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Days of their lives: a mixed-methods, descriptive analysis of the men and women at work in the principal's office

JAMES P. SPILLANE and BIJOU R. HUNT

This study examines the work of US school principals from the perspective of their workday using a distributed perspective to frame the investigation. Using data on 38 school principals in one mid-sized urban school district in the US, it describes school principals' work practices, examining both the *focus* of that work and *how* it is accomplished. Cluster analysis is used to analyse data from an experience sampling method (ESM) log, identifying three patterns of practice: administration-centred, solo practitioners, and people-centred. To explicate these patterns, qualitative interview and observation data were combined with quantitative survey and log data to construct mini-cases of three principals, each representing one of the three patterns of practice. The study concludes with a discussion of how this analysis both confirms and challenges popular portrayals of the school principal in the literature.

Keywords: instructional leadership; mixed methods; principals; school administration; school leadership.

Introduction

Research in various traditions points to the importance of the school principal in schools' efforts to improve classroom teaching and student learning. School principals are critical in promoting conditions such as a shared vision for instruction, norms of collaboration, and collective responsibility for students' learning—conditions believed critical for school improvement.¹ There is also some evidence to suggest that school principals' work has an effect on student learning, achievement, and attainment.²

Increasingly, policy-makers hold schools, typically the school principal, accountable for student achievement. Thus, over the past two decades in the US, federal, state, and local policy initiatives that hold the school principal

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accountable for increasing student achievement further highlight the school principal's role. While a distributed perspective presses us to look beyond the school principal in investigations of school leadership and management, it does not negate or undermine the role of the school principal (Spillane 2006, Spillane and Diamond 2007). In this paper, we examine the work of US school principals from the perspective of their workday using a distributed perspective to frame our investigation.

Various images of school principals' work permeate the literature including 'brief encounters', 'fire-fighting', 'lone ranger', and 'administration-bound'. However, the empirical knowledge-base on the practice of the school principal is relatively small and much of the literature predates the standards and accountability movement that has fundamentally transformed the environment of most US schools. Hallinger and Heck's (1996) review of the literature identified many 'blank spots' (i.e. shortcomings of the research) and 'blind spots' (i.e. areas that have been overlooked because of theoretical and epistemological biases) in the understanding of leadership. These authors argue that an important *blank spot* centres on in-depth description of how school leaders sustain those in-school conditions that foster successful schooling (Heck and Hallinger 1999). The limited attention to the practice of leaders is not unique to education; the situation is similar for managers in other sectors (Eccles and Nohria 1992).

This paper focuses on the work of school principals in the US—what they do and how they do it. We describe how school principals do their job, examining patterns of practice across 38 principals in one mid-sized urban school district in the south-eastern US, which we call Cloverville.³ Specifically, we describe school principals' work practices, examining both the focus of that work and how it is accomplished. By *focus* we mean to what principals devote their time and how much time they devote. By *how it is accomplished* we mean whether school principals tend to work alone or with others, where they spend their day, and whether they take responsibility for the activities they engage in or take a more back-seat role, letting other formal and informal school leaders take responsibility.

We begin by anchoring our work in the literature and then describe our study. Next, using cluster analysis techniques on data generated using an ESM log, we group principals based on multiple dimensions of their practice including activity types, time on activities, whether they take a leadership role in activities, whether they perform alone or co-perform, and with whom they co-perform. Moving beyond a description of the types of activities that principals work on, we also examine *how* they carry out the work. Specifically, the principals in our study fall into three clusters—*administration-centred*, *solo*, and *people-centred practitioners*. Combining qualitative and quantitative data we construct mini-cases of three school principals representing each cluster in order to take a more in-depth look at school principals' work. Based on these mini-cases, we argue that accounting for patterns of practice is complex and contingent on the changing circumstances in which principals work. Our conclusions both confirm and challenge some popular portrayals of the school principal's work in the literature, including the lone ranger and the administrative-bound images.

Anchoring the research

Our goal is to describe the work of US school principals, identifying both dominant patterns and differences across principals in one mid-sized urban district. We organize our discussion around some prominent images that pervade the literature on school principals' work.

Administration-bound

One vivid image of the school principal's practice is that it is dominated by administrative activities, with limited time given over to curriculum and instruction. Despite school principals' desire to work on instruction, a managerial imperative pervades, with administrative activities consuming the bulk of their time (Cuban 1988). The instructional role encompasses work that relates to the instructional core—teaching and learning. The managerial role, on the other hand, encompasses the work necessary to maintain organizational stability, including tasks such as planning, gathering and dispersing information, budgeting, hiring, scheduling, and maintaining the building. Cuban (1988) argues that US educators have historically upheld an imperative toward the managerial. An observational study of five elementary school principals, for example, found that they spent the majority of their time on administrative-type activities, such as unscheduled meetings (32.5%), desk work (18.6%), scheduled meetings (10.3%), and phone calls (8.0%), and spent very little time observing teachers (2.5%) or teaching (1.9%) (Kmetz and Willower 1982).

Drawing a distinction between activities that focus directly and indirectly on instruction, however, some scholars argue that principals may spend more time than previously thought on curricular and instructional matters. Based on a study of ten principals, Hallinger and Murphy (1985) found that school principals supervise and evaluate instruction more closely than prior studies suggested, although there was substantial variation in how principals were involved with instruction. Of course the policy environment of US public schools has changed dramatically over the past few decades, as state and federal policy-makers have held schools accountable for student achievement in core school subjects. A key issue is whether and how these changes in the policy environment have influenced the work practices of school principals.

'Brief encounters' and 'fire-fighting'

A second popular image of school principals' work is that of brief, ever-changing, and unplanned or unscheduled encounters (Peterson 1977–1978, Martin and Willower 1981, Kmetz and Willower 1982, Martinko and Gardner 1990). Reacting to emerging events, rather than self-initiated, proactive engagement with events, appears to be the dominant mode of operation for school principals (Peterson 1977–1978, Pitner 1982). One observational study of 41 school principals found that nearly 30% of the school principals' time was spent in unscheduled meetings, whereas less than 15% of their time

was spent in scheduled meetings, although these patterns differed by school level (Martinko and Gardner 1990). Weick (1996: 565) has likened the principal's work to that of fire-fighting:

If you listen to educational administrators describe a typical day at work, they talk about taking the heat, putting out brush fires, getting burned by decisions, stopping rumours that spread like wildfire, looking for fire where they spot smoke, facing explosive situations, and watching the fireworks at board meetings.

Weick underscores the spontaneous and unplanned nature of the principal's work while simultaneously accentuating the urgency of the work.

'Lone ranger'

A third image of the US school principal, popularized by Wolcott's (1973) *The Man in the Principal's Office*, is that of the lone ranger. Reflecting the 'heroics of leadership' genre (Yukl 1981), the image of the school principal is often that of the lone ranger, working alone to run the schoolhouse. While principals certainly interact with many people—from parents to teachers and students—getting the job of leading and managing the school done is often portrayed as a solo endeavour. The principal is portrayed as going it alone, getting a helping hand from others when needed.

Still, various literatures point to the importance of teacher leadership (York-Barr and Duke 2004). Recent empirical work, framed from a distributed perspective, suggests that, in addition to the school principal, other individuals—some without formally designated leadership positions—take responsibility for leading and managing the schoolhouse (Copland 2001, Camburn *et al.* 2003, Portin *et al.* 2003, Spillane and Diamond 2007). At the same time, by holding the school principal accountable for student achievement, some recent US policy initiatives (e.g. No Child Left Behind) potentially accentuate the lone-ranger image of the school principal.

In a recent paper, our colleagues (Goldring *et al.* 2008) analysed data from the End of Day (EOD) log on the same principals collected at the same time period. Based on their analysis, they identify three clusters—'eclectic principals', 'instructional leaders', and 'student-centred leaders'. Whereas eclectic principals do not focus on particular realms of responsibility, instructional-leader principals spend the most time on issues of instruction and student-centred leaders spend the most time on student affairs.⁴

Methodology

The study was undertaken in a mid-sized urban school district in the south-eastern US, which we call Cloverville. Data collection involved 52 principals and 2400 school personnel. Of the 52 schools there were 30 elementary schools, eleven middle schools, seven high schools, and four alternative/special education schools. For the purpose of this paper, we focus on the 42 principals who completed the experience-sampling method (ESM) log.

Data collection and measures

We used four different approaches to collect data on school principals' practice. In addition to the experience-sampling logs (ESM), we used a Principal Questionnaire (PQ), and School Staff Questionnaire (SSQ), supplementing these data sources with observations and interviews with a sub-sample of the school principals. We discuss each method below.

ESM log

The first dataset contained responses from principals collected using ESM. ESM is a time-sampling strategy that measures behaviours, attitudes, beliefs and feelings as they occur within the context of people's daily routines in natural settings (Csikszentmihalyi and Larson 1992, Csikszentmihalyi and Csikszentmihalyi 1988). In ESM research designs respondents are typically prompted to provide a report several times per day (3–20) over the course of several days (1–21). Pagers and palm-top computers are used to randomly signal respondents to report. A distinctive feature of ESM is that estimates of the incidence with which a respondent engages in a behaviour are based on random samples of that behaviour rather than a retrospective recall. Thus, an important advantage of this methodology is that it reduces biases associated with retrospective recall (Stone and Shiffman 1994, Schwartz and Stone 1998). A second advantage is that measures produced by this method are believed to have greater ecological validity. ESM studies seek to attain ecological validity by randomly sampling slices of social life as it unfolds in a natural environment (Hormuth 1986).⁵

Studies have demonstrated ESM to be a reliable and valid approach for the assessment of mood, cognition, personality attributes, and behaviour (Csikszentmihalyi and Larson 1992, Klinger and Kroll-Mensing 1995, Hurlburt 1997). ESM participants themselves say the methodology tends to provide an accurate portrayal of their experiences (Csikszentmihalyi and Larson 1992, Swendsen 1997). Indeed, Delespaul et al. (1995) contends that the research-base attesting to the validity of the experience-sampling method is sufficiently strong to warrant using ESM instruments to validate other modes of measurement.

We beeped school principals at random intervals throughout their workday, alerting them to fill out a brief questionnaire programmed on a handheld computer (PDA) (see Appendix 1). In this way the ESM log captures behaviour as it occurs within a natural setting. In this study the principals were beeped 15 times a day for 6 days during Spring 2005. Forty-two of the 52 participating principals provided multiple days of data. The overall response rate for the total sample was 66%. However, four observations were omitted from the cluster analysis due to missing data on the clustering variables ($n = 1$) and response rates below 25% ($n = 3$), resulting in a total sample size of 38 principals.

For the cluster analysis, we chose questions about the type of activity, the leader of the activity, and the duration of the activity. Table 1 displays the percentage distribution for the variables used in the analysis. If engaged in a

Table 1. Means and standard deviations for type of activity, leader of activity, and duration of activity.

Activity	Mean	SD
<i>Administration</i>		
Manage budget, resources, personnel, schedules	0.25	0.12
Manage campus, students	0.26	0.11
School improvement plan, other	0.12	0.09
<i>Instruction and curriculum</i>		
Review student classroom work, review data, standardized testing	0.16	0.11
Review lesson plans, review instruction materials, plan curricula, discuss teaching/curricula, provide student instruction, observe classroom instruction, model a lesson	0.03	0.05
Plan/implement professional development, other	0.03	0.03
<i>Own professional growth</i>	0.06	0.05
<i>Fostering relationships</i>	0.09	0.08
<i>Leader</i>		
Leading alone	0.22	0.12
Not leading		
Student(s), parent(s), community member(s)	0.02	0.02
Teacher leader(s), regular classroom teacher(s)	0.09	0.09
Subject -area specialist, other professional staff, non-teaching staff, other	0.18	0.11
Principal(s)	0.05	0.06
District staff	0.02	0.03
Co-leading		
Student(s), parent(s), community member(s)	0.06	0.05
Teacher leader(s), regular classroom teacher(s)	0.11	0.08
Subject-area specialist, Other professional staff, Non-teaching staff, Other	0.15	0.12
Principal(s)	0.08	0.10
District staff	0.02	0.03
<i>Duration</i>		
Average task length	29.31	6.58

school-related activity, principals were asked, 'What are you doing?' Response categories for this question included four types of activities: 'Administration', 'Instruction and curriculum', 'Own professional growth', and 'Fostering relationships'. Upon the selection of one of these four types of activities, the principal was then asked to classify their activity in a more specific manner. Thus, based on how they responded to the question 'What are you doing?', they were presented with a list of specific types of activities and asked to choose one. For this study, we chose to use these more refined classifications wherever possible, rather than the four broad types of activities (see Appendix 2 for a guide to response categories).

To determine who was leading the activity, principals were asked 'Are you leading this activity?' Response categories for this question included

three types of leading—‘leading alone’, ‘not leading’, and ‘co-leading’. If the principal selected ‘leading alone’, he or she would proceed to the next question. If, on the other hand, the principal indicated that he or she was ‘not leading’ or was ‘co-leading’ the activity, he or she was then asked to specify who was co-leading or leading the activity. Thus, based on how they responded to the question ‘Are you leading this activity?’, principals were presented with a list of specific leaders and asked to select all that apply. For this study, we chose to use these more refined classifications wherever possible rather than the three broad types of leaders.

The duration of the activity was determined by the question, ‘What is the duration of this activity from start to anticipated finish?’ Responses to this question included six categories, ranging from less than one minute to more than one hour (see Appendix 2 for how activity duration was calculated).

School Staff Questionnaire (SSQ)

We also employed data collected using a questionnaire that was mailed to staff members in all 52 schools in spring, 2005. The overall response rate for the SSQ was 86%, ranging from 62–100%. The variables used in this analysis include: race, experience as a teacher, shared responsibility, influence, familiarity with standards, innovation, teacher–teacher trust, teacher–principal trust, goals and expectations, instructional improvement, and monitoring instructional improvement. For a full description of the questions and items that comprise these variables, see Appendix 3.

Principal Questionnaire (PQ)

The third data source was generated by a web questionnaire that was administered to principals. With 46 of the principals responding to the survey, the response rate was 90%. The variables used in this analysis include: race, experience as an administrator, experience as a teacher, education, certification, principal knowledge, and use of data. For a full description of the questions and items that comprise these variables, see Appendix 3.

Observations and interviews

In February 2006, 14 of the principals were ‘shadowed’ by a trained observer. Beginning with the principals’ arrival at the school building and ending with the principals’ departure, the observers shadowed the principals at all times (unless specifically asked to grant privacy) and took detailed notes on what they were doing, who they were interacting with, and the starting and ending time of the various activities. At the end of this day of observation, each observer assumed the role of interviewer and conducted a cognitive interview with a principal, asking questions pertaining specifically to the activities in which he or she had been engaged that day. Additional interview data comes from interviews conducted with the principals in either June or November 2005 and February or March 2006.

Data analysis

ESM data analysis

A cluster analysis was conducted aimed at identifying sub-groups of principals with similar approaches to leadership practice. The cluster analysis involved two stages. In the first stage, response data from the principal ESM were summed over the six-day period. For each principal, the proportion of time spent on each activity was calculated by taking the number of beeps where a particular activity was reported and dividing by the total number of beeps. We also calculated proportions for each principal's time spent 'leading alone', and 'not leading' and 'co-leading' with the different types of leaders. Again, we took the number of beeps where the principal reported each type of leading and divided by the total number of beeps. To calculate average task-duration, we first calculated a proportion by taking the number of beeps where the principal reported being in each time interval divided by the total number of beeps. Then we took each proportion and multiplied it by the median of each time interval. Table 2 displays the means and standard deviations for the variables used in the analysis. In order to reduce the effect of the relative size of some variables, we standardized the variables to unit variance and means of zero (Aldenderfer and Blashfield 1984).

In the second stage of analysis, standardized scores on the 20 variables were used in a hierarchical cluster analysis using Ward's minimum variance method to form the initial partition of the data.⁶ Next we produced a dendrogram and examined the Duda and Hart stopping rule values with the goal of identifying an appropriate number of clusters. An examination of the dendrogram revealed that after the three-cluster solution, the next grouping combines clusters with a much greater dissimilarity than the previous grouping.⁷ Thus, the analysis indicated that the three-cluster solution was the most acceptable.

The three-cluster solution obtained with Ward's method was then used to perform an iterative partitioning of the data using *k*-means passes to classify principals on the basis of their activities, the leaders of their activities, and the duration of their activities.⁸ This resulted in the reassignment of two principals to a different group than they were originally placed in with Ward's method, indicating a high degree of maintenance of original cluster membership.

Mixed method data analysis

To develop mini-cases of school principals we analysed both qualitative (interview and observation data) and quantitative data (SSQ, PQ, and ESM data). To represent the clusters, we chose one principal from each cluster for whom we had observation data and at least two interviews, one of which was a cognitive interview conducted at the end of the day of observation. A grounded-theory approach was employed: we read and re-read observation notes and interviews identifying themes and patterns. Once we settled on particular themes, we re-read our interviews and observations and used survey and log data to triangulate and search for disconfirming evidence.

Table 2. Means and standard deviations by cluster with Wald's significant difference tests.

Activities	Cluster 1 Administration (<i>n</i> = 20)		Cluster 2 Solo leaders (<i>n</i> = 13)		Cluster 3 People-oriented (<i>n</i> = 5)	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
<i>Administration</i>						
Manage budget, resources; personnel; schedules	0.28	0.12	0.26 ^b	0.11	0.15 ^c	0.10
Manage campus; students	0.30	0.11	0.26 ^b	0.10	0.12 ^c	0.07
School Improvement Plan; other	0.11	0.07	0.15	0.12	0.09	0.05
<i>Instruction and curriculum</i>						
Review student classroom work	0.16	0.09	0.13 ^b	0.11	0.23	0.15
Review data; Standardized testing	0.16	0.09				
Review lesson plans; review instructional materials; plan curricula; discuss teaching/curricula; provide student instruction; observe classroom instruction; model a lesson	0.02 ^a	0.02	0.05	0.08	0.03	0.04
Plan/implement professional development; other	0.02	0.03	0.02 ^b	0.02	0.07 ^c	0.05
<i>Own professional growth</i>	0.04 ^a	0.03	0.09	0.06	0.07	0.07
<i>Fostering relationships</i>	0.08	0.06	0.05 ^b	0.03	0.24 ^c	0.10
<i>Leaders</i>						
Lead alone	0.20	0.08	0.27	0.14	0.17	0.14
Co-lead with student(s); parent(s); community member(s)	0.05	0.04	0.04 ^b	0.05	0.12 ^c	0.08
Co-lead with teacher leader(s); regular classroom teacher(s)	0.11	0.06	0.08 ^b	0.07		0.18 ^c
Co-lead with subject area specialist(s); other professional staff; non-teaching staff; other	0.16	0.14	0.16	0.10	0.13	0.07
Co-lead with principal(s)	0.13 ^a	0.11	0.03	0.04	0.02 ^c	0.02
Co-lead with district staff	0.02	0.02	0.01 ^b	0.02	0.05 ^c	0.06
Not leading—student(s); parent(s);	0.01	0.02	0.01 ^b	0.02	0.04 ^c	0.04

Table 2. *Continued.*

Activities	Cluster 1 Administration (<i>n</i> = 20)		Cluster 2 Solo leaders (<i>n</i> = 13)		Cluster 3 People-oriented (<i>n</i> = 5)	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Community member(s) leading						
Not leading—teacher leader(s); regular classroom teacher(s) leading	0.08	0.08	0.10	0.09	0.15	0.14
Not leading—subject area specialist(s); other professional staff; non-teaching staff; other leading	0.13 ^a	0.06	0.27 ^b	0.12	0.10	0.05
Not leading—principal(s) leading	0.08 ^a	0.06	0.02	0.03	0.02 ^c	0.02
Not leading—district staff is leading	0.03 ^a	0.03	0.01	0.01	0.01	0.02
<i>Average task duration</i>	29.14	6.25	29.63	6.08	29.21	10.19

^a Cluster 1 significantly different from Cluster 2 at $p < 0.10$; ^b Cluster 2 significantly different from Cluster 3 at $p < 0.10$; ^c Cluster 3 significantly different from Cluster 1 at $p < 0.10$.

Study limitations

Our study has a number of limitations. First, our sample is confined to one mid-sized urban school district in the south-eastern US. Hence, we urge caution in interpreting our findings. Second, we focus on only a few dimensions of school principals' work practice—how they spend their time, who they spend their time with, and where they spend their time, and so on. There are many other aspects of school principals' practice—such as how they interact with others; their thinking about what they do—that we do not address in this analysis. Third, we rely on cross-sectional comparisons. Considering that our work is chiefly descriptive and hypothesis-generating rather than hypothesis-testing, we are less concerned about this third limitation, although we urge readers to exercise caution in interpreting our findings.

The ESM methodology has a number of limitations. First, depending on the frequency with which objects of measurement occur, time-sampling may under- or over-estimate the prevalence of what is measured (Mann *et al.* 1991). Short and rare events are particularly prone to inaccurate measurement. Second, some studies have found that subjects have difficulty using ESM instruments. Some subjects have been found to use only a subset of response choices and to fail to complete instruments when expected (Hormuth 1986).

School principals at work

Overview: central tendencies in principals' work practice

The 38 principals in our study spent, on average, 22% of their time on curriculum and instructional matters (see table 1). Most of this time (16%) was devoted to reviewing student classroom work, reviewing data, and standardized testing. The principals in our study spent considerably less time (an average of 3%) on teaching-related activities, such as observing classroom instruction or reviewing lesson plans. However, we note that matters of curriculum and instruction seem to figure more prominently in these school principals' workdays than suggested by prior studies. Indeed, if we include school-improvement planning with instruction and curriculum, the average time on instruction would be over 30% for these principals. Still, the image of the school principal as administration-bound finds some support in the data: across the entire sample, principals spend over half of their time on administration-related activities.

Contrary to the lone-ranger image, the principals in our study seem to work frequently with other formally-designated leaders and teachers. Specifically, principals reported spending, on average, 42% of their time co-performing with someone else, including teachers, subject-area specialists, and assistant principals. Moreover, they reported that they were sitting in on but not leading an activity an average of 36% of the time. Taken together these results suggest that the school principals in our study are not lone rangers or solo practitioners. Indeed, the principals in our study reported leading

alone an average of only 22% of the time. Finally, our data does not support the brief encounters, constantly-shifting-task portrayal of the US school principal's workday. The average task length reported by the principals in our study was 29 minutes. Some caution is in order here, however, as we asked principals to estimate the duration of the activity they were participating in when beeped. Hence, principals may have been interrupted after filling out the survey and therefore over-estimated task duration.

Beyond central tendencies: patterns of principals' practice

Focusing on central tendencies across principals masks considerable variation between them. Using cluster analysis on the ESM data, we were able to differentiate among principals' work practice and identify three patterns of practice (see table 2 for results of the cluster analysis).

The principals' practice differed on dimensions that included the focus or substance of the work, who took responsibility for the activities that school principals participated in when they were not responsible, and who co-lead activities with the principal. Almost half of the principals in our study (20 principals) fell into a cluster that we label 'administration-oriented leaders'. Thirteen principals fell into a second cluster that we label 'solo leaders', whereas the remaining five principals fell into a third cluster which we call 'people-oriented leaders'.

The 20 principals in the 'administration-oriented' group spend the bulk of their time (nearly 70%) managing personnel, budgets, resources, students, the campus, and schedules. These principals spend much less time (20%) on curriculum and instruction and the bulk of this time (16%) was devoted to reviewing student classroom work, data, and standardized testing. Principals in cluster 1 co-lead 47% of the activities they participate in and they tend to co-lead with other formally designated leaders, especially subject-area specialists and assistant principals. Indeed, these principals spend significantly more time co-leading an activity with an assistant principal compared with principals in either cluster 2 or 3. Moreover, when principals in cluster 1 are not leading, an assistant principal or subject-area specialist is significantly more likely to be leading compared with other principals in our study.

Principals in cluster 2—'solo practitioners'—spend less time co-leading (32%) and more time leading alone (27%) compared to the principals in the other clusters. Cluster 2 principals are also unique in the amount of time they spend participating in activities led by a non-teacher(s). These principals spend significantly more time on activities led by non-teachers than principals in either of the other clusters. Similar to cluster 1 principals, those in cluster 2 spend most of their time on administrative activities—52% managing budget, personnel, schedules, resources, their campus, and students, and an additional 15% on school-improvement planning and other administrative activities. Cluster 2 principals spend more time compared to principals in the other groups on their own professional learning (9%). While cluster 2 principals spend about the same time as cluster 1 principals on curriculum and instruction-related activities, they are more likely to

spend this time (5% compared to 2%) reviewing lesson plans, reviewing instructional materials, planning curricula, discussing teaching, and observing classroom instruction. Principals in cluster 2 co-lead most often with subject-area specialists and these subject-area specialists are also more likely to be leading when these principals are not taking the lead.

The third cluster, labelled ‘people-centred practitioners’, contained five principals who are significantly different from all other principals in the study in the amount of time they spend fostering relationships. These principals spend 24% of their time fostering relationships compared to 8% and 5% for principals in the other clusters. Cluster 3 principals devote a significantly smaller proportion of time to managing budget, resources, personnel, schedules, their campus, and students than principals in either of the other clusters. These five principals spend 36% of their time on administration-type activities compared with 69% and 67%, respectively, for cluster 1 and cluster 2 principals. Cluster 3 principals devote 33% of their time to curriculum and instruction activities compared with 15% and 20% for principals in clusters 1 and 2, respectively. Most of this time is devoted to reviewing student work, data, and standardized testing. In addition, the principals in cluster 3 spend significantly more time planning and implementing professional development (7%) than principals in clusters 1 and 2 (2%). Compared with principals in clusters 1 and 2, cluster 3 principals spend less time leading alone (17%), spend the most time (50%) co-leading activities, and the least amount of time not leading the activities they participate in (32%). They also spend significantly more time co-leading with students, parents, and community members (12%) and with teacher-leaders and regular classroom teachers (18%) than principals in either of the other clusters.

A closer look: three cases of principals at work

The preceding analysis differentiates school principals in terms of their work—what they spend their time on, whether they work alone or with others, and with whom they work when they co-lead. In this section we take a closer look at these school principals through mini-cases of three principals, each from one of the clusters. As discussed in our methodology section, these cases are based on a mixed-method analysis of interview data, observation data, and school staff questionnaire data.

Administration-oriented: the case of Mr Smith

With an administrative certificate and a master’s degree, Mr Smith has eight years of teaching experience. After two years as assistant principal and one year as a classroom teacher at Hawkins Elementary, Mr Smith is in his first year as principal. Hawkins Elementary School enrolls 361 students, just under half (45%) of who are African-American and 30% of who receive free or reduced lunch. Of the 18 teachers at the school who responded to the survey, just over half (56%) have been at the school for two years or less, and no staff member has been at the school for more than six years. The teaching

experience of the staff ranges from 4–32 years, with half of the staff having 11 years of experience or less. Overall the school appears to have a strong professional community with measures of shared responsibility, influence, and familiarity with standards being above the district mean.

Mr Smith acknowledges that his schedule curtails the amount of time he spends on curriculum and instruction. Noting that the day on which he was observed was atypical, Mr Smith explained:

I visited probably three more or four more classrooms [today] than I typically would. My schedule just hasn't allowed it so it was nice to get back in and see the teachers, students. (Interview, February 2006)

For the logging period, Mr Smith spent 17% of his time on instruction and curriculum, and well over half of this time on reviewing student work, data, and standardized testing.

Mr Smith's classroom visits tend to be brief and involve minimal interaction with teachers. Consider the following excerpt from the field notes:

At 9:28, Mr Smith gathers professional-development materials and leaves the office. He tells me [observer] that he tries to spend time in classrooms every day, and that he tries to make even more use of the time by bringing professional-development materials to read while observing. At 9:29, we enter a 7th-grade classroom where we sit in the back. Mr Smith is highlighting professional-development materials, but also looks up at times, appearing to be engaged in what the teacher and students are doing. At 9:40 Mr Smith started walking around the classroom, talking with a few individual students (I couldn't hear what was said). At 9:44 Mr Smith left this classroom and moved to the classroom next door. Mr Smith sat at the back of the classroom and observed. He did not open his PD materials. At 9:46, he moved to sit in the back row next to a student, looking at her work. The teacher was conducting a whole-group lesson on supplementary and complementary angles. Mr Smith appeared to be listening, and at one point whispered something to the student. At 9:52, Mr Smith left the classroom ... At 9:59, ... he stopped at the [8th-grade] science classroom, where the teacher said she was waiting for coverage so she could take the three science-fair students out of the building. Mr Smith told her that he would cover the class and sent her out. Mr Smith walked around, watching what the students were doing. He asked a few what they were supposed to do, and the students seemed unable to answer. After asking three or four students, and receiving the same vague non-answer, Mr Smith had the students stop what they were doing (using Ohm's law to figure out resistance). He asked for a volunteer to explain, who did so somewhat clearly (but it was still evident to me that the student had less than a clear understanding of the topic). The sub came in at 10:10 ... (Observation, February 2006)

Mr Smith's classroom visits involve brief exchanges, especially with students. Indeed, students and their work appear to be at the heart of Mr Smith's approach to leading and managing instruction. In the 8th-grade science classroom, for example, Mr Smith observed students' work, asking some of them about their assignment:

For Mr Smith, student work, especially student achievement, is a key anchor for his work. Discussing his classroom visits at the end of the day, Mr Smith noted with respect to the 8th-graders' confusion about the science assignment

that his goal was ‘To get the students back on task and to refocus, and to see if they had an understanding of the assignment’. So I can in the morning speak with that teacher and say, ‘Fill me in on what level of the unit ... were you at with these students with this particular assignment’. To me it would be ... almost a form of assessment, because they were looking at the three different calculations and ratios and working through several problems of each, and to not have a better understanding of that at that time, to me was slightly alarming. So we’ll look into that. (Interview, February 2006)

Mr Smith’s focus on student achievement is not confined to his classroom visits. A key focus of his efforts as principal involves identifying students who are not performing well and intervening to ensure they succeed. With respect to the school improvement plan, he explained:

[One] of the action plans was to analyse our safety-net programmes, and we are currently doing that as we speak. We took students that scored below the minimum standard on the math[ematics] and reading portion of the standardized test—the CRCT—and we’ve set up an after-school tutorial that we’re paying for through a grant, and we are constantly assessing those students and monitoring their progress, and then we will post-test them at the end of the sessions and those sessions will end right before they take the CRCT. (Interview, February 2006)

Mr Smith reports extensive use of data for making decisions about interventions for under-performing students (Principal Questionnaire). He explained:

we’re implementing in the next two weeks a Friday tutorial during the school day for students who are missing assignments, or not completing their assignments, or need the opportunity or time to redo or retake or revise assignments. So the ultimate goal is for them to meet the standard or achieve the standard, other than just fail or pass an assignment. (Interview, February 2006)

Mr Smith’s focus on student achievement fits with his ‘evidence-based decision-making’ approach to leadership. He explained it this way:

So many times we’ll say innovation, innovation, and do things by the seat of the pants or on a gut feeling or reaction instead of with research-based, data-driven programmes. ... We will have a more authentic process to not only establish the safety-net programmes but to measure their effectiveness [I]t’s just that the focus on student achievement and using data and research-based practices seems to be at the forefront Now we are strictly looking at the objectives and the standards that need to be met and are all students meeting those objectives or standards? (Interview, February 2006)

Mr Smith’s focus on evidence-based decision-making may account for his somewhat hands-off approach with respect to classroom teaching, leaving teachers as a collective to decide what strategies to use in the classroom as long as they can defend these strategies with evidence that they work.

Mr Smith acknowledges that convincing his staff of the importance of basing decisions on evidence has not been easy:

The biggest problem I’ve had is convincing the entire staff about the importance of doing this—assessing student work, having common assessments and not having a variance in how we assess student work In the traditional

system we did that, those things could happen, and what we're saying now is that doesn't sit well with some folks' philosophy or approach to teaching and learning. (Interview, February 2006)

As a new principal at a school where he had worked as a teacher, challenging the status quo is difficult. According to Mr Smith, veteran teachers working in 'silos' and used to operating 'under their own jurisdiction and philosophies' were especially resistant; 'especially the veteran experienced staff that has a lot of history at that particular school' (Interview, February 2006). Mr Smith's focus on evidence-based decision-making may also account for the limited time he devotes to teaching. Instead, Mr Smith attempts to leverage improvement by focusing on student work and student achievement rather than teaching.

Mr Smith might be best described as taking a *somewhat* indirect approach to improving classroom instruction, coming at it simultaneously from two angles—the bottom-up and the top-down. The focus on student achievement might be considered as backing into teaching; that is, by mapping backwards from what students can actually do, he hopes to influence classroom teaching. From the other end, he also strives to create a work environment that supports evidence-based improvement. Noting that during his first year he may have pushed too hard, he explained:

I went back and wanted to try to create a cultural change in my building being a fairly new principal, and I did it too fast and too soon. So, I've learned that I need to step away and feed them some information and slowly massage these ideas and concepts, and allow them to play a big part in how we're going to even do that. (Interview, November 2005)

Indeed, his approach with teachers is to help them solve problems rather than telling them what to do. For instance, on the day he was observed, Mr Smith twice advised teachers on school-related issues. In both instances, the observer recorded:

[Mr Smith] did not make the plans for the teacher, although it appeared that it might have been easier for him to simply tell the teacher what to do—he scaffolded the teacher, helping him to find his own solution. (Observation, February 2006)

Although classroom teaching may not consume the bulk of Mr Smith's workday, through school improvement planning, examining student work and achievement, and focusing on data he devotes considerable time to improving teaching.

Mr Smith is a collaborator, working with others, especially other leaders, to facilitate organizational routines and school committees. With respect to his renewed efforts to create cultural change, he explained:

I need to take my leadership team and key people in my building and have them work on developing a plan on how we're going to do our professional learning next year, what are our priorities in our building, et cetera ... [W]e've developed an improvement team and then there's sub-committees within that improvement team, and all faculty and staff participate within those sub-committees. So it's a lot of shared collaboration and building the idea of what we want to do improve as a school. (Interview, November 2005)

Mr Smith's case reminds us that gauging the centrality of instruction in a principal's workday must involve metrics that go beyond simply calculating the amount of time spent in the classroom.

Lone rangers: the case of Mrs Travers

A veteran administrator of 18 years, with 11 years of teaching experience, Mrs Travers has been in the principal's office at Kirkwood Elementary School for 2 years. Kirkwood Elementary enrolls 579 students. Seventy-eight per cent of the students receive free or reduced lunch and 75% are African-American. Of the 39 teachers at the school, nearly 80% have been at the school for between 4–6 years, with teaching experience ranging from 4–36 years. Half of the teachers have 16 years of experience or more. Kirkwood Elementary scores above the district mean on key measures of 'professional community' including innovation, shared responsibility, teacher–teacher trust, and teacher–principal trust.

Mrs Travers is something of a solo practitioner: During the logging period she spent 63% of her time in the principal's office; when she is out and about in the school and taking responsibility for leadership or management tasks, she tends to work on her own without the help of others. Managing budgets, personnel, schedules, and student discipline, among other things, consumed 71% of her time, and nearly three-quarters of her office time (73%) during the logging period.

While Mrs Travers may not get to spend as much time as she would like on instructional matters, when she does, teaching is a central focus. She sees herself as an instructional leader: 'I think that the principals have to be instructional leaders, and we have to be seen in that role'. She elaborates on the instructional leader role noting 'an enabler, someone who enables the teacher to do their job and that's the role of the principal that I see' (Interview, February 2006). For Mrs Travers, enabling teachers involves three related activities—observing classroom teaching and diagnosing needs, offering teachers a prognosis, and supporting improvement through coaching and professional development. We consider these inter-related strategies.

Mrs Travers takes evaluations of teaching seriously, seeing them as a means to identify teachers who are having difficulty so that she can intervene to improve teaching. These observations also inform her decisions about teacher professional development. The following field notes excerpt gives a sense of Mrs Travers' classroom visits:

- 10:00: Entered 3rd-grade classroom, sat in back and began observation. She said these were unannounced, formal evaluations. The class was doing a vocabulary worksheet. There was one other adult (aide, para-professional or teacher) standing with the teacher helping a few kids, and there was another aide sitting with two kids at a table helping them do the worksheet. (This is the classroom that Mrs Travers later talks about in taped interview—the class was really disorganized, and the students could not do the worksheet—it was too hard for most of them, and the teacher almost ended up reading out the answers).

- 10:12: Observing same 3rd-grade classroom—gets up once to look at the student worksheet at a student's desk.
- 10:22: Goes to 1st-grade classroom to do observation. It is a reading lesson, the students are reading out loud alone and together. Mrs Travers sits in one place again—same behaviour, takes notes on legal pad.
- 10:32: Still in 1st-grade classroom observing, takes notes, and looks at some type of form on her clipboard. Does not get up. As we leave the classroom she explains that if a teacher gets a 'needs improvement rating' she will meet with the teacher to discuss what can be done to improve and what kind of PD the teacher needs.

While 'the general atmosphere in the classroom' is an important consideration for Mrs Travers, her primary concern is teaching.

Following Mrs. Travers' observation of the 3rd-grade classroom, she explained (see above):

I don't know how she [teacher] did it, but my thinking is that they probably need small-group instruction, and they need more practice with their vocabulary words than just one introductory day But there was at least one area in the teaching task, one, providing instruction, that needs improvement, and I'll address it as a 'needs improvement', and state what needs improvement and a couple of growth statements. You know, perhaps using small groups would have been more helpful with vocabulary activation. It's one of the suggestions that I'll make. And I noticed that one of the accommodations [was] when she saw that things weren't going well, she read it to everybody, so that those few students who had read it and done it were not engaged because they've read it and done it. So, I'm suggesting some small-group instruction in there and, certainly, there's enough personnel in that classroom to accomplish that. (Interview, February 2006)

Mrs Travers identifies problems with the teaching she observes and comes up with possible solutions to address these problems. While she does not shy away from critiquing teaching, she appreciates the challenges and complexities of teaching, noting that 'anybody can have a lesson that bombs. You know, it happens!' Still, Mrs Travers does not shrink from the task of informing her staff when there is a problem. With respect to the 3rd-grade classroom she noted:

I think [that] in this situation, at this point, my goal would be for her to recognize that the lesson did not go over, and for her to choose an alternative or to come up with some things that she could have done or that she could do in the future to do things differently. What could she have done that she didn't do? (Interview, February 2006)

For Mrs Travers, a key aspect of enabling teachers to improve their teaching involves identifying problem areas and getting teachers to address them.

Using the needs identified through classroom observations, Mrs Travers makes decisions about professional development for her teachers, both individually and collectively. With respect to the 3rd-grade teacher she said, 'what I would probably do is to seek out something on differentiated instruction and peer assignments'. Her classroom observations coupled with her

post-observation interviews with teachers enable her to tailor professional development to the needs of the particular teacher. As she said:

Each one of my teachers has a professional development plan, and it's built around what they see as their needs in achieving their student treatment plan, which is built on, linked to our school's achievement goals. ... There are a few specific needs, and that's typically when I will tell a teacher, 'I want you to go to this'. (Interview, February 2006).

Coaching is another strategy Mrs Travers uses to enable instructional improvement. She explained:

now, whether I'm coaching, or I have an academic coach that goes in and coaches, with a lot of veteran teachers it has to be approached in a particular way. 'Here's a strategy that we hope is going to work with your kids, that's going to come in your room and try it out, and we want you to do this and let's see how it goes'.

Again, while Mrs Travers does not shrink from proposing teaching strategies for her staff to use, she also acknowledges the need for diplomacy in making these proposals. Her staff appear to agree that she is a good instructional leader, ranking her above the district mean on both instructional improvement (3.06 vs 2.79) and monitoring instructional improvement (3.19 vs 2.94).

Mrs Travers also takes her own professional learning seriously. She participates in numerous workshops and professional development opportunities for school leaders.

The personnel and personal touch: the case of Mrs Cole

With eight years experience as an administrator and an additional six as a teacher, Mrs Cole has been at Tanner Middle School for four years. Tanner Middle School enrolls 977 students, half of who receive free or reduced lunch and 41% of whom are African-American. Of the 49 teachers at the school who responded to the survey, just over half have been at the school for between three–seven years, and no one has been there for more than seven years. Staff teaching experience ranges from 1–28 years, with just under half of the staff having ten years of experience or less.

For Mrs Cole, creating and nurturing a 'professional learning community' in which school staff trusts one another is central to her work. Creating a professional learning community at Tanner Elementary has been a difficult challenge. According to Mrs Cole, it has taken some time for staff to be trusting of one another. Indeed, in spring 2005, teacher–teacher trust at the school (2.72) was below the district mean (3.09). As Mrs Cole remarked:

It's taken some time for us to build some of that trust and that communication among teachers, where they feel comfortable sharing ideas [W]hen I first arrived [i.e. 4 years earlier] at this school [I] don't think there was a whole lot of conversations about teaching other than, 'Well, I taught it, they didn't get it'. Or ... there wasn't much collaboration as far as there had been some conversations about teaching but not as much collaboration as we have now. (Interview, February 2006)

Of note in Mrs Cole's remarks is not only has the trust and communication among teachers increased but also the substance of their conversations about teaching has shifted, moving 'beyond-the-I-taught-it, they-didn't-get-it' theme.

For Mrs Cole, building trust among school staff is a means to an end: if teachers trust one another and work together as a team, they will learn and develop as professionals. That in turn will result in improved teaching and learning. As she explained:

I encourage teachers to think outside of the box. I really, really believe in professional development. I believe that teachers can learn from one another, so I try to whenever possible get substitute teachers to come in and provide release time for teachers to go in and observe each other. Just this past year, we started peer observations, where I just kind of randomly assigned teachers for other teachers to go in and observe, and they had a written format to follow. It was nothing for evaluation purposes, but the teachers felt more comfortable having something, a checklist-type thing, what am I looking for? Some of the things were subjective, some were objective: 'Was technology used during the lesson?' or 'Were the standards posted on the board?' to 'Describe the different instructional strategies that you observed'. (Interview, June 2005)

Mrs Cole's remarks underscore some important aspects of her work as a principal. To begin with, she encourages teachers to 'think outside of the box', suggesting that she sees her role as encouraging teachers to experiment and innovate rather than chiefly telling them to use particular teaching strategies or pointing them to particular professional development workshops. Teachers at Tanner Middle School reported a moderately innovative environment in spring 2005, at the mean for the school district, and by 2007 teachers' reported innovation score was 3.33, above the district mean of 2.94.

As one might expect, considering the emphasis she places in building trust, Mrs Cole works to make connections with her staff and to connect staff with one another. Observing Mrs Cole at work, our observer was struck by how she blended personal inquiries into professional conversations. When asked about this, Mrs Cole explained:

any time I can spend with teachers is great I feel like I was able to connect with a lot of teachers and I think it's important for me to be able to, to have that ... conversation. And, also it gave me a chance just to kind of just chit-chat with some teachers because, I think it means a lot to them if I ask if they've got things going on in their personal life, with their children, or, or whatever. Just being able to have that face-to-face, that camaraderie. I think that makes us stronger as a team. (Interview, February 2006)

For Mrs Cole personal exchanges that are woven into professional conversations are an important component of building trust and teamwork. Another part of these exchanges involves recognizing staff for good work. As she remarked, 'I try to give praise, I try to recognize people for a job well done' (Interview, June 2005).

Mrs Cole's faith in the power of trust is neither naïve nor blind. She acknowledges that some staff members are not as committed as others:

There are still some people that are hesitant to be active participants. Everyone participates. But everyone is not necessarily engaged at the level that I would like for them to be engaged. So I think that's a challenge. But I also think that we're bringing people around and they're realizing, this makes sense. But we're not where I want to be. (Interview, February 2006)

Mrs Cole is aware that while all her staff may participate, some are not participating at a level that she believes is necessary to promote improvement in instruction. Rather than simply waiting for the very reluctant to retire, she is actively working to improve the participation of all while acknowledging that it will take time. As she noted:

I'm not going to single anyone out or make anyone feel uncomfortable because of their current attitudes towards our professional learning communities. And I don't think anyone is a complete resister, but there are some that are just still sitting on the fence going, hmm, is this gonna go away? (Interview, February 2006)

Mrs Cole herself, specifically in how she spends her time with staff, is a key strategy in these efforts to build trust and a professional learning community. During our observation, Cole was in constant exchanges with her staff and frequently asking for their opinions. She explained:

I think I've got a really good relationship with a lot of teachers and sometimes somebody will come by my office and I'll say, 'Hey, what do you think of this?' So I really rely on teacher leaders with a lot of things. I don't pass everything by them because there's some things I think are just administrative in nature. (Interview, June 2005)

Building connections with staff members through informal, unplanned conversations, especially those to whom she does not have close ties, is an important strategy for Mrs Cole:

if there's somebody that I don't normally interact with, and I see them in the hall, I'll say, 'Hey, come here and let me show you this'. So I try to reach out as much as possible, but you tend to rely on the same people a lot. (Interview June 2005)

For Mrs Cole, building relations with her staff is a means of creating a community where trust and team work are the norm and in turn this community is her key for improving teaching and learning at Tanner Middle School.

She demands the same of her staff. She remarked:

I also require teachers, if they do go for professional development, that they come back and share. It's not in isolation. Whenever there's a departmental meeting or a grade-level meeting after they've returned, it's my expectation that they will share what they've learned I've really tried to create a climate where people feel comfortable talking to each other and sharing. (Interview, June 2005)

Moreover, together with her staff she has designed and implemented organizational routines that bring staff together regularly around classroom teaching and learning. She explained:

last year we started doing weekly lesson planning as a group, like all the 6th-grade math[ematics] teachers would get together and plan ... and we've also set aside every Wednesday during the teachers' common planning time for curriculum planning and development. Sometimes I give them specific topics to discuss, other times I'll say 'Just get together and talk about what's been going on in class'. (Interview, June 2005)

Closely tied to her commitment to building a professional learning community, Mrs Cole has rather particular ideas about how teachers learn. While she believes teacher learning is important for improvement, she does not see formal professional development workshops or herself as the only source of such learning. Specifically, in Mrs Cole's view, interactions among teachers and observations of one another's classrooms are key sites of professional learning and she views her role as creating opportunities to support this situated on-the-job learning for her staff. For Mrs Cole some of the knowledge needed to improve teaching is in-house and home-grown. As she put it, 'So, I always tell the teachers there's just so much knowledge within our group that they need to have time to share and talk about it' (Interview, June 2005). Nevertheless, Mrs Cole does not ignore more conventional learning opportunities for her staff compiling 'lots of reading' and creating a 'professional collection' of materials for teachers to draw on in the school's media centre. She also reported 'very rarely' saying no to teachers' requests to attend professional development workshops, remarking that 'if it's a money issue, I'll find the money' (Interview, June 2005).

Mrs Cole's notions about building a professional learning community extend beyond the school staff to include parents and students. She acknowledges that she needs to do a better job of communicating the school's vision to parents and other community members. One recent effort to do this involved creating student-led parent conference days (Interview, February 2006).

Accounting for patterns of practice: the social and situational construction of practice

An obvious question concerns what might account for the differences in practice across the three clusters. As one might expect, determining directionality is difficult here. Our preliminary analysis found some significant *associations* between characteristics of both the principals and their situations and the clusters to which they were assigned. Specifically, cluster 1 principals' self-reports of their knowledge was higher than cluster 2 principals' self-reports, and cluster 2 principals were trusted more by their staff than cluster 1 principals (see table 3). Cluster 2 principals were also significantly different from cluster 1 principals in communicating clear goals and expectations to staff. Cluster 3 principals were more prominent in the advice network for mathematics and language arts than cluster 1 principals. Cluster 3 principals had significantly fewer years experience teaching than cluster 2 principals *and* their staff had significantly fewer years experience than the staff of principals in cluster 2. These were the only variables for which we found a significant difference between clusters.

Table 3. 'Predictor' variables: group means with Tukey significant difference tests.

'Predictor' variables	Cluster 1 Administration (<i>n</i> = 20)	Cluster 2 Solo leaders (<i>n</i> = 13)	Cluster 3 People-oriented (<i>n</i> = 5)
	M	M	M
In-degree	0.90	1.23	2.20 ^c
Principal knowledge	3.90 ^a	3.27	3.92
Faculty trust principal	3.06 ^a	3.35	3.20
Experience teaching	12.00	14.58 ^b	7.40
Goals and expectations	3.25 ^a	3.46	3.41
Staff experience teaching	14.41	14.73 ^b	11.72

^aCluster 1 significantly different from cluster 2 at $p < 0.10$; ^b cluster 2 significantly different from cluster 3 at $p < 0.10$; ^c cluster 3 significantly different from cluster 1 at $p < 0.10$.

The cases, however, suggest that caution is in order in our search for simple associations to account for a complex phenomenon like practice. Mr Smith's case highlights how practice is in part a function of who he is, including his status as a novice principal in a school where he worked as a teacher, his commitment to data-based decision-making, and so on. However, who he is interacts with aspects of the situation, both proximal and distal, including having a staff of veteran teachers used to closing their classroom door and doing their own thing and managing in an era of standards and high-stakes accountability, etc. Moreover, Mr Smith's case hints at the emergent property of practice. He remarks how his actions during his first year in the principal's office may have had unintended consequences as he pushed cultural change 'too fast and too soon' and as a result he needs to recalibrate his actions (Interview, November 2005). Mr Smith's remarks underscore that the practice of leading and managing Hawkins Elementary is not simply equivalent to his actions, but rather gets constituted in the interactions between Mr Smith and his staff. In this way, his best laid plans for creating a culture of evidence-based practice turns out rather differently when he puts it into action and others in the school react to his actions.

Accounting for patterns of practice necessitates careful attention to the emergent property of practice and how it is constituted in the interactions among people as mediated by aspects of their situation. We distinguish here between *practice* and *practices*. In education and the related applied fields, we often move back and forth effortlessly in our discussions between practice and practices (Pickering 1995). With respect to practices, we might identify a set of practices that successful school principals engage in to monitor instruction or motivate teachers to improve. In medicine and law, for example, there are some relatively well-specified sequences of activities for doing various aspects of the work that we refer to as professional or social practices. The plural here is intentional. In education, many comprehensive school reform models provide schools with social practices (e.g. 'Learning Walks').

While these social practices are key in understanding practice in the wild, a critical part of the situation or social structure, they differ from ‘*practice*’. By practice we mean what actually happens on the ground in leading and managing a school; it cannot be reduced to a set of behaviours that can be extracted from the particular place and the particular time in which it is embedded (Bourdieu 1981: 310). Practice emerges from the *interactions* among people and their situation, rather than as a function of the *actions* of any one individual leader. In this way practice is not about isolating and naming actions or behaviours, but understanding how these actions are embedded in *a system of practice*. It is essential to see ‘an action as *part* of the ecological system called context and not as the product or effect of what remains of the context after the piece which we want to explain has been cut out from it’ (Bateson 1972). Practice in a particular place and at a particular time is part of a system of practice or activity system (Engeström 1999, Gronn 2003). Practice is emergent—someone acts (Mr Smith or Mrs Travers) or makes a move in relation to someone else or something, someone reacts, and it is in these interactions that practice emerges. Hence, a school principal’s plans and goals and well-practised social practices can turn out different in *practice*. Hence, while identifying the characteristics of the individual principals and the features of their situation (broadly construed) can help us sketch some of those things that might influence practice, taking seriously the emergent nature of practice suggests that identifying predictors of practice is complex work.

Discussion and conclusion

While some clusters support conventional portrayals of the school principal, others question these portrayals. Mrs Travers and her colleagues in cluster 2, for example, lend some support to the school principal as lone ranger going it alone to lead and manage improvement. Mr Smith and Mrs Cole, in contrast, offer limited support for this image of the school principal. Indeed, even Mrs Travers and the other teachers in cluster 2 are far from isolates. Although our analysis suggests that instructional and curricular matters are overshadowed by administrative ones, the principals in our study appear to spend more time on instruction and curriculum than prior work would have led us to expect. Average time on curriculum and instruction ranged from 20% for clusters 1 and 2, to 30% for cluster 3. Indeed, if we included school-improvement planning these numbers would be even higher. In sum, school principals manage and lead instruction through both direct and indirect means, not all of which require direct observation of classroom teaching.

Across the three clusters, we notice some similarities. For instance, all three clusters reported an average of at least one-third of their time in administration-related activities and at least one-fifth of their time in instruction- and curriculum-related activities. Administration-related activities trump curriculum-related activities for all three clusters. Of the three clusters, none reported spending greater than 10% of their time on professional growth or relationship-fostering activities. Finally, principals in all three clusters spent

no less than 15% and no greater than 30% of their time leading alone and the average task duration for all three clusters was about 30 minutes.

Despite these similarities, we note important differences in the ways in which principals work at leading and managing curriculum and instruction. In other words, the practice of leading and managing curriculum and instruction gets constructed differently in the three clusters. Whereas Mr Smith and the other 19 principals in cluster 1 appear to anchor their efforts in student learning—what students can do and their achievement, Mrs Travers and the other 12 principals in cluster 2 focus directly on classroom teaching, identifying problematic teaching strategies and proposing alternative ones. Mrs Cole and the other four principals in cluster 3 take a more indirect route to leading and managing curriculum and instruction, focusing on building a school environment in which mutual trust and respect support ongoing staff interaction about teaching and learning. In other words, our analysis suggests that school principals work at managing and leading curriculum and instruction in different ways, some more directly tied to teaching than others but still fundamentally about curriculum and instruction. Hence, an important consideration in future work may be not simply how much time principals devote to instructional matters, but the various ways in which managing and leading curriculum and instruction is manifest in their workdays.

Monolithic images of the principal's workday in the US, where administrative tasks drown out curriculum and instructional tasks, may need some refocusing, no doubt in part due to the dramatic shifts in the policy environment of US schools in recent decades—where school principals are increasingly held accountable for student achievement. Such refocusing will necessitate more nuanced understandings of how the work of leading and managing connects, both directly and indirectly, with classroom instruction.

While the duration and focus of school principals' efforts is one thing, our account suggests that other dimensions of the principal's work may also be important in differentiating them from one another—whether they work alone or with others, whether they tend to take a front-seat hands-on approach or a more back-seat approach. Further, the prominence of others (either other formally-designated leaders or individuals without such designations) in these school principal's workday suggests that efforts to describe and analyse the practice of leadership and management have to extend beyond the school principal. Specifically, and especially for clusters 1 and 3 principals, various others took responsibility for leading and managing, often co-leading with the principal.

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Notes

1. See, e.g. Bryk and Driscoll (1985), Newman and Wehlage (1995), and Rosenholtz (1989).
2. See, e.g. Coelli *et al.* (2007), Hallinger and Heck (1996), Leithwood *et al.* (2007), and Sheppard (1996).
3. All names used in this paper are pseudonyms.
4. While these authors used data generated by the EOD log, our paper uses data generated by the ESM log. While both the EOD and ESM log collected data on the type and duration of activities, the ESM log also gathers data on other dimensions of practice, including whether the principal takes a leadership role in activities, whether they lead alone or co-lead, and with whom they co-lead.
5. According to the ecological validity perspective, outcomes (behaviours, 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 existing in an environment.
6. We chose to partition the data using Ward's method, rather than a random partition, because the random method may result in distorted partitioning (Aldenderfer and Blashfield 1984). We selected the Squared Euclidean distance as the measure of dissimilarity at this step as it is the most common and recommended measure (Mandara 2003).
7. The pseudo-T-squared values, which are presented with the Duda and Hart $J_e(2)/J_e(1)$ index, also indicate a 3-cluster solution in that smaller values indicate more distinct clustering.
8. The k -means procedure attempts to minimize the distance between cases within each cluster and maximize the distance between clusters.

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Appendix 1: Experience sampling form

17 March

1. Are you engaging in a SCHOOL-RELATED activity?

- Yes
- No (terminates questionnaire)

2. (a) Using the scale below, indicate how TIRED or ENERGETIC you feel.

Tired Energetic

2. (b) Using the scale below, indicate how DISTRACTED or FOCUSED you feel.

Distracted Focused

2. (c) Using the scale below, indicate how IRRITABLE or CHEERFUL you feel.

Irritable Cheerful

2. (d) Using the scale below, indicate how DETACHED or INVOLVED you feel.

Detached Involved

2. (e) Using the scale below, indicate how BORED or EXCITED you feel.

Bored Excited

3. WHERE are you?

- My Office
- Main Office
- Classroom
- Conference Room
- Hallway
- Other On-Site Location
- District Office
- Other Off-Site Location

4. WHAT are you doing? (select one)

- ADMINISTRATION*
 - Manage BUDGET, RESOURCES
 - Manage PERSONNEL
 - Manage SCHEDULES
 - Manage CAMPUS
 - Manage STUDENTS
 - SCHOOL IMPROVEMENT PLAN
 - Other

- INSTRUCTION and CURRICULUM*
 - Provide STUDENT INSTRUCTION
 - Review STUDENT CLASSROOM WORK
 - Review LESSON PLANS
 - Review INSTRUCTION MATERIALS
 - Plan CURRICULA
 - Discuss TEACHING/CURRICULA
 - Observe CLASSROOM INSTRUCTION
 - Model a LESSON
 - Plan/Implement PROFESSIONAL DEVELOPMENT
 - Review DATA
 - STANDARDIZED TESTING
 - Other

If you selected INSTRUCTION and CURRICULUM, what is your PRIMARY intention? (select one)

- Increase KNOWLEDGE of TEACHING
- Monitor CURRICULA IMPLEMENTATION
- Monitor INSTRUCTIONAL PRACTICE
- Develop/Communicate SCHOOL GOALS
- Motivate TEACHERS/STUDENTS
- Develop TEACHER'S CAPACITY
- Develop INSTRUCTIONAL POLICY
- Redesign TEACHING/LEARNING
- Other
- OWN PROFESSIONAL GROWTH*
 - Formal PROFESSIONAL DEVELOPMENT SESSION
 - Work w/ PROFESSIONAL DEVELOPMENT MATERIALS
 - Receiving COACHING/TRAINING
 - Studying EFFECTIVE PRACTICES
 - Other
- FOSTERING RELATIONSHIPS*
 - Interacting SOCIALLY
 - Other

5. Are you LEADING this activity?

- Yes
- No

If yes, indicate who is CO-LEADING this activity with you. (select all that apply)

- Working Alone
- Student(s)
- Teacher Leader(s)
- Regular Classroom Teacher(s)
- Principal(s)
- Subject Area Specialist
- Other Professional Staff

- Non-Teaching Staff
- District Staff
- Parent(s)
- Community Members
- Other

If no, indicate who is LEADING this activity. (select all that apply)

- Student(s)
- Teacher Leader(s)
- Regular Classroom Teacher(s)
- Principal(s)
- Subject Area Specialist
- Other Professional Staff
- Non-Teaching Staff
- District Staff
- Parent(s)
- Community Members
- Other

6. Who is the INTENDED AUDIENCE for this task? (select all that apply)

- No One
- Student(s)
- Teacher Leader(s)
- Regular Classroom Teacher(s)
- Principal(s)
- Subject Area Specialist
- Other Professional Staff
- Non-Teaching Staff
- District Staff
- Parent(s)
- Community Members
- Other

7. What SUBJECT is this for? (select one)

- Not Subject Specific
- Multiple Subjects
- Special Education
- Math
- English/Language Arts
- Reading
- Writing
- Science
- Social Studies
- Other Subject

8. HOW are you doing this? (select one)

- Face-to-face Interaction
 - One-on-one
 - 2 to 5 people

- 6 to 10 people
- 11 to 50 people
- More than 50 people
- Paperwork or Books
- Phone
- Looking or Observing
- Electronic Media
- Other

9. What is the DURATION of this activity from start to anticipated finish?

- Less than 1 minute
- 1 to 15 minutes
- 15 to 30 minutes
- 30 to 45 minutes
- 45 minutes to 1 hour
- More than 1 hour

10. On the scale below, indicate how CONFIDENT you feel in performing this task.

Not

Very

Questionnaire completed.

Thank you.

Appendix 2: Response categories

Administration

The response categories for Administration activities were collapsed as follows:

- Manage budget, resources; personnel; schedules
- Manage campus; students
- School Improvement Plan; other.

Instruction and curriculum

The response categories for Instruction and Curriculum activities were collapsed as follows:

- Review student classroom work; review data; standardized testing;
- review lesson plans; review instruction materials; plan curricula; discuss teaching/curricula; provide student instruction; observe classroom instruction; model a lesson;
- Plan/implement professional development; other.

Own professional growth

The response categories for Own Professional Growth were collapsed to form one category.

Fostering relationships

The response categories for Fostering Relationships were collapsed to form one category.

Co-leaders and leaders

The response categories for co-leaders and leaders were collapsed as follows:

- Student(s); parent(s); community members;
- Teacher leader(s); regular classroom teacher(s);
- subject-area specialist; other professional staff; non-teaching staff; other principal(s);
- District Staff.

The decision to collapse categories was based on two factors. First, some categories had a very low percentage distribution and it was thus necessary that they be combined with another category. This was the case for both 'Own professional growth' and 'Fostering relationships' activities. Second, the combining of categories was done based on what the authors felt was

reasonable. In the case of 'Administration' activities, the management of a school's budget, resources, personnel, and schedules are all thought to be routine business activities, while tending to campus and student issues are thought to be less routine, more on-call activities. Working on the school improvement plan was a seldom reported activity and was thus combined with the 'Other' category. In the case of 'Instruction and Curriculum' activities, reviewing student classroom work, reviewing data, and standardized testing activities all pertain to checking in on students' progress. Reviewing lesson plans and instruction materials, planning curricula, discussing teaching/curricula, providing instruction, observing instruction, and modelling a lesson all pertain to checking in on instruction and/or trying to improve instruction. Planning/Implementing professional development and 'Other' were both seldom reported activities and were thus combined to form one category. In the case of leaders and co-leaders, students, parents, and community members were combined to form one category as they are all clients of the school. Teacher leaders and regular classroom teachers are both teachers, while specialists, professionals, non-teaching staff, and 'Other' are all non-teachers.

Average task duration

The response categories for task duration included the following:

- Less than 1 minute
- 1 to 15 minutes
- 30 to 45 minutes
- 45 minutes to 1 hour
- More than 1 hour

To calculate average task duration, we first calculated a proportion by taking the number of beeps where the principal reported being in each time interval and divided by the total number of beeps. Then we took each proportion and multiplied it by the median of each time interval.

Appendix 3: School staff questionnaire

Racial/ethnic background of teachers in the school is based on teacher self-reports to the question:

Are you: Mark only ONE

- Hispanic, regardless of race
- Black, not of Hispanic origin
- White, not of Hispanic origin
- Asian or Pacific Islander
- American Indian or Alaskan Native
- Biracial/Multiethnic
- Other (please specify)

The staff's experience teaching (at any school) is based on teacher self-reports to the question:

How many years have you worked as a teacher? Record whole years, not fractions or months. Round up to the nearest whole number and include the current school year.

The staff's experience teaching (at this school) is based on teacher self-reports to the question:

How many years have you taught at this school? Record whole years, not fractions or months. Round up to the nearest whole number and include the current school year.

Measures of *shared responsibility* are based on teacher responses to the following question:

How many teachers in this school do the following? Response categories include: None; less than half; about half; most; nearly All:

- Take responsibility for helping one another do well.
- Help maintain positive student behaviour in the entire school.
- Take responsibility for improving the overall quality of teaching in the school.

Measures of *influence* are based on teacher responses to the following question:

How much influence do teachers have over school policy in each of the areas below? Response categories include: none; a little; some; a great deal:

- Hiring professional staff.
- Planning how discretionary school funds should be used; determining which books and instructional materials are used in classrooms.
- Establishing the curriculum and instruction programme.
- Determining the content of in-service programmes.
- Setting standards for student behaviour.
- Determining goals for improving the school.

Measures of *familiarity with standards* are based on teacher responses to the following question:

Please indicate how familiar you are with each of the following: response categories include: not at all familiar; somewhat familiar; very familiar:

- Quality Core Curriculum Standards.
- Georgia Performance Standards.
- Suggested tasks from the Georgia Performance Standards.
- Student work from the Georgia Performance Standards.
- Teacher commentary from the Georgia Performance Standards.

Measures of *innovation* are based on teacher responses to the following question:

Please indicate the extent to which you agree or disagree with the following statements about the school in which you work: response categories include: strongly disagree; disagree; agree; strongly agree:

- Teachers are expected to continually learn and seek out new ideas in this school.
- Teachers are encouraged to experiment in their classrooms in this school.
- Teachers are encouraged to take risks in order to improve their teaching.

Measures of *teacher–teacher trust* are based on teacher responses to the following question:

Please indicate the extent to which you agree or disagree with the following statements about the school in which you work: response categories include: strongly disagree; disagree; agree; strongly agree:

- Teachers at this school respect colleagues who are expert in their craft.
- Teachers in this school trust each other.
- Teachers in this school really care about each other.
- Teachers respect other teachers who take the lead in school improvement efforts.

Measures of *teacher–principal trust* are based on teacher responses to the following question:

Please indicate the extent to which you agree or disagree with the following statements about the school in which you work: response categories include: strongly disagree; disagree; agree; strongly agree:

- I feel respected by the principal.
- I trust the principal at his or her word.
- It's ok in this school to discuss feelings, worries, and frustrations with the principal.

Measures of *goals and expectations* are based on teacher responses to the following question:

Please indicate the extent to which you agree or disagree with the following statements about the school in which you work: response categories include: strongly disagree; disagree; agree; strongly agree:

The principal at this school:

- Clearly communicates expected standards for reading/language arts or English instruction in this school.
- Clearly communicates expected standards for math[ematics] instruction in this school.
- Encourages teachers to raise test scores.
- Makes clear to the staff his or her expectations for meeting instructional goals.

- Communicates a clear vision for our school.
- Communicates clear standards for student learning.

Measures of *monitoring instructional improvement* are based on teacher responses to the following question:

Please indicate the extent to which you agree or disagree with the following statements about the school in which you work: response categories include: strongly disagree; disagree; agree; strongly agree:

The principal at this school:

- Carefully tracks student academic progress.
- Knows what's going on in my classroom.
- Actively monitors the quality of math instruction in this school.
- Actively monitors the quality of reading/language arts or English instruction in this school.
- Works directly with teachers who are struggling to improve their instruction.

Measures of *instructional improvement* are based on teacher responses to the following question:

Please indicate the extent to which you agree or disagree with the following statements about the school in which you work: response categories include: strongly disagree; disagree; agree; strongly agree:

- There is a detailed plan for improving instruction in our school.
- The steps for improving instruction are carefully staged and sequenced.
- Steps that teachers should take to improve their teaching are clearly outlined.
- I have been exposed to many examples of the kinds of work that is expected of my students.
- I have been exposed to many examples of the kind of teaching that is expected in this school.

The measure of principal *in-degree* is based on teacher responses to the following questions:

To whom do you turn in this school for advice or information about mathematics instruction?

To whom do you turn in this school for advice or information about reading/language arts or English instruction?

Instances in which teachers listed the principal as a source of advice were summed to produce total in-degree for each principal.

Principal questionnaire

Racial/ethnic background of principals is based on principal self-reports to the question:

Are you: Mark only ONE

- Hispanic, regardless of race
- Black, not of Hispanic origin

- White, not of Hispanic origin
- Asian or Pacific Islander
- American Indian or Alaskan Native
- Biracial/Multiethnic
- Other (please specify)

Principal's experience as an administrator is based on principal self-reports to the question:

How many years have you worked as an administrator? Record whole years, not fractions or months. Round up to the nearest whole number, including current school year.

Principal's experience as a teacher is based on principal self-reports to the question:

How many years have you worked as a teacher? Record whole years, not fractions or months. Round up to the nearest whole number, including current school year.

Principal's level of education is based on principal self-reports to the question:

What is the highest degree that you have earned?

- Bachelor's
- Master's
- Educational Specialist/Professional Diploma
- Doctorate

Principal's certification is based on principal self-reports to the question:

What type of administrative certification do you hold?

- Regular or standard certification
- Advanced
- Temporary, provisional, probationary
- I am not certified

Principal knowledge is based on principal self-reports to the question:

To what extent do you currently have personal mastery (knowledge and understanding) of the following: response categories include the following: a little; some; sufficient; quite a bit; a great deal:

Developing and implementing strategic plans; Different types of assessments; Applied motivational theories; Effective communication; Procedures for forming and using teams in school; Curriculum design, implementation, evaluation, and refinement; Procedures for coaching teachers; Models and strategies of change and conflict resolution; Methods for creating learning cultures; What students should know and be able to do at each grade level in mathematics; Effective consensus-building and negotiation skills; What students should know and be able to do at each grade level in reading and writing; Elements of school design; Adult learning and professional development models; The change process for systems, organizations, and individuals; Community relations; Emerging issues and trends that potentially impact the school community; Applied learning theories; The conditions and dynamics of the diverse school community; School cultures; Successful models of school, family, business, community,

government, and higher education partnerships; Student growth and development; The role of public education in modern society; Effective instructional practices in mathematics; The role of public education in an economically productive nation; Benchmarking; Systems theory; The values of the diverse school community; Evaluation and assessment strategies; Various ethical frameworks and perspectives; The political, social, cultural, and economic systems and processes that impact schools; Evidence-based procedures for assessing struggling students; Information sources, data collection, and data analysis strategies; Aligning instruction, assessments and materials; Evidence-based practices for intervening with struggling students; Effective decision-making processes; Effective instructional practices in English/Language Arts; Procedures for monitoring teachers

Principal's use of data is based on principal self-reports to the question:

To what extent do you use data for each of the following purposes?

Developing recommendations for tutoring or other educational services for students:

- Data not used in this way
- Used minimally
- Used moderately
- Used extensively