Using Data to Inform Practice: Effective Principal Leadership Strategies

Jeffrey C. Wayman, Ph.D.
Stephen D. Spring, M.Ed.
Melinda A. Lemke, M.Ed.
Meghan D. Lehr, M.A.

Department of Educational Administration
The University of Texas at Austin

Paper presented at the 2012 annual meeting of the American Educational Research Association, Vancouver, British Columbia, Canada.

Introduction

The presence, amount, and accessibility of educational data have changed greatly in the 10 years since NCLB was passed, but one thing has remained fairly constant: the effective use of data at the school level is often difficult (Ingram et al., 2004; Valli & Buese, 2007; Wayman et al., 2010). The principalship has been shown by studies such as these to be a key element in school-level data use.

Prior research has taken a variety of approaches in examining principal leadership for data use. For instance, Copland (2003) and Park and Datnow (2009) took a distributed leadership approach. Both of these studies found that distributed leadership for data use was a complex, difficult task, but that principals who successfully involved other administrators or teacher leaders led schools that were more successful data-using schools. Deike (2009) studied the principal as an instructional leader, concluding that principals who worked collaboratively and who set clear structures for using data were more likely to lead successful data initiatives. Goodnow (2011) studied the "Transformational Data Leader," examining how Leithwood's Transformational Leadership framework could be applied to data use.

Many other studies have taken a more general approach, often describing principal leadership within larger studies of school or district data use. These studies have found similar leadership behaviors that positively influence data use. Examples of such behaviors include setting clear goals and expectations, creating structured time for faculty to examine data, and fostering a collaborative environment (Datnow et al., 2007; Halverson et al., 2005; Lachat & Smith, 2005; Supovitz & Klein, 2003; Wayman & Stringfield, 2006; Young, 2006).

While these studies have provided insight into effective principal leadership for data use, most were conducted in settings chosen as exemplars of using data. Other studies show

principals struggling with leading their faculty, due to lack of resources, lack of time, and many other issues, including lack of leadership preparation (Valli & Buese, 2007; Wayman, Cho, & Johnston, 2007; Wayman, Cho, & Shaw, 2009). Since these studies are less common, there is a need to provide more detail about how principals use data in "regular" settings. Further, the field lacks a concrete, research-based inventory of key principal behaviors that foster data use.

In the present study, we will respond to these needs by examining the leadership strategies of principals in "regular" schools (i.e., schools not chosen for their exemplary use of data). Our aim is to provide the field increased knowledge about how principals may effectively lead faculty in using data. In pursuing this aim, we will answer two research questions:

1. What is a research-based set of strategies that principals may employ in leading their faculty to use data effectively?

2. How do school principals employ these strategies?

To answer Research Question 1, we will review the literature on effective data use to delineate a clear set of strategies that research shows can be effectively applied in leading faculty to use data. To answer Research Question 2, we will draw upon data from three schools (elementary, middle, and high schools) examining the leadership strategies employed by these principals in light of the research-based set of strategies.

In the following narrative, we use our literature review section to answer Research Question 1. We follow this section with standard Method and Results sections, outlining the conduct and results of our study in response to Research Question 2. Finally, we end with a section that discusses our findings in light of prior research.

Literature Review: A Research-Based Set of Leadership Strategies for Data Use

To answer Research Question 1, we reviewed literature on effective data use. In doing so, we searched for practices, behaviors, and strategies that had been shown to be connected with helping faculties effectively use data. In tapping this research base, we took a broad perspective. Our definition of *data* was broad, including any information that helped teachers know more about their students. Our perception of *data use* was similarly broad, including any practices that used these pieces of information for educational improvement. Finally, our search for research was broad; any studies that contained the principal as part of the study was fodder for our learning, not just those that focused on principals specifically.

In sum, we identified 12 principal strategies that have been shown to be effective in leading faculty for data use (See Table 1). In the following subsections, we offer a brief description of each, in alphabetical order. In doing so, we take an approach somewhat different from most literature reviews. For each strategy, we provide an opening paragraph that describes why the strategy is important to consider, followed by a set of bullet points that describe how principals may apply the strategy.

Asking the Right Questions

Research is clear that teachers need to be able to solve problems that are relevant to their practice and answerable from their data (Datnow, Park, & Wohlstetter, 2007; Halverson, Prichett, Grigg, & Thomas, C., 2005; Wayman & Stringfield, 2006). Asking good questions of the data helps teachers identify a course of data use and focus on a specific problem. In fact, research has shown that teacher data use is often scattered and unfocused when teachers analyze data without a guiding question (Wayman, Cho, Jimerson, & Snodgrass Rangel, 2010; Wayman, Cho, & Johnston, 2007).

Research suggests that principals can help their teachers ask the right questions of the data in the following ways:

- Providing explicit instructions or professional development on how to formulate questions that are actionable and relevant to practice (Wayman & Stringfield, 2006).
- Modeling effective questioning through their own practice (Datnow et al., 2007; Supovitz & Klein, 2003; Wayman & Stringfield, 2006).
- Create collaborative activities that help teachers work together on questioning while solving problems (Halverson et al., 2005; Wayman, Cho, & Shaw, 2009).
- Expect good questioning and hold teachers accountable when good questioning is not employed (Wayman & Stringfield, 2006).

Communication

Literature has shown that clear communication can foster more effective data use. By clearly communicating their expectations for data use, principals not only can help faculty focus their data use efforts (Deike, 2009; Wayman, Brewer, & Stringfield, 2006), but clear communication often helps data use become non-threatening to teachers (Datnow et. al, 2007; Wayman & Stringfield, 2006).

Principals should consider the following communication strategies to ensure strong use of data on their campuses:

- Making expectations about data use clear to staff by communicating the ways in which staff can use different types of data to improve instruction and productivity (Datnow et al., 2007; Wayman, Cho & Shaw, 2011).
- Maintaining ongoing involvement in meetings where staff review data (Copland, 2003; Datnow et al., 2007; Halverson et al., 2005).
- Communicating with parents in a variety of ways about the purpose of data use on campus and what data reports mean (Wayman, Cho, & Johnston, 2007).

Data System Support

Research has shown the importance of a strong and user-friendly data system in order to support data use on campus. When properly implemented, teachers and other staff find value in a variety of 21st-century functions that bring student data to their fingertips (Brunner, Fasca, Heinze, Honey, Light, Mandinach et al., 2005; Datnow et al., 2007; Long, Rivas, Light, &

Mandinach, 2008; Wayman & Stringfield, 2006; Wayman, Stringfield, & Yakimowski, 2004).

However, the mere presence of these tools does not ensure they are valuable to teachers (Cho,

2011; Wayman et al., 2011).

Principals who provide support and guidance in using these tools can facilitate their use

(Wayman & Cho, 2008; Wayman & Stringfield, 2006). The literature suggests a variety of ways

in which principals can do this including:

- Help teachers choose what system or component of the system will help them get the data they need to improve their practice (Abbott, 2008; Breiter and Light, 2006; Long et al., 2008).
- Ensure that opportunities to use the system are relevant to teacher daily and/or immediate work (Choppin, 2002; Wayman et. al, 2004).
- Lead learning of how to use data systems with attention paid to staff capacity skill level (Long et al., 2008; Mason, 2003; Wayman & Cho, 2008).
- Differentiate learning opportunities for teachers based on role (Wayman& Cho 2008; Wayman, Stringfield, & Yakimowski, 2004).

Distributing or Delegating Leadership

Prior research has shown that principals who successfully delegate activities for effective

data use that might traditionally have been pulled under the purview of the administrator often

were more successful in data use on their campuses (Copland, 2003; Halverson et al., 2005; Park

& Datnow, 2009). Because of time constraints, principals who are able to use their support staff

to work with teachers and other faculty may realize more effective data use campus-wide

(Copland, 2003; Wayman et al., 2010). Additionally, principals are better able to understand

through their delegates the challenges and successes their teachers have in using data to improve

their practice (Anderson, Leithwood & Strauss, 2010).

Research has shown that principals might delegate leadership in the following ways:

- Fostering collaboration by the formation of administrative, grade-level and subject-level teams (Datnow et al., 2007; Lachat & Smith, 2005).
- Providing knowledgeable staff to assist teachers in their regular data use (Knapp, Swinnerton, Copland, & Monpas-Huber, 2006; Marsh, McCombs, & Martorell, 2010).

- Utilizing support staff to assist teachers in lesson and assessment creation (Knapp et. al, 2006; Marsh et al., 2010).

Engaging in Personal Learning Opportunities

In order for principals to continually lead their campuses in effective data use, they need to periodically engage in learning opportunities to improve their own data and leadership skills (Copland, 2003; Deike, 2009). Improving their own skills can help principal more effectively model data use for their faculty and choose impactful problems for study (Copland, 2003; Deike, 2009; Supovitz & Klein, 2003).

Principals may find the following approaches to professional learning effective:

- Stay apprised of literature and research on effective leadership of data use and refer to these when engaging with staff and district personnel (Knapp et. al, 2006).
- Attend professional development that focuses on data use and targets leaders specifically (Wayman & Cho, 2008).
- Attend training on how to effectively facilitate discussions around data use (Datnow et. al, 2007; Wayman et. al, 2007; Wayman & Stringfield, 2006).

Ensuring Adequate Professional Learning Opportunities

Teachers need adequate learning support if they are to use data to improve practice (Datnow et al., 2007; Ingram, Louis, & Schroeder, 2004; Supovitz & Klein, 2003). Such opportunities often are delivered in large-scale settings, but research also suggests they can be effectively delivered in small settings at the school level (Jimerson, 2011; Wayman et al., 2011). Principals are a critical component in ensuring such opportunities are available at the school level. (Halverson et al., 2007; Knapp et al., 2006; Wayman et. al, 2007).

Some ways that principals can employ effective building-level professional learning include:

- Structuring collaborative opportunities to use data that allow teachers to learn together and from each other (Datnow et al., 2007; Jimerson, 2011, Wayman et al., 2010; Young, 2006).

- Rolling out data systems and professional development in a manner relevant to immediate teacher practice (Wayman & Cho, 2008; Wayman et al., 2010).

Facilitating Collaboration around Data

Collaboration should be highlighted and valued as a critical mechanism for using data to change practice and effect professional learning (Datnow et al., 2007; Kerr et al., 2006; Supovitz & Klein, 2003; Wayman et al., 2010). Further, collaboration can help in creating a campus-wide vision for data use and in modeling protocols (Knapp et al., 2008).

Research suggests that principals can facilitate collaboration around data in the following ways:

- Structuring regular, dedicated time for collaboration around data use (Deike, 2009; Wayman, Brewer, & Stringfield, 2009; Wayman et al., 2010).
- Establishing protocols that guide how collaborative time is used (Datnow et al., 2007; Wayman et al., 2010).
- Participating in collaborative meetings with staff (Copland, 2003; Datnow et al., 2007; Lachat & Smith, 2005, Wayman, Brewer, & Stringfield 2009; Wayman & Stringfield, 2006; Young, 2006).

Focus Data Use on a Larger Context

Data use can extend much beyond state testing data. Many studies have demonstrated teachers find use in data that focuses on the "whole" student, such as disciplinary data, grades, or teacher observations (Anderson et al., 2010; Datnow et al., 2007; Ingram et al., 2004; Wayman & Stringfield, 2006). Triangulating data can help put state test scores in context and better inform effective teaching practice (Wayman, Spikes, & Volonnino, in press).

Principals can ensure that data use is focused on the larger context in a variety of ways including:

- Encouraging data collection beyond state accountability measures (Halverson et al., 2005; Supovitz & Klein, 2003; Wayman & Stringfield, 2006.)

- Structuring time for teachers to work collaboratively to analyze student data (Datnow et al., 2007; Lachat & Smith, 2005; Supovitz & Klein, 2003; Young, 2006).
- Setting clear expectations of an end product, such as lesson plans or new assessments, for teachers to have after these meetings (Boudett, City, & Murnane, 2005; Wayman & Stringfield, 2006).
- Utilizing support staff to help teachers with instructional strategies (Datnow et. al, 2007; Marsh et al., 2010).

Fostering Common Understandings

Research suggests that principals and staff should have a common understanding of how data use can serve their campus and students in the best way (Wayman, Cho, & Jimerson, in press; Wayman et. al, 2007). Creating common understandings streamlines the work of data use, helps educators learn better from each other, and facilitates effective collaboration (Copland, 2003; Datnow et al., 2007; Knapp, 2003; Supovitz & Klein, 2003).

Principals can promote and establish common understanding in the following ways:

- Lead staff in processes that help them create "shared mental models" of how data can support teaching and learning. (Ingram et. al, 2004; Senge, 2006; Wayman et al., 2011).
- Create collaborative opportunities around data. These help staff draw upon and continually explore common understandings (Datnow et al., 2007; Wayman et al., 2011).

Goal-Setting

Research suggests that data use is more effective when educators work toward pre-set goals (Datnow et al., 2007; Lachat & Smith, 2005; Supovitz & Klein, 2003; Wayman & Stringfield, 2006). This literature base shows that goal setting can help define which data will be needed to attain campus or classroom goals, and can help define specific questions to explore.

There are several ways the literature suggests principals might do this including:

- Lead staff in using data to set benchmarks for their own performance (Datnow et al., 2007; Halverson et al., 2005; Wayman & Stringfield, 2006)
- Encourage staff to use data to set benchmarks for student performance at the individual and subgroup level (Halverson et. al, 2005).

Modeling Data Use

Schools that are successful at data use often have a principal that models data use as part

of their job. By modeling, we mean the principal uses data in effective ways that the staff can

see and emulate (Copland, 2003; Datnow et al., 2007; Lachat & Smith, 2005). Modeling

provides staff with an exemplar on how to incorporate data use into their practice (Copland,

2003; Wayman, Brewer, & Stringfield, 2009).

Research suggests the following ways that principals can model data use:

- Working with staff to demonstrate how the principal uses data to inform her/his practice (Wayman, Brewer, & Stringfield, 2009; Wayman et al., 2010)
- Bringing data to all meetings and using them to support conclusions (Lachat & Smith, 2005; Wayman & Stringfield, 2006).
- Providing examples of how teachers may use data to inform their practice (Copland, 2003; Datnow et al., 2007; Lachat & Smith, 2005, Wayman et al., 2011; Wayman et al., 2009; Wayman & Stringfield, 2006;)

Structuring Time to Use Data

Literature has shown that structuring time for staff to use data is critical (Ingram et al.,

2004; Lachat & Smith, 2005; Kerr et al., 2006; Park & Datnow, 2009). This means creating new

time for data use, as well as reshaping what takes place in time already established for data use.

Staff meetings, team meetings, and professional development sessions are examples of venues

that need structured time for effective data use (Lachat & Smith, 2005; Wayman et al., 2010).

The structure of time alone is not enough. The principal also needs to compliment this structure

with expectations on how allotted time will be used (Copland, 2003; Halverson et al., 2005;

Young, 2006).

Research suggests that principals should schedule data use time for staff with

expectations on how teachers use that time in the following ways:

- Scheduling time for teacher teams to examine data (Ingram et al., 2004; Lachat & Smith, 2005; Kerr et al., 2006; Park & Datnow, 2009; Supovitz & Klein, 2003; Wayman & Stringfield, 2006; Wayman, Brewer, & Stringfield, 2009; Young, 2006).
- Setting clear goals and expectations on what to do with structured time (Copland, 2003; Datnow et al., 2007; Halverson et al., 2005; Lachat & Smith, 2005; Supovitz & Klein, 2003; Wayman & Stringfield, 2006; Young, 2006).
- Creatively looking within already-existing time structures to find time to use data, such as team planning time, faculty meetings, or conference hours (Datnow et al., 2007; Wayman & Stringfield, 2006).

Method

The present study is part of a larger study to examine how three districts in Central Texas may more effectively use data for student improvement. For this particular study, we focus on the responses of principals from all of the schools that participated: twenty-two elementary schools, ten middle schools, and seven high schools. In conducting this study, we used a broad definition of "data" and "data use." "Data" were any piece of information that helps educators know more about their students: state achievement tests, periodic benchmark assessments, tests, quizzes, demographic information, or personal observation, to name a few. "Data use" was the practice of using professional judgment to synthesize various forms of data, turning it into actionable information that can support educational practice.

Qualitative data came from focus groups conducted in the 2009-10 school year with the principals and members of their administrative teams (*n*= 102 administrators). In these schools, we also conducted focus groups of 4-6 teachers apiece (*n*= 189 teachers). In each school, principal leadership behaviors were chronicled by triangulating principal and teacher focus group data. This enabled us not only to describe what principals said they were doing, but also to describe how teachers perceived these same behaviors. Focus groups were recorded and transcribed.

Focus groups were conducted under a semi-structured protocol with a variety of questions stemming from one overarching one, "how does data use occur in your school?" It is important to note that this protocol did not include any direct questions that asked about principal strategies. Instead, we used descriptions of how data use occurred to search for evidence of the various strategies employed by the principals. This reduces a "halo effect," where principals may unconsciously play up various strategies more than they are employed. It also serves to identify only strategies that are in common use, given that they emerged during a description of how data use is conducted.

To answer Research Question 2, analyses were conducted using the set of principal strategies identified for Research Question 1. Transcriptions were analyzed and coded as relating to one or more of the 12 codes. The total amount of references to each strategy was used to rank the strategies according to frequency.

Results

To answer research question one, we reviewed the literature on effective data use, identifying twelve principal leadership strategies that could effectively be employed to support faculty data use. In answering research question two, we aimed to understand more about which of these strategies were employed by principals and how they were used. Thus, we interviewed administrators and teachers in three school districts about their data use. We examined transcripts of their discussion, using the twelve research-based strategies as codes. We identified 1,044 principal and staff quotes aligning with these strategies.

Our findings demonstrated that only four of these strategies were commonly employed by our study principals (see Table 2): focusing data use on the larger context, facilitating collaboration around data, distributing leadership, and fostering common understandings. In the

following sections, we present our findings regarding these twelve research-based strategies. Separate sections are provided for the four commonly-employed strategies; data from the other eight strategies are presented together in one final section.

Focus Data Use on the Larger Context

The most prevalent principal strategy we found in our study was focusing data use on the larger context of teaching and learning. In our analysis, we found 314 comments (30% of the total) that showed principals utilizing this strategy. Data use focused on the larger context was manifested in five ways: (1) school improvement, (2) examining the "whole student," (3) monitoring and improving student progress, (4) informing teacher practice, and (5) collaboration to create assessments.

School improvement. We found that many principals discussed using data to make plans designed to improve their schools. Principals across levels in the Musial school district said frequently that data was at the core of their campus improvement plans, which were written before the school year. On the other hand, many principals in the Gibson school district evaluated data continuously throughout the year to consider how to implement new programs to better student experiences at school. For instance, an elementary school principal explained that they examined "discipline data, attendance data . . . how do we look in our school, how does that match with what other schools are doing? Then we analyze that to say what kind of programs we need to do for next year."

Examining the "whole student." Similar to the above, we found that principals in our three districts encouraged their teachers to examine and analyze data related to the "whole student." One middle school teacher in Gibson explained that his principal "feels that there's

some benefit to our doing all of the work because he thinks we'll get to know our kids as we dig through the data."

We found that principals wanted teachers to consider what knowledge parents could bring to the understanding of their students. This strategy was mostly mentioned by elementary school principals. One principal in Boyer said they rely on "conversations [they've] had with parents . . . to figure out what's going on for kids and help them improve." A teacher in Musial mentioned that they spent time looking at data such as parent surveys, focusing on "what the parents want from us."

Teachers from all districts and levels mentioned being directed by their principals to review their students' cumulative folders in order to gain perspective on their students. One elementary school administrator in Gibson explained that at the beginning of the year, teachers are given their class lists and accompanying folders. They then ask teachers to do a "scavenger hunt" to find the answers to, "What is this telling us? What can we see just from this information? What do we know before we even get [the students]?" A middle school principal in Boyer discussed how they use their version of a cumulative folder, saying "We use [their data system] and you see test grades, the last three years of classroom grades, attendance, discipline. It's all right there in our computer system."

Monitoring and improving student progress. Principals primarily discussed focusing data use in this way. Some principals explained that data was used on their campus to consider how to group students for maximum potential. A principal in Musial said that they use data…

…to make class lists. At the end of the year, grade level teams get together and

take students based on DRA scores, TAKS scores, math assessments, parent

input, their own observations, and try to balance classes. From year to year we

use it to create and balance classrooms. We use data to make decisions about

students.

A middle school principal from Gibson explained that data was used to evaluate which students

needed remediation, and how they could ensure that students were getting what they needed. He

explained:

> The expectation is that [teacher teams] . . . bring the data back to the group and
>
> say this is how my kids did, these are the questions they struggled on, here are my
>
> percentages. As a team, they are using that information to reorder the kids. "You
>
> did really well with this type of question. Can you come and teach my kids?"
>
> Principals also expected teachers to use data to better understand why students might be

in need of remediation. One high school principal in Gibson said, "we want the teachers to look

at data from various assessments to see where the learning gaps are, and is it because of

instruction or something else."

Informing teacher practice. In addition to considering student progress, principals also

wanted teachers to use data to improve their own practice. Several teachers mentioned

incorporating new things into their lessons to better appeal to their students. A high school

principal in Musial explained that the school district has been "expanding its academy

arrangement for students." Because of this, she expected teachers to think differently, and to

make their content more relevant to their students. An elementary school principal in Gibson

said that teachers in her school are "expected to use the data to customize their instruction to

meet the needs of the kids." A teacher in a Gibson elementary school also explained how they

used the state curriculum data to create lessons. She said they plan which state standards they

need to teach, and based on that decide "what activities are we doing to do to cover, and how are we going to evaluate it so that when the CBAs are given, that we've covered that information."

Collaboration to create assessments. Finally, in our analysis, we also saw that principals wanted teachers to collaborate with each other in order to create assessments based on data collected. A principal in Musial said that she does "expect and give teachers time in their grade level teams to do pre and post assessments for those major concepts." A middle school teacher also in Musial explained that the "expectation when you sit on the data committee is to go back and work with your grade level to look at the data and create common assessments and benchmarks." In all districts and across levels, these common assessments were tools that were later evaluated in order to understand which students needed more or less remediation.

Facilitating Collaboration Around Data

The second most prevalent principal strategy revealed in our data was facilitating collaboration around data. In our analysis, we identified 206 quotes (20 % of the total) that demonstrated principals' use of this strategy (see Table 2). Our data revealed three primary areas where principals facilitated collaboration around data: (1) participating in collaboration with faculty around data; (2) structuring ways for faculty to collaborate around data and (3) setting expectations for collaboration.

We observed differences by level or by district in the ways that principals described this strategy. This was true both in the way comments were distributed (see Tables 2 and 3) and in the comments we heard from principals. One difference in particular was that high schools were more likely to talk about facilitating collaborating around data.

Participating in collaboration with faculty around data. One way that our principals made collaboration happen was to be present during the collaboration. Sometimes that meant

leading the discussion, but sometimes that meant just being part of the group.

Principals facilitated collaboration in data use using questions or prompts as a means to change teacher practice and to determine effective interventions for target groups of students. In this example, an elementary principal from Gibson used questions in a collaborative meeting in order to encourage teachers to share best practices. "We talked about grade level conversations and having conversations with teachers about, "What do you do well? Share that with your team. What do you do not so well?" In another instance we heard Musial middle school teachers talking about prompts used by the principal to guide department dialog. "We'll have an assistant principal in our Language Arts meeting who comes in with data and sometimes it's 'this is what I want you to look at it' but other times it's 'take a look at it and tell me what you see.'" Finally, the following comment from a Musial high school principal showed how ongoing facilitated collaboration helped address the needs of a targeted group of students:

We meet every Thursday with teams and we go over general anecdotal data - what kids are they wanting to monitor, what data are they bringing about those kids. "OK what are we going to do now, if that kid's struggling?" Then two weeks later that same team comes back and we ask, 'how did that go?"

In other instances our data revealed principals just being part of the group, collaborating in a more non- hierarchical manner with faculty on data use. A Musial elementary school principal stated, "we're using data to plan for instruction…and we go in and plan with them." A Boyer elementary principal talked about being present in a team meeting where teachers were talking about data in order to share instructional strategies. "I sit down with them as a team and we look at it together."

Many principals talked about staff collaborating using data in committee meetings. In

one example, an elementary principal from Gibson shared how a team uses data in order to provide interventions to target the needs of particular students. This principal had defined a committee that identified targeted interventions for particular students. Data use was a big part of this committee's work:

> Having those conversations with the teachers, using the data … that consists of all the principals, our counselors, our resource teachers, the coaches, and the classroom teacher, and we have that outside support staff, the nurse, social worker, etc., so it's a really great committee, and it's all about data.

Structuring ways for faculty to collaborate around data use. Another way our principals facilitated collaboration was to provide structures that supported teachers in collaborating around data. Principals in all three districts did this through the use of processes and tools to guide collaborative data activities, and also by providing time for collaboration.

Many principals used spreadsheets or other data templates as a tool to focus collaborative dialog, as described by this Gibson elementary principal:

> I have a conversation with the teachers about who they have a concern about and we keep that on a spreadsheet. Then at the end of the year we talk again about how much progress did this child make? We have lengthy, hard conversations.

Similarly, a high school principal from Musial described using a data template to focus collaboration: "We have a benchmark analysis sheet that teachers, as a grade level, are to look at, and identify areas of strength and weakness, by class and by individual teachers, and to have those discussions." In other cases, tools arose organically from teacher work, as described by this Musial elementary principal, "[the grade-level team] took an interest with math journals and how we tracked data. They've come up with a system that works for them … the tool is what

drove the conversation."

Most principals that employed this strategy talked about structuring time as a means to facilitate collaboration. Our data showed evidence that principals not only provided additional time to talk about data, but also illuminated how they structured existing team time for data use. One elementary principal from Musial commented, "we meet every Thursday with teams and we go over general anecdotal data - what kids are they wanting to monitor, what data are they bringing about those kids." Another elementary principal from Musial stated how he has reshaped professional development time for teams to use data: "We also have six half-days this year for team planning, so several teams have decided to use those days for part data and then looking at driving instruction - where are you going to go next?" In some instances, data meetings were scheduled by principals when pertinent data became available. This was illustrated in this comment by a Musial high school principal. "[We] are going to look more often and specifically. Weekly, if not daily depending on the time of year, there's data viewing and use."

Setting expectations for collaboration. Our principals made it clear to staff that they wanted to shape collaboration so that it regularly employed best practices of data use. An elementary principal stated that she "expects and gives teachers time in their grade level teams to spend time looking at that data and then either design instruction as they go forward or design remediation opportunities." A high school principal from Musial spoke about his expectations of shifting department meetings from traditional logistical dialog to purposeful, student data-informed dialog. "Our department meetings deal with housekeeping and budget and resources, but a lot of that has gone to email, and the meetings are really about data, students, curriculum, and alignment."

Administrators also talked about how their vision for collaboration is a work in progress. A Gibson high school principal shared that "once we have the big picture of data, teacher[s] will look at the kids for patterns of weakness. In some departments where we're struggling, we've put more resources into them to make sure those kinds of conversations are happening." An elementary teacher from Musial talked about how principal expectations have increased data use during team planning times. "… all of a sudden they'd want to know. They're asking. This forces people who weren't monitoring or using data to do more of it."

Distributing Leadership

Our data revealed that the third most utilized strategy was distributing leadership. In our analysis we found 108 comments (10%) that provided evidence of principals distributing leadership. Principals distributed leadership in two distinct ways: (1) by relying on different support staff to work directly with teachers in their data use, and (2) by creating the opportunity for teachers to act as data "leaders" on their campus.

Relying on support staff to work directly with teachers in their data use. Principals in our study frequently relied on their support staff to work with teachers on data use. Support staff roles included assistant principals, instructional coaches, and "intervention" staff such as counselors.

Instructional coaches helped teachers with many different facets of data use and were relied on most heavily in elementary schools. Instructional coaches often worked with teachers by examining data together in order to plan lessons for students. To illustrate, one Musial elementary instructional coach said she worked with teachers to identify "[patterns and irregularities] and then we would go back and have a reflection to think about why the kids missed it, to see what we can go back and brush up. . . and then monitoring or modeling a

different approach to teaching it." Instructional coaches also helped to clarify curricula for teachers. For instance, one elementary school administrator in Musial discussed her use of an instructional coach to help support her administrative team and teachers in designing appropriate responses to state curriculum, saying, "Here's the TEKS [Texas state standards], and [the instructional coach] assists us in making sure we have pre and post. Then what are we going to do with that data? Are we going to do lesson plans? Are we going to redesign?" Finally, principals relied on instructional coaches to help teachers identify student strengths and weaknesses in order to improve instruction. One Gibson elementary school administrator explained how they used a science coach on their campus, saying, "We have a science expert who is helping us with analyzing those findings - we gave them to her last week and asked, 'Why with these strengths did our kids score like they did? Why didn't they do better?'"

Another reason principals relied on support staff was to ensure that students were receiving proper interventions. An elementary school principal in Boyer described how they used the interventionist at their campuses to "reevaluate [teacher's] data at the beginning to see who needs help in smaller groups or one on one," while an elementary school principal in Musial used the campus instructional coach to make "suggestions in the classroom, for the students in the entire class." In contrast, the principal at a Gibson elementary school considered student intervention as a team goal, and therefore relied on counselors, SPED staff, and other staff to work together with teachers to determine interventions for students. He explained:

> [The intervention team used data to create] action plans and certain academic and behavior interventions so that coming in the first day these teachers had it readily available to plan. And this is just an ongoing, every Friday, half-day process with the team members.

Finally, several campus principals cited relying on their assistant principals to help support teachers in their data use. The assistant principals tended to meet with teachers individually or in teams in order to begin a conversation about data use in the hopes of improving instruction and student successes. One assistant principal at a Musial elementary school explained how she worked with a specific grade-level team, "they were a team that said, help us figure this [problem] out."

Utilizing teachers as data "leaders." Many principals distributed leadership to a group of teacher leaders on whom they relied to promote data use on campus. One way principals did this was to encourage specific teachers to volunteer to lead their campuses towards improvement using data. One elementary school teacher in Musial explained how this happened, saying:

> There's a representative for vertical teams, from each grade level, and from the goals in each grade level we make our vertical team goals. So, I'm the representative for the behavior committee. The behavior committee takes a look at the behavior referrals, and, throughout the year, teacher feedback, feedback from other staff members. Where behavior problems are cropping up, where kids are getting in trouble the most, or there seem to be traffic jams, and we determine a direction from there.

We found that middle and high school principals tended to rely on teachers in existing leadership positions such as collaborative teachers (those appointed to lead collaboration among teams of teachers) and department chairs. One way collaborative teachers and department chairs acted as data leaders was by separating and disseminating data to other teachers. One Musial high school math teacher explained that her department chair

> has broken down every student that has failed. She breaks them down into groups [e.g., low SES] and we go into the department meeting and separate all the kids

out by teachers, then we put them in folders - we have a folder for the low SES

kids or minority kids. And the kids who have failed TAKS, we break them down,

too.

Other principals expected their department chairs and collaborative teachers to observe

other teachers and share that data with them in order to help them improve their instruction. A

middle school teacher also in Musial shared this expectation explaining,

The collaborative teacher is supposed to go around and after they've visited to sit down

with someone. Not a gotcha thing. But giving the person information based on data,

with "OK, try this. I see you have these students. I saw you do this, and maybe if you try

this, it will work better for you."

Finally, there was one middle school principal in Musial who deliberately appointed

teachers at his school as data leaders. He met with them regularly about data on campus and

gave them a stipend for this position. His goal in doing this was to diminish the negative

association the teachers on his campus had with "data." He said,

"Data was such a nasty word when I got here. It was a lot of paper work, and I was told

when I got here that there was tons of data running around on this campus . . . I have a

reason to do this, it was such an ugly thing, I had to do something to get people to want to

do it. So I said, 'you are data leaders and I'm going to pay this token stipend to do that.'"

Fostering Common Understandings

The fourth most prevalent principal strategy was fostering common understandings. In

our analysis, we identified 103 quotes (10 % of the total) that demonstrated principals' use of

this strategy (see Table 2). Our data revealed three primary areas: (1) the overall purpose of

using data; (2) teaching and learning; and (3) curriculum. In this section, we will show how the

principals in our districts used fostering common understandings in these ways.

We observed few differences by level or by district in the ways that principals described this strategy. This was true both in the way comments were distributed (see Tables 2 and 3) and in the comments we heard from principals. One notable difference was in "overall purpose of using data", where we heard no comments from high school principals about fostering common understandings in this primary area.

Common understandings about the overall purpose of data use. Our data revealed that some principals were helping their teachers build common understandings through changing the culture and norms of the campus. One comment from a Musial middle school principal spoke about changing the culture of the school to one in which data is examined regularly as a means to not only better understand their classroom, but also to develop common understandings about the school community as a whole.

> I am of the opinion that the more we can put data in teachers' hands, and get them
> working with it and looking at it, and figuring out "what does that mean for their
> classroom, for each kiddo." Once the teacher gets that taken care of, we can do an
> outward view and ask, "What does that mean for my campus and my
> community?"

A Gibson middle school principal commented on how he is changing the culture of the school by helping teachers to overcome barriers to data use. "[I]t's about knowing your data and knowing your kids and knowing how to respond to the data. That's an obstacle that as a principal, I'm trying to walk through it with teachers." Our data showed a Musial elementary school principal commenting on how she was shifting the culture around data use by allaying teacher fear around data use. "And then sometimes data isn't always pleasing, so being a support as far as saying,

our data didn't show a lot of success, so what can we do to support you, and for you to support your students?"

Some leaders developed common understandings for the overall purpose of data use by specifying expectations that teachers use data to focus their work on what is important. An elementary principal from Musial noted: "I think it's a non-negotiable that all of our decisions are driven by data." When a Boyer elementary principal was asked about the message he conveyed to staff, he responded, "… data should drive instruction. And if your goal is to have the most successful school system that you can, then you need to look at data and use it to help you students." A teacher in a Musial middle school spoke of the purpose of data use. "[The principal] is very good about looking at data. He's trying to get us to a certain place, and that's part of the plan for him - looking at the data and adjusting based on what we see."

There were very few specific comments about the common understandings that established the purpose of data use. One example was provided by a Musial middle school principal, who cast the purpose of data use specifically in terms of college readiness. "We need to get people to realize that just because your kids are sittin' pretty at 95% [passing rate] doesn't mean they're college ready". Still, most principal comments were vague about common understandings of purpose, such as, "we talk about the importance of data and why we use data," and "[data use] is in the beginning stages this year, and we kind of talked it last year. It's something we're watching and talking about."

Common understandings about teaching and learning. Some principals in our study connected data use to the broader area of classroom practice. These principals focused much of their common understandings work on teaching and learning. In some instances, principals talked about tools or models they used to have staff reach common understandings in this

primary area. A middle school principal from Musial spoke about a campus-wide initiative. "They [teachers] follow the DuFour's professional learning community model, and that's where a lot of the collaboration and vertical learning comes from." One tool mentioned by teachers from this same school was 'best practice' cards as a means to build common understanding about teaching.

> Every principal has a whole stack of these cards that when they walk into a classroom, like a music classroom, it says this is what a good model of a music class looks like' so if a principal is not sure what should be going on, the fine arts superintendents have gotten together and written that out.

Another Musial middle school principal commented on using walkthrough protocols as a means of developing common understandings about best practices.

> This is our first form. I have two binders we keep copies of the walk-throughs and we give a copy to the teachers. We're really good at 'engaged' but not on top of things with Bloom's, not as many on the analysis and above level. We were much more 'knowledge' level.

> Some school staff spoke about having acquired actual evidence of common

understandings outcomes reached or in progress. One teacher from an elementary school in Boyer noted "Math just got together to see what's really an E on the report card." Also, in the area of common understandings about assessment, a Gibson middle school principal stated that we are "trying to get teachers to have a shift in paradigm on what grades should be used for. Assessment is not just tests or quizzes, it's any time you're assessing that student, whether they've learned the objective."

Common understandings about curriculum. Our data revealed moves principals made to ensure that curricula were uniform. An elementary principal from Gibson commented:

> I think of the [curriculum] bundles themselves, and because of mobility, they want to make sure that every campus is doing the same thing. They're constantly analyzing assessments to align with the bundles and the students' needs.
> Teachers helped create the curriculum bundles.

A Musial elementary principal said, "it's a non-negotiable that all of our decisions are driven by data. It drives [curriculum] planning." When asked a general question about what the common vision of the school was, teachers tended to respond in the area of common content. One example from a Gibson elementary school: "I think [our vision is] the same thing, it's uniformed. You know, so in second grade, we all have to be on the same page."

Another example of creating common understandings around curriculum was to ensure that particular groups of students were getting the curriculum to target deficiencies. An administrator from a Gibson middle school talked about creating curriculum-specific groups:

> [T]he expectation is that they do this at least once every three weeks in order to bring the data back to the group and say this is how my kids did, these are the questions they struggled on, here are my percentages. As a team, they are using that information to reorder the kids.

Less Commonly Used Strategies

In addition to the four strategies identified by our data as most commonly used, our data revealed the other eight strategies were employed less frequently. The strategies of asking the right questions, structuring time to use data, and ensuring adequate professional learning opportunities each received over 50 mentions, but none represented more than five percent of the

total. All other strategies were mentioned less than four percent of the total.

A few principals mentioned supporting their faculty in asking the right questions of their data. Nearly all comments dealt with asking questions which could lead to improved instruction, but the basis of questioning was varied. For instance, a Gibson middle school principal cast it in terms of individual student learning: "Are the kids having conceptual problems? That way they look beyond whether their kids did well, and understanding why their kids did the way they did. That's what's actually going to help them improve their instruction." Some principals mentioned supporting their faculty by structuring time to use data. Our data show that these principals scheduled dedicated time for faculty to examine data to inform practice and facilitate learning. Though there is overlap here with the structuring time to facilitate collaboration, separating this strategy from collaboration revealed new data. For instance, a Gibson elementary principal spoke about how time was reallocated in already scheduled meetings specifically for data use. "[W]e do provide time to sit and analyze the data, like in a faculty meeting or a PD day." Most teachers who talked about this strategy appreciated the principal allowing for or allocating time to focus on data. When a Musial elementary teacher was asked where they have time for data use, she commented, "In 3rd grade, we split the kids up so the teacher can have the room quiet for a whole day." In some instances we learned that teachers felt that time for data use was inadequate. This response from a Gibson middle school teacher followed a prompt about the principal's role in staff data use. "She says we need to do it, and then that's it. There's no allocation of time. There's no follow through or follow up. No accountability. There's no time to really look at data."

A few principals were ensuring adequate learning opportunities, primarily by scheduling professional learning opportunities related to teacher instruction on campus. One principal in

Gibson brought a consultant to campus, and said that the consultant was working "to help train the teachers about what kinds of things they need to do as they are making decisions as to next steps with their students." Principals also created professional learning opportunities on campus around technology and the data systems. One principal at a middle school in Boyer said that "we provide training. Like we just did one in how to use things like [the data system]. How to use and find data." Finally we found that a handful of principals worked to ensure professional learning opportunities by encouraging teachers to attend trainings in other locations. A principal in Gibson explained that they "send teachers to trainings" and had recently sent teachers from several departments to a "data-driven workshop."

Although infrequent, our data showed principals occasionally modeling data use for their faculty, as evidenced by this Musial high school principal: "I model it. They see me using data all the time, and so I think there's an expectation that if [the principal] can do it, then we all can do it."

Discussion

In the present study, we used prior research to establish an inventory of 12 strategies that research suggests principals can use to lead their faculties in using data. We then used this list to examine how three principals were leading their faculties in using data. These principals mostly employed strategies that focusing data use on a larger context than just state tests, fostering collaboration, and distributing leadership. While their teachers and administrative staff seemed mostly happy with the strategies used by these principals, we found it striking that only three of the 12 research-identified strategies were in common use. In the following section, we explore the choice and use of these three strategies and speculate about how our learning might help us understand more generally how principals lead for using data. We end with a section exploring

the implications of our results.

Strategies that Principals Employ: Familiarity?

In examining the three leadership strategies that were in most common use, it seems they all share a common theme: familiarity. That is, we believe these strategies are likely to be familiar to most principals, either because these strategies tap existing resources or because these strategies operate in areas that are familiar to principals and their faculty.

One example of familiarity is seen in the common use of support positions to help faculty with data use. The recent policy environment has created conditions that urge districts and principals to hire non-teaching staff to serve a variety of school support positions. Examples of such positions in our data included instructional coach, academic dean, or the DATE grant administrator. Once data burdens begin to grow, it seems natural that principals would turn to these support positions to help out (Boudett et al., 2005; Lachat & Smith, 2005; Wayman et al., 2007).

Regarding these positions, there is an important distinction in our data worth consideration: our data indicated some distribution of *leadership* in the sense that Copland (2003) discussed, where principals aim to build capacity of individuals within schools. More commonly, though, the distribution in our data looked like distribution of *work*. That is, these support staff were mostly charged to do upfront data work before meeting with teachers. This is work that would have otherwise been done by campus administrators or by the teachers themselves, so it did make principals' and teachers' jobs easier. Thus, it was often the case that work was distributed, but leadership was not.

The recent shift toward group and collaborative structures for teachers (e.g., Professional Learning Communities) also provided a familiar resource for principals to draw upon when

leading faculty data use. Indeed, collaboration has many benefits; it is nearly universally touted as effective for data use because teachers learn from each other, share tasks, and report more enjoyment of using data (Datnow et al., 2007; Ingram et al., 2004; Wayman et al., in press; Wayman & Stringfield, 2006; Young, 2006). Given the current popularity of collaboration, we feel confident that most principals are likely to tap this extant resource for using data, as our principals did. Perhaps of greater importance, however, is how the principal facilitates the use of collaborative time. Research is clear that it is not enough to provide opportunities for collaboration – what goes on during that collaboration is of utmost importance. Consequently, in applying this strategy, principals must ensure that they do not stop with merely providing opportunities to collaborate. They must help focus data use on actionable problems and help faculty grow in their interpretive skills (Datnow et al., 2007; Wayman et al., in press; Wayman & Stringfield, 2006; Young, 2006).

We also considered the focus on data in a larger context than state test results to be a strategy that many principals would find familiar. We understand there must be many principals nationwide who only focus on state tests; we are well aware of research that shows this, often with negative outcomes (e.g., Darling-Hammond & Heilig, 2008; Valli & Buese, 2007). We also understand that the two-decade push in Texas for accountability and the post-2001 requirements of No Child Left Behind have put test-based accountability at the forefront of district's and principals' minds. However, we argue that it is more familiar for principals to focus their school's data use on a larger data context. One reason is that principals already have access to the additional data that allows teachers to focus on the "whole" student, such as disciplinary data, learning plans, tests, quizzes, and teacher observations – data that most have been using in some form for their whole careers. Second, research has shown that educators often find state test data

(or any single form of data) insufficient (Datnow et al., 2007; Ingram et al., 2004; Supovitz & Klein, 2003; Wayman & Stringfield, 2006). Thus, we feel it is perhaps inevitable that this information is not enough for principals to determine the needs of their students, so they may feel compelled to go look for other, supporting data.

Implications

The results of our study carry some implications for principal leadership and principal preparation. First, there are 10 strategies in our inventory that went largely unused by our principals. With the exception of fostering common understandings and ensuring professional learning opportunities, none of these strategies received more than 10 mentions. In fact, there was no evidence that principals were employing strategies that embedded data use into the everyday work of their teachers. Keeping with our earlier characterization of familiarity, it is possible that these less-used strategies are less familiar to principals – or less-easily implemented.

Second, it is important to acknowledge an underlying assumption of our study, that principals should use a variety of strategies to lead their faculties in using data. This assumption is defensible, because these are strategies that research shows is effective. However, we also acknowledge that it is possible that principals may not choose to – or be able to – employ more than a handful of strategies.

Third, we believe these results hold implications for leadership preparation. If we are correct in speculating that principals employed these strategies because they were familiar, it is logical to assume they probably were not prepared to implement other strategies. We forward that leadership preparation programs should explicitly prepare principals in strategies such as these, such that candidates enter the field familiar and adept with all forms of leadership

strategies for data use. Similarly, districts can also provide ongoing professional learning of this sort for principals.

Finally, we acknowledge that these principals all work in Texas, an accountability-driven state. However, we do not believe these results are a "Texas thing." In fact, the results of this study are similar to that of other studies around the nation – similar to what Datnow and colleagues found in California (Datnow et al., 2007), Supovitz found in Florida (Supovitz & Klein, 2003), and Wayman and colleagues found in both Wyoming and Arizona (Wayman et al., 2007; Wayman, Cho, & Shaw, 2009). Thus, while these results should not be used to infer directly to the entire population of principals in the United States, they line up well with other studies from around the nation.

References

Abbott, D. V. (2008). A functionality framework for educational organizations: Achieving accountability at scale. In E. Mandinach & M. Honey (Eds.), *Data driven school improvement: Linking data and learning* (pp. 257–276). New York: Teachers College Press.

Anderson, S., Leithwood, K. & Strauss, T. (2010). Leading data use in schools: organizational conditions and practices at the school and district level. *Leadership and Policy in Schools,* 9, 292-327, DOI: 10.1080/15700761003731492.

Boudett, K. P., City, E. A., & Murnane, R. J. (2005). *Data wise: A step-by-step guide to using assessment results to improve teaching and learning*. Cambridge, MA: Harvard Education Press.

Breiter, A., & Light, D. (2006). Data for school improvement: Factors for designing effective information systems to support decision-making in schools. *Educational Technology and Society, 9*(3), 206–217.

Brunner, C., Fasca, C., Heinze, J., Honey, M., Light, D., Mandinach, E. et al. (2005). Linking data and learning: The Grow Network study. *Journal of Education for Students Placed At Risk, 10*(3), 241–267.

Choppin, J. (2002). Data use in practice: Examples from the school level. Paper presented at the annual meeting of the American Educational Research Association, New Orleans, LA.

Copland, M. A. (2003). Leadership of inquiry: Building and sustaining capacity for school improvement. *Educational Evaluation and Policy Analysis*, *25*(4), 375-395.

Deike, M. A. (2009). The principal as an instructional leader within the context of effective data use. Unpublished doctoral dissertation, University of Texas at Austin.

Datnow, A., Park, V., & Wohlstetter, P. (2007). Achieving with data: How high-performing school systems use data to improve instruction for elementary students. Los Angeles: University of Southern California, Rossier School of Education, Center on Educational Governance.

Goodnow, E. J. (2011). The relationship between the theory of transformational leadership and data use in schools: An exploratory study. Unpublished doctoral dissertation, University of Texas at Austin.

Halverson, R., Prichett, R., Grigg, J., & Thomas, C. (2005). The new instructional leadership: Creating data-driven instructional systems in schools. (WCER Working Paper No. 2005-9). Madison, WI: Wisconsin Center for Education Research. Retrieved from http://eric.ed.gov.ezproxy.lib.utexas.edu/PDFS/ED497014.pdf.

Herman, J., & Gribbons, B. (2001). Lessons learned in using data to support school inquiry and continuous improvement: Final report to the Stuart Foundation. Los Angeles, CA: University of California, Center for the Study of Evaluation (CSE).

Huffman, D., & Kalnin, J. (2003). Collaborative inquiry to make data-based decisions in schools. *Teaching and Teacher Education, 19*(6), 569–580.

Ingram, D., Seashore Louis, K., & Schroeder, R. G. (2004). Accountability policies and teacher decision making: barriers to the use of data to improve practice. *Teachers College Record*, *106*(6).

Jimerson, J.B. (2011). "Doing data": Addressing capacity for data use through professional learning. Unpublished doctoral dissertation. Austin: University of Texas at Austin.

Kerr, K. A., Marsh, J. A., Ikemoto, G. S., Darilek, H., & Barney, H. (2006). Strategies to

promote data use for instructional improvement: Actions, outcomes, and lessons from three urban districts. *American Journal of Education, 112*(4), 496–520.

Knapp, M. S., Swinnerton, J. A., Copland, M. A., & Monpas-Huber, J. (2006). *Data-informed leadership in education.* Seattle, WA: University of Washington, Center for the Study of Teaching and Policy.

Lachat, M. A., & Smith, S. (2005). Practices that support data use in urban high schools. *Journal of Education for Students Placed At Risk, 10*(3), 333–349.

Long, L., Rivas, L. M., Light, D., & Mandinach, E. B. (2008). The evolution of a homegrown data warehouse: TUSDStats. In: E. B. Mandinach & M. Honey (Eds.), *Data-driven school improvement: Linking data and learning* (pp. 209–232). New York: Teachers College Press.

Marsh, J. A., McCombs, J. S., Martorell, F. (2010). How instructional coaches support data-driven decision making: Policy implementation and effects in Florida middle schools. *Educational Policy, 24*(872).

Park, V. & Datnow, A. (2009). Co-constructing distributed leadership: District and school connections in data-driven decision-making. *School Leadership and Management 29*(5), 477-494.

Supovitz, J. A., & Klein, V. (2003). Mapping a course for improved student learning: How innovative schools systematically use student performance data to guide improvement. Philadelphia: Consortium for Policy Research in Education.

Wayman, J. C., Brewer, C., & Stringfield, S. (2009). Leadership for effective data use. Paper presented at the 2009 Annual Meeting of the American Educational Research Association, San Diego, CA.

Wayman, J. C., & Cho, V. (2008). Preparing educators to effectively use student data systems. In: T. J. Kowalski, & T. J. Lasley (Eds.), *Handbook on data-based decision-making in education* (pp. 89-104). New York: Routledge.

Wayman, J. C., Cho, V., Jimerson, J. B., & Snodgrass Rangel, V. W. (2010). The data-informed district: A systemic approach to educational data use. Presented at the 2010 Annual Meeting of the American Educational Research Association, Denver, CO.

Wayman, J. C., Cho, V., & Shaw, S. (2009). First-year results from an efficacy study of the acuity data system. Austin, TX: The University of Texas at Austin.

Wayman, J. C., Jimerson, J. B., & Cho, V. (2011). Organizational considerations in educational data use. *Paper presented at the 2011 Annual Meeting of the American Educational Research Association, New Orleans LA.*

Wayman, J. C., Cho, V., & Johnston, M. T. (2007). The data-informed district: A district-wide evaluation of data use in the Natrona County School District. Austin: The University of Texas.

Wayman, J. C., Shaw, S. M., & Cho, V (2011). Second-year results from an efficacy study of the acuity data system. *Austin: Authors.*

Wayman, J. C., & Stringfield, S. (2006). Technology-supported involvement of entire faculties in examination of student data for instructional improvement. *American Journal of Education*, *112* (August 2006), 549-571.

Wayman, J. C., Stringfield, S., & Yakimowski, M. (2004). Software enabling school improvement through the analysis of student data. Baltimore, MD: Johns Hopkins University Center for Research on the Education of Students Placed At Risk

Valli, L., & Buese, D. (2007). The changing roles of teachers in an era of high-stakes accountability. *American Educational Research Journal, 44*(3), 519–558.

Young, V. M. (2006). Teachers' use of data: Loose coupling, agenda setting, and team norms. *American Journal of Education, 112*(4), 521–548.

Tables

Table 1
Principal Leadership Strategies that Facilitate Faculty Data Use

Strategy	Description
Ask the right questions	Providing support that enables educators to identify relevant problems and choose appropriate approaches to these problems.
Communication	Using a variety of strategies that clarify for staff and parents how data are used. Strategies may include informal discussion, memos, letters, speeches, etc.
Data system support	Providing opportunities for staff members to learn how to use data systems in ways that help get information from the data and improve their practice.
Distributing leadership	Creating opportunities and structures that allow other educators to perform data-related tasks that were typically done by the principal or that enable educators to create new data-related processes and activities.
Engaging in personal learning opportunities	Principals themselves improving their personal data skills. Examples may include literature and reports on effective data use, learning from other leaders, or attending workshops.
Ensuring adequate professional learning opportunities	Making sure that educators engage in frequent professional learning opportunities that are immediately relevant to work. These may be on- or off-campus and may be conducted by campus-based individuals.
Facilitating collaboration around data	Working directly with faculty to use data to solve problems and structuring ways for teachers to work together on data issues specific to their practice.
Focus data on larger context	Ensuring that data use campus-wide goes beyond high-stakes tests to examine the broad spectrum of student learning and deals directly with practice, pedagogy, and content knowledge.
Fostering common understandings	Creating opportunities to build shared definitions and ideas regarding teaching, learning, and how data serve these.

Table 1 cont.
Principal Leadership Strategies that Facilitate Faculty Data Use

Strategy	Description
Goal-setting	Setting benchmarks for students and faculty to meet during the course of the school year; tailoring data use to support attaining those benchmarks.
Modeling data use	Allowing faculty to see the principal themselves using data in effective ways.
Structuring time to use data	Scheduling dedicated time for campus faculty to examine data to inform practice and facilitate learning.

Table 2
Principal Leadership Strategies that Facilitate Faculty Data Use
Ranked Totals by Level

Strategy	Elementary Schools	Middle Schools	High Schools	Total
Focus data on the larger context	192 (31%)	78 (29%)	44 (28%)	314 (30%)
Facilitating collaboration around data	122 (20%)	45 (17%)	39 (25%)	206 (20%)
Distributing/delegating leadership	69 (11%)	25 (9%)	14 (9%)	108 (10%)
Fostering common understandings	60 (10%)	27 (10%)	16 (10%)	103 (10%)
Asking the right questions	39 (6%)	13 (5%)	7 (4%)	59 (6%)
Structuring time for data use	36 (6%)	13 (5%)	9 (6%)	58 (6%)
Ensuring adequate professional development opportunities	29 (5%)	20 (7%)	7 (4%)	56 (5%)
Modeling data use	20 (3%)	12 (5%)	7 (4%)	39 (4%)
Communication	19 (3%)	8 (3%)	7 (4%)	34 (3%)
Data system support	10 (2%)	14 (5%)	4 (3%)	28 (3%)
Engaging in personal learning opportunities	15 (2%)	10 (4%)	0 (0%)	25 (2%)
Goal-setting	6 (1%)	4 (2%)	4 (3%)	14 (1%)
Total	617 (100%)	269 (100%)	158 (100%)	1,044 (100%)

Table 3
Principal Leadership Strategies that Facilitate Faculty Data Use
Ranked Totals by District

Strategy	Boyer	Gibson	Musial	Total
Focus data on the larger context	67 (34%)	83 (26%)	164 (31%)	314 (30%)
Facilitating collaboration around data	28 (14%)	76 (24%)	102 (19%)	206 (20%)
Distributing/delegating leadership	19 (10%)	25 (8%)	64 (12%)	108 (10%)
Fostering common understandings	19 (10%)	28 (9%)	56 (11%)	103 (10%)
Asking the right questions	9 (5%)	22 (7%)	28 (5%)	59 (6%)
Structuring time for data use	10 (5%)	22 (7%)	26 (5%)	58 (6%)
Ensuring adequate professional development opportunities	13 (7%)	19 (6%)	24 (5%)	56 (5%)
Modeling data use	2 (1%)	18 (6%)	19 (4%)	39 (4%)
Communication	11 (6%)	9 (3%)	14 (3%)	34 (3%)
Data system support	17 (9%)	4 (1%)	7 (1%)	28 (3%)
Engaging in personal learning opportunities	2 (1%)	6 (2%)	17 (3%)	25 (2%)
Goal-setting	2 (1%)	2 (1%)	10 (2%)	14 (1%)
Total	199 (100%)	314 (100%)	531 (100%)	1,044 (100%)