal meetings and informal interactions)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
School district functions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Student affairs (attendance, discipline, counseling, hall/cafeteria monitoring)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Personnel issues (recruiting, hiring, supervising, evaluating, problem solving)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Planning/setting goals (school improvement planning, developing goals)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Instructional leadership (monitoring or observing instruction, school restructuring or reform, supporting teachers' professional development, analyzing student data or student work, modeling instructional practices, teaching a class)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Your professional growth (formal professional development, attending classes at college/university, reading articles or books)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other (please specify)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Figure 1. Daily log calendar

district functions. As the chief administrator in the school, the principal must work with and serve as a bridge between key school constituents, including parents, the community in which the school is located, and the school district. This bridging role has been referred to as boundary spanning (Goldring, 1990). In this role, principals maintain relationships with school constituents, acquire resources from constituents, and buffer the school from external influences.

Personal development. Personal development was measured with a single daily log category called professional growth. To successfully carry out their work in the preceding dimensions of school leadership, principals require a stunning array of knowledge and skills. Developing new knowledge and skills through ongoing professional learning is an important way that principals can improve their capacity to manage the schoolhouse and effect improvements (Peterson & Kelly, 2002).

Using a calendar interface on the daily log, principals reported how much time they spent on the nine domains during each hour between 6 a.m. and 7 p.m. (see Figure 1). Similar to time allocation diaries used in other fields, the daily log also captured whom principals worked with during each hour block. Principals completed daily logs during seven periods between spring 2005 and spring 2007, completing one log per day for five consecutive school days each period.

To assess the accuracy of the daily log, results from the log were compared to results from an ESM instrument. The experience-sampling instrument randomly sampled principals' work approximately 15 times per day. For six school

days in the spring of 2005, principals carried a handheld computer (PDA). At randomly selected times throughout the day, the PDA would alert principals to fill out a brief questionnaire programmed on the PDA. The experience-sampling instrument recorded the activity in which principals were engaged, their location, their affect, whether they were leading the activity, whether they were leading alone or co-leading, and what school subject the activity was related to. On the same days they completed an experience-sampling instrument, they also completed a daily log.

Of the nine leadership domains measured by the daily log, six were also measured with the experience-sampling instrument: (a) building operations, (b) personnel issues, (c) finances, (d) instructional leadership, (e) student affairs, and (f) professional growth. Our analyses are limited to these six overlapping domains.

Because data from the two instruments have a nested structure of multiple daily reports per principal, we used a multilevel model to estimate percentages for the six leadership domains. The general form of the model is as follows:

Level 1: Days.

$$Y_{ij} = \beta_{0j} + r_{ij}, \quad (1)$$

where Y_{ij} is the percentage of time principal j reported spending on one of six leadership domains on day i , and β_{0j} is the average percentage of time that principal j reported engaging in the domain across the 6 days of the field period. The random error term, r_{ij} , is an effect representing the difference between principal j 's actual outcome score on day i and that predicted by the model.

Level 2: Principals. In the Level 2 model, the average percentages of time each principal spends in a leadership domain, β_{0j} , are modeled as a function of the grand mean γ_{00} and random variation associated with each principal, u_{0j} .

$$\beta_{0j} = \gamma_{00} + u_{0j}. \quad (2)$$

The daily log was also validated against principal observations, another commonly used validation standard for daily instruments. For 6 days during the spring of 2005, a subset of 5 principals were "shadowed" for a whole school day, and narrative reports of that on-site shadowing visit were produced. In the Results section, we refer to the data collected during these shadowing visits as *shadowing data* and *observation data*. A researcher spent an entire workday with 5 randomly selected principals during the 6-day logging period. Because of a schedule conflict, 1 of the 5 principals was only shadowed for half of the school day. On observation days, a

researcher recorded a narrative description of the principal's activities. Every 10 min, the researcher recorded the activity in which the principal was engaged, along with a brief description of the context in which the activity occurred. In addition, when the principal was alerted to complete the experience-sampling instrument, the researcher also completed a subset of the questions on an experience-sampling instrument.

Results

We first take up the issue of the feasibility of inducing strong cooperation and high response rates with a daily log administered to a sample of school principals. In light of prior research illustrating the difficulty enlisting the cooperation of executives in research, we were concerned whether principals would be willing to keep track of their practice throughout the day and to take time at the end of the day to record what they did. We were equally concerned about principals' willingness to do this for 5 days in a row during three periods in the school year.

Our data collection strategy addressed these concerns by attempting to make principals comfortable with the daily log instrument through training and by maintaining ongoing contact with them throughout the study. Researchers met principals in person at a districtwide training session for the daily log instrument. At that training, principals received an invitation letter for the daily logs and a "user guide" that described the organization of the log, included directions for using the instrument, and provided a phone number that principals could call if they had questions. During the training, principals practiced completing logs using the web application.

In a follow-up e-mail, principals received a one-page document that listed the questions and illustrated the flow of questions in the daily log. Principals also received personalized daily e-mail reminders on logging days. The e-mails, which were tailored for each logging day, reminded participants to complete the daily log at the end of the day and also summarized the logs already completed and/or not completed. These e-mails also communicated to principals about data quality (e.g., commonly missed items) and logistical issues that arose. In addition to providing training and ongoing communication with principals, we also provided incentives of \$100 per year for participating in the daily log component and for completing a survey at the end of the school year.

We successfully maintained the cooperation of nearly all active principals in the district across the 2-year data collection period. Of the principals who were asked to participate, the percentage who did not complete at least one log report was low: 2% during spring 2005 and fall 2005, 0% for winter 2006 and spring 2006, and 10% for spring 2007 (see Table 1). We also achieved

Table 1. Daily Log Completion Rates

Wave	Overall Percentage of Logs Completed	Percentage Completing All Logs per Wave	Number of Logs
Spring 2005	93	92	286
Fall 2005	78	76	199
Winter 2006	70	69	183
Spring 2006	80	78	204
Fall 2006	80	75	203
Winter 2007	67	67	172
Spring 2007	80	80	205
Total	78	77	1,452

substantially high response rates for the log component. Overall, principals completed 1,452 logs for an overall response rate of 78%. The percentage who completed all logs per data collection wave was only slightly lower (77%), indicating that participating principals tended to complete most logs requested of them. Although researchers might reasonably be concerned that the more burdensome daily log methodology might yield lower participation rates than traditional self-report surveys, that was not our experience. Response rates for the daily log were very close to, and in some cases exceeded response rates for, a traditional annual self-report survey collected as part of the larger study.

Response rates for the daily log fluctuated over time. Participation during winter data collection periods was generally lower than other periods, perhaps because this period typically came fairly soon after schools' winter break. Despite these fluctuations, we were able to achieve acceptable response levels from principals across the length of the study, attributable at least in part to the procedures just discussed, which involved considerable contact time with research staff in training and through the maintenance of an ongoing channel of communication with principals throughout the data collection period.

Validating the Daily Log Against an Experience-Sampling Instrument.

The validity of the daily log was assessed by comparing estimates of the percentage of time principals spent on six leadership domains measured by the daily log and experience-sampling instruments: (a) building operations, (b) finances, (c) student affairs, (d) personnel issues, (e) instructional leadership, and (f) professional growth. For the daily log, the percentage of time principals spent on each function was calculated by simply dividing the number

Table 2. Percentages of Time Leaders Spend on Different Leadership Functions Estimated by Daily Logs and Experience Sampling Instruments

Leadership Function	Daily Log	Experience-Sampling Instrument	Difference
Building operations	7.70	8.83	-1.13
Personnel	14.16	14.46	-0.30
Finances	4.54	7.04	-2.50
Instructional leadership	18.53	19.37	-0.84
Student affairs	23.49	20.04	3.45
Professional growth	5.56	5.47	0.09

of minutes spent on a function on a particular day by the total number of minutes the principal reported for all leadership functions on that day. For the experience-sampling instrument, we calculated comparable daily percentages by dividing the number of times a principal reported working in a domain on a particular day by the total number of times the principal responded to the experience-sampling instrument that day. Table 2 presents estimated percentages of time principals spent on the six leadership domains as indicated by the estimated intercepts from the unconditional hierarchical linear modeling (HLM) models.

Both the experience-sampling and daily log instruments estimate that principals spend more time on student affairs than on any other leadership domain. According to the daily log data, principals spent approximately 23% of their time on student affairs. The estimate from the experience-sampling instrument is slightly lower, at 20%. Instructional leadership was the second-most-frequently reported leadership domain. Estimates from both instruments indicate that principals spend approximately 19% of their time providing instructional leadership in their schools. Dealing with personnel issues was the third-most-frequent activity reported on both instruments. Both the daily log and the experience-sampling instrument indicated that approximately 14% of principals' time is spent on this domain.

Principals reported spending less than 10% of their time in each of the remaining three leadership domains: building operations, finances, and professional growth. On the experience-sampling instrument, principals reported that approximately 9% of their time was devoted to building operations, such as maintenance, scheduling, and working with vendors. Principals reported a similar focus on this function (approximately 8%) on the daily log. School finance work, such as purchasing, preparing budgets, and managing contracts, was a fairly infrequent activity for principals. On the daily log, principals reported spending approximately 5% of their time on finances, and principals' experience-sampling instrument reports indicated they spent 7% of their time

Table 3. Variance Decomposition for Leadership Function Outcomes

Leadership Function	Daily Log		Experience-Sampling Instrument	
	Proportion of Variance Between Principals	Proportion of Variance Between Days	Proportion of Variance Between Principals	Proportion of Variance Between Days
Building operations	.144	.856	.319	.681
Personnel	.201	.799	.163	.837
Finances	.283	.717	.073	.927
Instructional leadership	.258	.742	.313	.687
Student affairs	.160	.840	.131	.869
Professional growth	.001	.999	.001	.999

on this function. Principals also reported spending relatively little time on professional growth. This result squares with prior research indicating that the press of daily activities leaves little time for reflection and personal growth.

In general, the daily logs and experience-sampling instruments yielded very similar estimates of the portion of time principals devote to the six leadership domains. In fact, the estimates produced by the two instruments rank order the six domains nearly identically. The daily log and experience-sampling instruments produced nearly identical estimates of the frequency with which principals engage in two of the six leadership areas: dealing with personnel issues and professional growth. The estimate for instructional leadership produced by the two instruments differed by about 1 percentage point. The estimates for building operations, finances, and student affairs produced by the experience-sampling instrument and the daily log differed more substantially, but even these differences were less than 5 percentage points.

In light of characterizations of principals' work as marked by great variety and fragmentation (Weick, 1996), it seems reasonable to expect principals' emphasis on a particular leadership function to vary substantially from day to day. Indeed, the vast majority of the variation in principals' engagement in the six leadership functions was found in day-to-day fluctuations (Table 3). For example, work on student affairs appears to substantially ebb and flow from one day to the next. Principal observations provided vivid examples of this result, showing how issues involving students often emerge in unpredictable ways, thus making principals' attention to student affairs highly variable.

In the HLM models, the Level 2 variance component characterizes the degree to which principals differ from one another in their emphasis on a leadership domain. For two of the leadership measures, finances and instructional leadership, we found a substantial amount of variation at Level 2. This indicates that principals vary substantially in the degree to which they focus their energies in these two domains. In particular, variation between principals made up 26% and 31% of the total variation in principals' engagement in instructional leadership according to the daily log and experience-sampling instruments, respectively. The daily log data also indicated substantial variation between principals in their work on school finances, and the experience-sampling instrument data indicated significant variation between principals in their emphasis on building operations.

Data from the daily log and experience-sampling instruments produced fairly different variance estimates for some of the six leadership domains. The greatest discrepancy was observed for building operations and finances. Whereas the daily log data indicated that approximately 14% of the variance in building operations was between principals, the experience-sampling instrument produced an estimate more than twice that high, 31%. In other words, the experience-sampling instrument appears to be capturing substantially greater differences in building operations from one principal to the next. In contrast, the daily log appears to capture greater variation in finances between principals than the experience-sampling instrument. Whereas the daily log data indicate that 28% of the variation in principals' engagement in school finance lies between principals, the experience-sampling instrument data produce an estimate that is one quarter that size, 7%.

Our data do not shed much light on why the two instruments produce such different variance estimates, although we conjecture that the differences may reflect limitations in how well the sample of observations obtained for the experience-sampling instrument on a given day represent the full range of activities that occurred on that day. Daily measures produced by the two instruments are fundamentally different. Whereas the daily log instrument is a retrospective recall of all activities for a given day, the experience-sampling instrument captures a random sample of activities. In light of these differences, it is perhaps not surprising that estimates of between-day variation produced by the two instruments differ from one another.

Comparing Daily Log Estimates to Estimates From Structured Observation Studies.

There is considerable overlap between the six domains measured by the experience-sampling instrument and daily log and those observed by the structured observation studies of Peterson (1977), Kmetz and Willower (1982), and

Martin and Willower (1981), thus permitting an additional view of the validity of daily log estimates by comparing them to results from the earlier studies.

Daily log estimates of the amount of time principals spend on general managerial and personnel issues were fairly similar to those found by Martin and Willower (1981) and Kmetz and Willower (1982) but differed considerably from those found by Peterson (1977). The former two studies found that principals spent the greatest percentage of time on a leadership domain they called "organizational maintenance," which included general management tasks, dealing with personnel issues, and managing the school building. Both studies found that principals spent slightly more than one third of their time in this area (36% for Martin & Willower, 1981, and 38% for Kmetz & Willower, 1982). Three of the six domains measured by the daily log—building operations, personnel issues, and school finances—can be combined to form a category reasonably similar to the organizational maintenance category used by Willower and colleagues. Doing that, we found that the daily log estimates that approximately 26% of principals' time was devoted to these three areas, and like the prior studies, that principals' emphasis on these areas exceeded their emphasis on all other domains. Like the daily log estimates and the results of Martin and Willower and Kmetz and Willower, Peterson found that principals spend more time on general administration and work with professional staff than on any other leadership domain. However, Peterson observed a much stronger emphasis in this area, finding that principals spend approximately half their time on general managerial and personnel matters.

The estimated percentage of time principals spent on student affairs produced by the daily log was remarkably similar to the percentage of time principals observed by Martin and Willower (1981) and Kmetz and Willower (1982) spent on "pupil control." For Willower and colleagues, pupil control included principals' direct interaction with students, particularly related to discipline issues, and their monitoring of student behavior throughout the school building. The estimated percentage of time principals spent working with students from the daily log, from Martin and Willower, and from Kmetz and Willower were 23.5%, 23.8%, and 23.6%, respectively. Again, Peterson's (1977) results aligned less well with the daily log estimates and other studies, finding that the 2 principals that were observed spent 30% and 46% of their time working with students.

We can also get an idea of how closely the estimate of the percentage of time principals spent on instructional leadership from the daily log matches comparable numbers from the structured observation studies. Willower and colleagues documented principals' activities in a domain they called "school program," which included instruction and curriculum-related activities performed by the principal. Examples of activities in this area included observing teachers, discussing instructional matters with teachers, and planning the school's curricular

program. Peterson (1977) similarly included a functional area called "planning and coordinating curricular or instructional programs." The results from the daily log suggest that principals spent approximately 19% of their time on instructional leadership. Whereas Martin and Willower (1981) observed very similar levels of instructional leadership among the principals they observed (17%), the corresponding percentage observed by Kmetz and Willower (1982) was considerably higher (27%), and that observed by Peterson (1977) was dramatically lower (only 6%).

We next turn our attention to analyses of observation data obtained by shadowing 5 principals for 1 day apiece. These analyses are intended to shed light on differences in the results obtained for the daily log and experience-sampling instruments just discussed.

Comparing Daily Log and Observation Results.

The HLM results indicate that if one's analytic goal is to assess how a group of principals allocate their time across major leadership domains on average, the daily log and experience-sampling instruments yield fairly equivalent pictures. Modest departures from this general pattern were found for the building operations, school finances, and student affairs domains. If we assume the experience-sampling instrument is a valid benchmark against which to judge the accuracy of the daily log, which is a stance taken by a number of other studies, then the HLM results suggest that (a) principals underreported their work on finances and building operations on the daily log and (b) principals overreported their engagement in student affairs.

We were interested in understanding why daily log estimates were different from experience-sampling instrument estimates in these domains. We used experience-sampling instrument and observation data for the five shadowing cases to identify hour blocks in which principals apparently either failed to report school finances and building operations on the daily log or unexpectedly reported student affairs. We then examined the observation narrative data within these time blocks to better understand principals' reports on the daily logs.

To assess principals' overreporting of student affairs, we would ideally identify cases where student affairs was reported on the daily log but not on the experience-sampling instrument. However, given that the experience-sampling instrument design uses time sampling, it is not safe to assume if student affairs was not reported on the experience-sampling instrument in a given hour that the principal failed to report it on the daily log. The principal may not have reported student affairs on the experience-sampling instrument simply because he or she was not engaging in student affairs when randomly

beeped. Another option would be to examine hour blocks when the observation narrative indicated student affairs was not a focus but in which principals reported student affairs on the daily log. Unfortunately, there were no such cases among the 5 principals who were shadowed. Therefore, we limit our qualitative analyses to understanding why principals underreport finances and building operations on the daily log.

Recall that the observation data essentially provide a running record of leadership practice and “surrounding events” that occurred during the school days on which daily logs and experience-sampling instruments were completed. Data from all three sources were time coded and can be associated with a particular hour of the school day. The daily log data were captured for every hour between 6 a.m. and 7 p.m. Experience-sampling instruments in comparison captured leadership practice at approximately 15 randomly selected points during the day, and the time of the beep was recorded. The shadowing narrative from the observation is similarly time stamped. For purposes of this article, we limited our analyses to the hours between 8 a.m. and 5 p.m.

We identified all hour blocks in which the experience sampling instrument or observation data indicated that building operations or finances should have been reported on the daily log but was not. All data within identified hour blocks (daily log, experience-sampling instrument, observation narrative) were then examined, and themes regarding principals’ failure to report their work in these domains were identified. After the initial identification of themes, each author coded the observation data for each theme. The initial coding of each author was compared, and through a reconciliation process, the authors reached consensus on coding differences.

A total of 20 hour blocks were analyzed, 14 in which building operations was not reported on the daily log and 6 in which school finances was not reported. In examining the observation narratives for these time blocks, four potential explanations for underreporting on the daily log emerged. We found that events were not reported because they (a) were brief, (b) unfolded in a noncontinuous fashion, (c) occurred in the middle of an hour block, or (d) were overshadowed by more dramatic or significant events. We present evidence for each explanation and discuss how these explanations help account for school principals’ failure to report their work on school finances and building operations. We note that these explanations are not mutually exclusive but overlap considerably. Of the 20 hour blocks when principals failed to report work on building operations and school finances, only 5 (25%) can be accounted for by a single explanation. For the remaining activities, we found multiple, overlapping explanations of principal reporting errors.

Reporting errors associated with brief events. We observed a number of instances when activities that were brief and composed a minor fraction of all activities within an hour failed to get recorded on the daily log. For example, work on school finances often involved very brief, discrete tasks, such as signing financial paperwork or sending an e-mail to secure a purchase. Building operations were likewise often characterized by brief activities, often requiring principals to deal with unanticipated situations as they arose. Research has regularly shown that behaviors that are of short duration, and that do not occur with great regularity, are more difficult for respondents to recall on retrospective questionnaires (Tourangeau et al., 2000).

Mr. S is an example of a principal who had difficulty recalling work on school finances that was of short duration. According to the observation narrative, at 9:28 a.m., Mr. S was “in the principal’s office, alone. Checking e-mail, signing purchase orders, making a doctor’s appointment, using the computer.” Processing purchase orders falls into the school finances category, but Mr. S. failed to report activity in this category on the daily log between 9:00 and 10:00 a.m. His work on purchase orders was very brief, and the narrative indicates this was one of four things he did in the 10-min segment recorded by the observer. It appears that the brevity of this activity may have contributed to his failure to report this work on the daily log.

Mrs. E. also appeared to have difficulty recalling brief activities. Beginning at about 1:00 on the day she was shadowed, she and the assistant principal conducted an interview with a candidate for a paraprofessional position. The interview took approximately 20 to 25 min. At approximately 1:30, she returned to her desk, where she worked with the secretary on a computer purchase. Mrs. E’s work on school finances lasted only approximately 5 to 10 min. The shadower recorded in the observation narrative that Mrs. E. was working on school finances during this period. Mrs. E. herself reported on the experience-sampling instrument that she worked on school finances between 1:00 and 2:00. However, Mrs. E. failed to report that she worked on finances during this hour on the daily log.

Reporting errors associated with noncontinuous events. We also observed cases where building operations and school finances were not reported because work in these areas occurred in “fits and starts” throughout an hour. We labeled such cases *noncontinuous*, and not surprisingly, many noncontinuous activities were also brief. Of the 20 instances where principals failed to report their work on finances or building operations, 10 (50%) were consistent with a noncontinuous explanation.

Consider for example, the sequence of activities recorded for Mr. S. between 12:08 and 1:08:

- 12:08 and 12:18 On the phone. Interviewing a prospective Latin-language instructor to help children with vocabulary.
- 12:28 Alone. Composing a memo on energy management for the school.
- 12:38 With a counselor. They discuss a student who is failing. They are waiting to see if the parents of the child are going to be divorced.
- 12:48 Alone. Work on the energy management memo continues. A phone call interrupts the work on the memo.
- 12:58 With a fourth grade classroom teacher. They discuss the air-conditioning in her classroom.
- 1:08 With a school social worker. They discuss problem students with 15 or more absences and discuss having these children play chess with a teacher after school.

Mr. S. failed to report any building operations–related work for this period on the daily log. Yet the observation record indicates at least three instances of building operations, at 12:28 and 12:48 (composing a memo on energy management) and at 12:58 (discussing air conditioning with fourth-grade teacher). The energy management memo activity, however, is not continuous—it is split across two different 10-min segments in the hour that are separated by a different type of activity. Furthermore, in one of these 10-minute segments, the activity was interrupted.

Reporting errors associated with timing within an hour. The third pattern we observed was that principals sometimes failed to report their work on building operations and school finances when activities in these areas occurred in the middle of an hour block. Conversely, principals seemed to more accurately recall these activities when they occurred near the beginning of an hour. Of the 20 instances where principals failed to report school finances or building operations, 9 (45%) lend support to this explanation (3 associated with finance activities and 6 with building operations).

The observation narratives for Mr. D. and Mrs. E. illustrate this issue. At 2:31, the observer recorded that Mr. D. was “in the secretary’s office, alone. FIRE DRILL.” Yet Mr. D. did not report any building operations activity for this period. Similarly, the observation narrative for Mrs. E. indicated that at 1:30, the following was occurring: “Alone, working on a computer purchase. The principal calls the district office regarding portable classrooms to house autistic and special education students.” So during this time, Mrs. E. was working on building operations and school finances, yet she failed to report her work in these two domains for the hour block from 1:00 to 2:00. These and similar cases indicated to us that activities occurring in the middle of an hour were more likely to be forgotten by principals than activities occurring near the top of the hour.

Overshadowing events. We observed a number of cases where activities involving building operations and finances seemed to get overshadowed by more significant or more dramatic activities that occurred within the same hour. The observation narratives described a number of cases where principals had to engage in what appeared to be extraordinary events. Often, such events involved student affairs or personnel issues. In these cases, principals reported the function associated with the extraordinary event on the daily log but failed to report either building operations or school finances.

An example of this can be seen in Mrs. B's observation narrative. On the afternoon she was shadowed, Mrs. B. participated in a meeting focused on the education plan of a student with special needs. The meeting was noteworthy because it lasted approximately 40 min. The meeting began at 1:45. Between 1:30 and 1:45, Mrs. B. had to call an exterminator to deal with an outbreak of yellow jackets. During this time, Mrs. B. also approved a number of purchase orders. The only activity Mrs. B recorded on the daily log for the hour block from 1:00 to 2:00 was student affairs, presumably referring to the meeting for the special needs student. Despite dealing with the yellow jackets and purchase orders earlier in the hour, Mrs. B. failed to report building operations and finances for that hour.

On the afternoon he was shadowed, Mr. D spent substantial time working with the personnel manager. The two administrators met behind closed doors from 2:50 to 3:10 and from 3:40 to 4:00. During that time, Mr. D. also dealt with a fire drill, made modifications to the bus schedule, and dealt with busses that showed up late. All of these activities fall into the log category building operations. However, Mr. D. did not report building operations in the three hour blocks between 2:00 and 5:00. Mr. D. did report engaging in personnel matters during all three hour blocks, and thus, the closed-door meeting with the personnel director appears to have overshadowed other activities.

Discussion

Like executives of small to midsize organizations in other fields, the principals in our study were busy, autonomous professionals with responsibility for overseeing complex organizations, supervising staff, and managing their organization's finances. We found that we could feasibly collect daily logs from principals at a significant scale and achieve high response rates that were sustained during the course of a 3-year study. This was accomplished with a data collection strategy that included training in the data collection task, significant respondent contact, and individually tailored prompting of non-responders. We conjecture that our success was largely attributable to rapport

that was built through the multiple contacts with principals and to the strategic prompting. We note our approach was not exotic but instead reflected many principles of tried and true methodologies for self-report surveys, such as Dillman's total design method (Dillman, 1990). As such, we believe these results are readily achievable by leadership scholars interested in gaining an accurate picture of principal leadership practice.

We also found that estimates from the daily log compared favorably with estimates from an experience sampling instrument. The two measurement approaches yielded similar estimates of the percentage of time principals devote to six common leadership domains. The similarity of the estimates from the two instruments gave us confidence in the accuracy of estimates produced by the log.

Our reading of the literature is that earlier structured observation studies are among a relatively small number of studies that have quantified how principals distribute their time across an exhaustive set of leadership domains. In our view, comparing our results to those of the earlier studies thus makes a useful contribution to our understanding of how principals typically distribute their attention across multiple, sometimes competing, realms of responsibility. This comparison also provides a unique window into whether the influential results from those earlier studies still hold true. The structured observation studies were conducted prior to the emergence of standards and accountability policy levers at the state and federal levels that currently bear on the work of principals and others in schools. Thus, a comparison strikes us as timely.

Evidence from the daily log and structured observation studies all indicate that principals give the greatest amount of attention to management and personnel issues, although point estimates of principals' emphasis in this domain varied from study to study. The daily log and the structured observation studies also indicate that principals devote a great deal of attention to working with students and student-related issues. Here, evidence from the daily log was strikingly consistent with two of the three structured observation studies, indicating that principals typically spend approximately 23% of their time in this area.

Results from this study and from Martin and Willower (1981) and Kmetz and Willower (1982) indicate that principals' emphasis on instructional leadership is roughly equivalent to their emphasis on students and student-related issues. Three pieces of evidence (estimates from the daily log and experience-sampling instrument and from Martin & Willower, 1981) indicate that principals spend between 17% and 19% of their time in this area, whereas the equivalent figure from Kmetz and Willower was considerably higher, at 27%. Peterson's (1977) finding that principals devote 6% of their time to instructional leadership was far lower than all other results. Weighing our results alongside the earlier

studies, we see strong evidence that instructional leadership does not occupy the majority of principals' time. Summaries of research on instructional leadership reach a similar conclusion—that principals' direct involvement in instructional matters is relatively rare (Hallinger, 2005; Hallinger & Heck, 1996).

The profession clearly places a premium on instructional leadership, as evidenced by the centrality given to teaching and learning in the Interstate School Leaders Licensure Consortium (ISLLC) standards (Murphy, 2005). This emphasis is also reflected in research as the literature review conducted by Hallinger and Heck (1996) found instructional leadership to be the most frequently studied model of school leadership in the past twenty-five years. However, to our knowledge, neither existing research nor theory pinpoints an optimal portion of time that principals should devote to instructional leadership.

We feel we can reasonably conclude from our results that principals spend substantially less time on instructional leadership than advocated by leadership scholars and professional standards. We temper this conclusion by acknowledging that our results and most other studies of instructional leadership speak to the *direct* emphasis principals place on teaching and learning. Indeed, we believe there are many ways principals *indirectly* influence teaching and learning in their schools, through actions such as hiring teachers, teacher evaluation, and maintaining physical spaces for learning. Thus, this and other studies may understate principals' efforts to influence teaching and learning in their schools. This of course is not merely a measurement issue but also speaks directly to the way in which instructional leadership is conceptualized.

The consistent finding that principals spend substantial time running the building and attending to student affairs suggests to us the existence of persistent structural constraints on principals' time that press them to attend to such issues rather than instructional leadership. A growing body of evidence suggests schools can work against these constraints by giving responsibility for instructional leadership to other leaders, particularly teacher leaders, who specialize in this area (see for example Author, 2003; Heller & Firestone, 1995; Author, 2009). Indeed, there is considerable evidence that this kind of allocation of leadership responsibility can significantly support the improvement of teaching practices in schools (see for example Author, 2009; Putnam & Borko, 2000; Raver, Jones, Li-Grining, Metzger, Champion, & Sardin, 2008).

Such surveys simply do not measure daily fluctuations in practice and have also been found to be prone to estimation errors. Variance estimates from the HLM analyses (Table 3) clearly indicate that either measuring a single day, or asking principals to provide a summary of their practice across a long span of time, such as an entire school year, may misrepresent what principals do

because important fluctuations in their work would be obscured. Daily logs allow researchers to estimate this variation and to take it into account while still maintaining the leader or manager as the primary unit of interest.

The results suggest, however, that principals' reports on the daily log may slightly overstate the frequency with which they engage in student affairs and modestly understate their emphasis on school finances and building operations. Analysis of observation data revealed that recalling the performance of these functions at the end of the day may be difficult because building operations and finances often entail brief activities whose timing is unpredictable and that are vulnerable to being overshadowed by more dramatic events. These results suggest to us that if the primary behaviors of interest have these characteristics, researchers may wish to consider using experience-sampling instruments or observations. Furthermore, our results suggest that it might be fruitful to develop strategies that help respondents recall events that are likely to be missed. For example, having respondents identify novel or extraordinary events, and then reflect on what else was going on at the time, might help ameliorate the difficulty of recalling events that occur at approximately the same time as overshadowing events.

The fact that the daily logs and experience-sampling instruments produced such similar results raised questions in our minds about which method is most cost-effective in terms of financial costs and respondent burden. Development costs for the two methods were similar, given that both instruments required the development of a computerized questionnaire and both involved training by field staff. We learned through anecdotal reports that the perceived burden of the two instruments was not equal. A number of principals commented about the intrusiveness of being beeped for the experience-sampling instrument, but we heard relatively few negative comments about the burden of the daily log. Therefore, the slight gain in accuracy of experience-sampling methods may come with an additional cost of respondent burden. Our results also suggest that experience sampling instruments may not be uniformly more accurate than daily instruments. For example, principals ignored experience-sampling prompts when in sensitive situations, and consequently, experience sampling may undercount such situations. Our observation data revealed that sensitive situations with students and staff are a regular part of principals' daily experience, and a considerable number of such events were recalled and reported on the daily log.

Considering daily logs alongside more commonly used observations and annual surveys suggests to us two unique uses of this measurement strategy. The first is that they appear to provide a middle ground for those wishing to quantitatively measure leadership practice. They do so by overcoming some

of the measurement limitations of one time surveys while at the same time providing a more feasible alternative to observations, the large scale administration of which makes their use for quantitative measurement expensive and impractical. Second, we believe that daily logs are well suited to measuring the impact of principal development initiatives in studies such as randomized controlled trials that attempt to establish causal links between leadership interventions and principal outcomes. Daily logs measuring teachers' instructional practices have shown to have a similar utility. Using data from teacher logs, Author (2009) demonstrated strong effects of comprehensive school reform programs on teachers' classroom practice. The longitudinal structure of daily log data also makes it particularly well suited to measuring changes in principal practice over time.

In addition to being useful to researchers, the daily log methodology may also prove useful to practitioners. By providing a longitudinal record of how principals have allocated their efforts across major leadership domains, daily logs could be used as a vehicle for principals to reflect on their practice. Indeed, a large urban district in the United States is currently using a modified version of the daily principal log investigated here for this very purpose. In this district, daily log data provides principals with snapshots of how they allocate their time between instructional leadership and managerial responsibilities. The district views the logs as learning tools that help principals allocate their time more effectively by examining school outcomes in light of past practices. The log is being used as part of a broader formative feedback system that is intended to inform instructional improvement efforts in the district. In the past, the district has captured evidence on principals' practice through its evaluation process and a biannual survey that measures principals' contributions to instructional leadership in their schools. To these tools, the district has added daily logs as a way to capture complementary evidence of the day-to-day work of principals.

On the whole, our experience in using the daily log suggests this is a viable means of measuring principals and executives in other settings that can overcome shortcomings of one-time surveys. However, the sample and setting of this study place limits on the generalizability of the results. Consequently, we recommend further research on whether the measurement strategies we found to be successful with this sample can be replicated with larger groups of principals in a wider array of settings.

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