Central Office Supports for Data-Driven Talent Management Decisions: Evidence from the Implementation of New Systems for Measuring Teacher Effectiveness

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Abstract

School districts increasingly push school leaders to utilize multiple measures of teacher effectiveness, such as observation ratings or value-added scores, in making talent management decisions, including teacher hiring, assignment, support, and retention, but we know little about the local conditions that promote or impede these processes. We investigate the barriers to principals' use of teacher effectiveness measures in eight urban districts and charter management organizations that are investing in new systems for collecting such measures and making them available to school leaders, and the supports central offices are building to help principals overcome those barriers. Interviews with more than 175 central and school leaders identify barriers in three main areas related to accessing measures, analyzing them, and taking action based on their analysis. Supports fall into four categories: professional development, connecting principals to sources of expertise, creating new structures or tools, and building a data-use culture. Survey analysis suggests that indeed principals in high-support systems perceive lower barriers to data use and report greater incorporation of teacher effectiveness measures into their talent management decisions.

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The growth of systems to collect and aggregate multiple measures of teacher effectiveness, including student test score-based metrics (e.g., "value-added") and rubric-based classroom observations, is among the most important education policy shifts of the last decade (Grissom & Youngs, 2016). Even as practitioners, policymakers, and researchers grapple with interpretation of these measures, school leaders are expected to use them to inform decision-making. A growing

literature examines data-driven decision-making in schools, with a focus largely on instructional decisions (e.g., Datnow, Park, & Wohlstetter, 2007; Feldman & Tung, 2001; Kerr, Marsh, Ikemoto, Darilek, & Barney, 2006; Marsh, Pane, & Hamilton, 2006; Supovitz & Klein, 2003; Wayman, 2005). Our focus is instead on the use of teacher effectiveness data for talent management decisions, a topic research has only recently begun to investigate in depth (e.g., Goldring et al., 2015; Cohen-Vogel, 2011). By *talent management*, we mean decisions related to teacher staffing and support, including hiring, assignment, professional development (PD), and contract renewal or dismissal. Presumably, thoughtful use of high-quality teacher effectiveness measures can improve talent management decisions in ways that elevate teacher quality and instructional delivery. Yet numerous studies have demonstrated that simply collecting measures and making them available to users is far from sufficient for ensuring that data are utilized for decision-making (see Goren, 2012; Marsh, 2012; Marsh, Pane, & Hamilton, 2006). Failure to understand the institutional and individual obstacles to principals' use of teacher effectiveness measures—and thus how school systems can address those obstacles—risks wasting an important source of leverage for school improvement.

To this end, our work builds on recent research on schools' use of data to drive decisions and the growing understanding that data-driven decision-making is a system-level challenge that requires coordinated effort (Firestone & Gonzalez, 2007; Honig & Venkateswaran, 2012; Marsh et al., 2006; Wohlstetter, Datnow, & Park, 2008). Data use is complex, and consistent, effective use for decision-making requires central systems to support users at multiple stages, through tools, human resources, and new organizational routines (Marsh, 2012; Spillane, 2012). Despite agreement that central office or other system support is essential to improve data use, not much is known about the types of support that are most effective or how they are best structured (Farrell, 2015). The limited research that does exist suggests that providing adequate support around data-driven decision-making is fraught with

challenges (Firestone & Gonzales, 2007; Marsh, 2012). For example, tensions may exist between system supports and expectations for data use and autonomy at the site level (Wohlstetter, Datnow, & Park, 2008). There may be difficulties in developing tools or supports that are tailored to a particular context yet generic enough to be shared among data users (Marsh, 2012).

The goal of this study is to investigate the barriers principals face in making effective use of the data ostensibly available to them for informing talent management decisions in their schools, and the strategies central offices are employing to help principals overcome those barriers. A small evidence base suggests that some principals utilize test scores, growth metrics, and observation measures in hiring and assigning teachers (Cannata et al., in press; Cohen-Vogel, 2011; Cohen-Vogel, Osborne-Lampkin, & Houck, 2013; Dieterle et al., 2015), placing them on improvement plans (AUTHOR, 2016; Donaldson, 2013), and identifying teachers to dismiss or counsel out of the school (Cohen-Vogel, 2011; Jacob, 2011; Master, 2014), though also that there is great variation in principals' data usage in these processes (AUTHOR, 2014). Research on other kinds of educator data use provides insights into why some principals engage heavily in data-driven personnel decisions and others do not, including differences in data literacy and comfort with the technology of data systems (Mandinach & Honey, 2008). However, much remains to be learned in this area.

Research on systems of support for principal data use is similarly limited, and nearly all such research focuses on data use for instructional improvement (e.g., Cohen-Vogel & Harrison, 2013; Datnow, Park, & Wohlstetter, 2007; Halverson, Grigg, Pritchett, & Thomas, 2007; Knapp, Swinnerton, Copland, & Monpas-Huber, 2006). We argue that the demands on leaders to use data to make talent management decisions are not strictly the same as those associated with instruction, and support needs differ as a result. In the area of talent management, the complexities of understanding, combining, and analyzing achievement outcomes, value-added scores, teacher observation ratings, and other

effectiveness measures join with the complexities of the technology for accessing and managing the measures, the various talent decisions to which they are applied, and organizational context—including routines, norms, and expectations—to produce particular leadership challenges. More purposeful attention to how system-level factors inform principal data use can provide direction to central office leaders seeking to assist principals in making data-driven talent management decisions.

We use a mixed-method approach (Johnson & Onwuegbuzie, 2004; Small, 2011) drawing on extensive interviews and surveys to delve into the barriers principals face in using teacher effectiveness data to make talent management decisions and the investments that different central offices are making to support principals to circumvent those barriers. More specifically, we address three questions. First, what are the primary challenges principals face in using teacher effectiveness measures for talent management decisions in their schools? Second, what support strategies are central offices implementing to circumvent those challenges? And finally, is there evidence that those strategies are gaining traction in influencing and assisting principals to better use teacher effectiveness measures in their decision-making?

We ground our investigation in a framework for understanding educator data utilization synthesized from earlier studies by Marsh (2012). Marsh (2012) describes data utilization as a progression of stages, which we adapt. First, the user must access or collect the raw data. In our case, this first stage might include principals logging in to the district's data dashboard to pull up teacher evaluation or student achievement data. Second, the data must be organized and analyzed, which converts the raw data into information, then further combined with the user's expertise to become actionable knowledge. As an example, a principal might sort teachers' scores on different domains of the district's teacher observation rubric in a spreadsheet to see which teachers might need to work on specific areas of practice with the school's instructional coach. Finally, this knowledge can be applied

to a decision or acted upon.[1] For instance, a principal might analyze multiple sources of effectiveness data over time in identifying struggling teachers to place on formal improvement plans. We refer to these steps as *access, analysis,* and *action*. Implicit in Marsh's (2012) discussion, and an explicit finding of our analysis that we detail later, is that barriers for users can arise at each of these stages. Thus, for school systems seeking to promote data use, increasing the likelihood of success means providing interventions to support data users at each stage of the process (Marsh, 2012).

These interventions or supports can take numerous forms. Data-driven decision-making fits into a larger information infrastructure of test-based accountability, an infrastructure that includes dynamic socio-cultural networks of people, technologies, and policies (see Anagnostopoulos, Rutledge, & Jacobsen, 2013). We explore the personnel, technological, and policy supports targeted at data-use barriers at the different stages of the data utilization process and provide some evidence on how they inform principals' reported practices.

Data and Analytical Approaches

Data for our analysis come from interviews with central office leaders[2] and principals in six urban school districts (Baltimore City Schools, Denver Public Schools, Hillsborough County (FL) Public Schools, Houston Independent School District, Memphis City Schools,[3] and Metro Nashville Public Schools) and two Los Angeles-area CMOs (Alliance College-Ready Public Schools and Green Dot Public Schools). We also draw upon data from a survey of all principals in 6 of the 8 systems.[4] Systems were chosen because each had been implementing a new system for collecting multiple

[1] Marsh (2012) conceptualizes the analysis stage as two distinct stages, which we combine. She also includes an additional step in which users assess the effectiveness of their decision, which we do not explicitly consider.
[2] Central offices in the two CMOs technically are referred to as "home offices," but for simplicity we refer to them as central offices throughout.
[3] Memphis City Schools (MCS) merged with the Shelby County School District in the summer of 2013. Our interviews were conducted with MCS personnel. Survey data were collected from principals in the consolidated Shelby County Schools.
[4] Two systems chose not to participate in the principal survey.

measures of teacher effectiveness for at least one year at the time data collection began, often with significant resources from foundations and/or Race to the Top grant funds. In each system, these measures included scores from rubric-based teacher observations, summary measures of student test score growth, such as "value-added" measures, and other student achievement-based measures, such as average classroom performance on standardized tests or end-of-course exams. Other measures, such as feedback from student surveys, were also utilized in some systems. Although the measures were similar across systems, personnel policies and structures differed. For instance, while all central offices had expectations that the data would be used to inform decision-making, there were differences in the degree to which they had codified policies about data use, the amount of autonomy afforded to principals, the amount of centralization in their personnel processes (e.g., in screening new teacher hires), the protections afforded to teachers in transfer or dismissal procedures, and the degree to which principals were explicitly held accountable for the quality of their staffing decisions (see Goldring et al., 2014; 2015). While the experiences of personnel in these school systems may not be representative of leaders in other districts/CMOs, their relatively early adoption of such multiple measures-based teacher effectiveness systems made them useful contexts to study implementation in this emerging policy reform area.

Interview Data

Our research team engaged in a multistage data collection approach beginning in the late fall of 2012. By examining organizational charts and consulting with a primary contact in each system,[5] the research team identified key informants in each central office—such as the superintendent, director of human resources (HR), director of research and accountability, and director of professional

[5] This person was usually the central office leader with most direct oversight of the teacher evaluation system or the district's teacher effectiveness strategy.

development—whose work intersected with HR, teacher evaluation, data systems, and principal supervision. Team members made in-person visits to each school system to interview these central office leaders. Each exploratory semi-structured interview lasted approximately one hour and covered topics related to talent management, teacher effectiveness measures, data systems, and support for school leaders in the system. Approximately 14 central leaders were interviewed in each system; the total number of central office participants was 110.

Based on a preliminary analysis of the central office leader interviews, we designed a semi-structured interview protocol for principals. In each system, we pseudo-randomly[6] selected 10 principals for interviews in the spring of 2013. Principal interviews covered a range of topics similar to those in the central leadership interviews, though with a focus on the principals' perceptions of their roles and the supports they received in using data and managing talent. A total of 76 principals were interviewed.

Survey Data

To provide evidence on the degree to which the conclusions from the interviews generalized across schools, in the fall of 2013, we implemented a survey of all principals in 6 of the 8 systems. Survey response rates across the 6 systems ranged from 73% to 91%. Survey questions, which were based on our initial analysis of the principal interview data, included four sets of items utilized in this analysis. First, principals were asked to rate a list of potential barriers to their use of teacher effectiveness measures for talent decisions on a four-point scale from *not a barrier* to *strong barrier.* Second, they were asked how often they use different types of teacher effectiveness measures,

[6] Principals were randomly chosen from a list of schools that we first stratified on school level and poverty to ensure representation across these variables. In some cases, scheduling problems or other school circumstances necessitated substitutions of schools on the original randomized list. In these cases, replacements were randomly selected. In a few cases, principals who were not able to be interviewed during on-site visits were interviewed later by phone.

including observation ratings and student growth/value-added measures, for making talent decisions, using a seven-point scale ranging from *never* to *daily.*[7] Third, principals were asked how important different teacher effectiveness measures are in teacher hiring decisions in their school, using a four-point scale from *not a factor* to *very important*. Finally, principals were asked a similar question about decisions regarding assignments of teachers to grades, subjects, and students, using the same scale.

Analysis

Our mixed-methods analysis proceeded in two steps. First, interviews were transcribed verbatim and analyzed using a thematic coding approach (Charmaz, 2014). The initial coding scheme was guided by the research proposal and subsequently revised through an iterative process (Corbin & Strauss, 2008; Le Compte & Schensul, 1999); members of the research team coded a sample of central office and principal interviews, and then revised the coding scheme to address questions and concerns that emerged. Researchers also compared coding to ensure consistency in application of codes and wrote analytical memos to capture nuance and further develop the analysis. These memos were considered alongside the coded data during synthesis of findings (Corbin & Strauss, 2008). Thematic coding led to the emergence of patterns across systems, including broad categories of barriers to data use that were common across systems, though details of how these barriers operationalized and how systems addressed them varied from place to place. Quotes from respondents included in our discussion help illustrate and provide richer descriptions of these common themes.

Second, we developed a scoring scheme to assess the degree of support provided by each system for principal data use in the area of talent management. As described in the Appendix, members of the research team read across principal and central office interview data and made holistic judgments to give each system a support score on each of four dimensions, each ranging from 1 to 4

[7] The scale values are shown in Table 3.

(resulting in total scores from 4 to 16). Based on an inspection of the distribution, districts/CMOs were then categorized as *low* (score of 6 or below), *medium* (score of 7 to 11), or *high* (score of 12 or higher) *support.* Among the six systems for whom survey data were available, two systems were assigned to each category.

We used these categories to assess whether principals' use of teacher effectiveness measures and their perceptions of barriers to that usage varied by central support. We estimated simple regression models of survey-reported use or barriers as a function of central support (categorical) and a handful of covariates to control for characteristics of the school environment that might affect perceptions, including school level (e.g., elementary), enrollment size, school demographics (i.e., percent black, percent Hispanic), and the principal's reported years of experience leading the school.[8]

Barriers to Principal Data Use

Each of the eight systems had made substantial investments in collecting data to measure teacher effectiveness (see AUTHOR, 2014). Each also had developed centralized systems for creating measures from those data and making them available to principals via online portals or other means. Yet creation and technical availability of the measures provide only the foundation for data usage. Applying Marsh's (2012) conceptualization of data utilization as a multistage process to our interview data, we identify at least three additional steps. The first is *access*: principals must be able to put their hands on the measures. The second is *analysis*: principals need to be able to organize and filter the measures and combine them with their own understanding of their school's context to produce actionable knowledge. The third is the *action* itself: principals need to be both capable of and empowered to apply that actionable knowledge to actual decisions.

We use these stages to categorize data-use barriers. Principals described a number of barriers to using teacher effectiveness data for talent management decisions within each of these three stages.

[8] Standard errors in these models are clustered at the district level.

These barriers were present to some extent across systems. The most common were gaps in their skills or knowledge related to data access, data analysis, or how to apply data to decisions; the misaligned timing of data availability with decision timelines; and a scarcity of time for analyzing and utilizing data. We illustrate these barriers below.[9]

Barriers to Access

Prior studies have pointed out the lack of technical infrastructure for data delivery as an access barrier, particularly in rural districts without data systems (Marsh et al., 2006). Yet even in the large, urban districts in our sample, each of which had invested heavily in data systems—often more than one—for managing student and teacher data and making them available to school personnel, principals still reported important barriers to data access. These barriers fall under three main areas: the lack of integration between numerous data systems, gaps in skills and knowledge among principals about how to access data and what is available, and the poor timing of data availability.

First, many principals expressed frustration with not having teacher effectiveness data made readily available to them. As one principal expressed this frustration, "If I want certain things, I have to go here to get it for this, print or save because it's probably a PDF or Excel document. Then go from here to get that one, from here to get that one, and then make something else or copy and paste it…and then sort. Then I have that one person's info in one location versus separate ones. So yeah, it's not combined. It's hard to get a combined report, especially by teacher." Another principal explained how this lack of coordination hinders talent management decision-making: "I had to go to three different websites to get this information…. I need it all in one place. And then with my student achievement scores, I could only get on our [data system] and…get individual reports of kids. I couldn't find all of

[9] Principal survey responses regarding the strength of barriers to data utilization were consistent with these observations. Importantly, in an analysis of variance of these responses, we found that what system a principal was located in generally explained little of the variation, suggesting that these barriers are more or less present across the systems.

them together." Principals often are required to engage with multiple data systems, and the measures produced by one system are difficult to combine with measures produced by another. Given scarce time, principals often are unable to pull all of what they need together.

Technology hurdles combine with a lack of knowledge to hinder some principals' abilities to access and use teacher effectiveness data. One principal described a frequent complaint: "I think one of the things that's lacking…is there isn't a lot of training to access the systems…. I still don't know the ins and outs…I'm tripping over trying to get a report…that takes a whole lot for somebody walking into a leadership role to do all that backtracking… So for me to access data, it's taken me a while to figure out where I can simply get something…and then part of is I don't even know, necessarily, what's out there…."

An additional barrier to access that impedes data use is timing. A principal explained: "The district does provide data at different times for us, and sometimes it's not the timeliest. In one principals' meeting we were given the [value-added measures] of the school, the teachers' [test scores], but it was in January. We needed that back in August. So, it's useful data, but not timely data." Measures often arrive after decisions need to be made, especially with student growth and value-added measures, which typically must be returned from the state.

Barriers to Analysis

Principals must also be able to organize and filter the measures, combine them with their understanding of context, and analyze them to uncover meaning and produce actionable knowledge (Marsh, 2012). Studies have recognized limited educator capacity for asking appropriate questions of data, manipulating measures, and interpreting results as key barriers to effective data use (Kerr et al., 2006). We found such barriers to be significant as well. In the face of low capacity, scarce time to learn

necessary skills or muddle through analysis compounded the problem. According to one principal, "They show us stuff at our principals' meeting, but they don't really have time to get in there and really work with us, how to log in, how to go to those reports. They have 30 minutes or an hour, so you don't really have the time…I mean they show you how to do it and you do it, but [not enough to] dig into it and do it enough to remember..." We asked one principal identified by the system's central office as proficient in data use what he believed facilitated his use. He responded that already knowing how to use Microsoft Excel, which many of his fellow principals did not, was key: "Being able to organize data, and make charts and graphs, and take all of the data and look at only the pieces that you want to look at saves a lot of time that then you can use to be actually thinking about what the data is saying." Developing the skills required to effectively analyze data takes ongoing support and requires that principals have the time to repeatedly work with data to master the needed skills.

We often observed a lack of ongoing, embedded support where principals worked with their own data. Here a principal articulates the desire for such supports: "We need to really analyze lots of data, but we can't just look at [it] once. We need to continually reflect and revisit. And so if there was someone who could walk us through what we should be looking at [and] giving us guiding questions, I think all of us could do it. But it's just having something there that we can readily pull and not have to wait because once you wait, you're going to forget…instead of [acting] and doing something with the data…I don't think we analyze data enough or as regularly as we can." These principals were not data-use averse; rather they desired ongoing support to make data useful.

Barriers to Action

Even with appropriate analysis, principals must apply what they learn to decisions for teacher effectiveness measures to impact school management. This application, however, comes with a variety

of challenges (see Coburn & Turner, 2011; Marsh et al., 2006; Spillane, 2012). For principals in our study, time is a particular burden at this stage; as one principal succinctly put it, "We have tons of data. No time to use it." The feeling of drowning in data was substantially more common than a need for additional data. Given time constraints, principals desire guidance in how to apply information in meaningful ways. As this principal explained, "I feel we have the tools already. It's just about using the tools with a purpose. I think it would be helpful if we had continued supports about purposeful use of the tools and the data, continuing to constantly talk about: how are we using this data? Why are you using this data source? What do you want to do with this data source? We have a lot of tools, and it can get overwhelming when you have too much. You don't want analysis paralysis." A proficient user of data explained, "It's really focusing on the question that you want answered, finding data that answers that question, and then answering it." Even when principals are able to derive meaning from the data, many do not know how to apply it to inform specific decisions. One principal described: "We get data like a fire hose…But after 5 or 6 hours of looking at numbers, it's like, 'Okay, so what was the piece now that I really need to pay attention to?'"

Many principals express discomfort with various measures of teacher effectiveness and are therefore reluctant to base decisions upon the scores (Goldring et al., 2015). For example, principals typically discount information obtained via surveys of parents, teachers, and students. One principal said the following about teacher survey data: "Peer feedback is always over-inflated. And I'm saying not just inflated, but over-inflated. It's all about, 'my colleague is amazing, wonderful.' You know it's not the case…but I think that it's the culture of teachers. You support one another." A few principals perceive a lack of transparency and inconsistencies with observations, as suggested by one principal who noted, "I consider myself a fairly competent principal, and I still don't understand the validity or the normings of some of the observations."

Principals are most concerned, however, about value-added measures, especially for teachers in non-tested grades and subjects. Explains one principal: "I think of a teacher I just did a conference with yesterday. She was a [level] one, and I cannot still figure out how she was a one. I've looked at her data…she should at least be a three…Her practice is very good…I've had district people come in. Her instruction is very sound. So we were all kind of mystified how she was a one." Questions about the validity of the measures among teachers further complicate the use of the measures for decisions: "The value-added scores, because they're so elusive to all of us, you know, no one can really explain them and that's just the animal that it is, right? And so, they feel like that there's something behind those scores that isn't fair." Teacher pushback produces reluctance among some principals to base decisions on measures that are not fully trusted.

Central Supports for Principal Data Use

As we learned in our central and school leader interviews, central offices in our study are making a number of investments to overcome these barriers to data-driven talent management, which generally fall into three categories: PD, connecting principals to expertise, and changing institutional procedures within the district. Table 1 shows each of these categories with examples of how each set of supports targets barriers in the areas of access, analysis, and action. The figure also shows a fourth category, which we call *building a data use culture*, that cuts across these categories. We discuss each of these support areas in turn.

Professional Development

A major area of investment aimed at filling principal skill and knowledge gaps is PD and training. Systems are providing training around access that include the logistics of the data system, how to locate reports created by the central office, and how to obtain prior years' data when current

data are unavailable. Central offices assist principals in gaining analysis skills by showing them which data to use and when, helping them to balance multiple measures to gain a robust understanding of teacher performance, teaching them the technical skills required to work with data, and demonstrating how to draw appropriate conclusions and avoid pitfalls of misinterpretation. Strategies for overcoming barriers hindering action include training principals on how to explain and build trust in the measures so they feel empowered to use them and explain their decisions to teachers. A particular training around communication that several systems offered was how to have difficult or "fierce" conversations with teachers about their performance grounded in measures of their effectiveness. Many principals described this training as particularly useful in easing their own apprehensions and helping them use the measures productively with their teachers, many of whom had been used to pro forma satisfactory ratings prior to the implementation of the new multiple measures evaluation system and were not used to meaningful critique for improvement.

Beyond specific training *topics*, principals described modes of PD they found most beneficial. These were reflective of literature on effective PD for teachers, with principals desiring PD that is job-embedded, ongoing, and tailored to their individual needs (e.g., Desimone, 2011; Guskey, 1986, 2002; Yoon, Duncan, Lee, Scarloss, & Shapley, 2007). Many principals described having sat through a "one-shot" training but not having retained what they learned; they wanted training that circled back to the same topics at different points when relevant to the kinds of decisions they were making at that time. They also wanted training that allowed them to use their own school's data so they could learn by trial-and-error, as well as opportunities to collaborate with their principal colleagues to learn from others' approaches. Some central office leaders were hearing these needs, as typified by this description of a principals' workshop to develop school-wide PD plans: "…this summer we had a session on creating your professional development plan for your school. [Principals] brought in their teacher summary

reports, their student achievement data, and we did an actual hands-on workshop where they mapped out what would [PD] look like for a year in a school having all these observation summaries at our fingertips." Several central office leaders also emphasized the importance of repeatedly training and reminding principals about where to turn for assistance at any of the access, analysis, and action stages.

Connections to Expertise

Several of our participating systems had markedly changed organizational structures to provide data-use assistance to principals and other personnel. Some had redeployed specialized central personnel to work more closely with and provide expertise to schools in positions such as data coaches and school support officers. These professionals were often organized as a support team for schools. A benefit of this redeployment is clarity for principals about where to go for assistance when needs arise. For example, data coaches, traditionally focused helping teachers use student data, assist principals as well, especially with one-on-one support to learn how to use data systems and analyze data.

Principals found HR partners or liaisons particularly helpful in applying data to talent decisions. These resource personnel specialize in talent management, know HR procedures, and can guide principals through appropriate data use in HR processes. In some systems, for example, they help assess hiring needs, comb through hiring pools, and gather and analyze candidates' effectiveness data. They also walk principals through the steps involved in putting teachers on assistance plans, documenting teacher improvement with data, and moving towards contract nonrenewal if necessary.

Other systems connect principals to expertise by creating principal networks, often led by a senior principal with an exemplary record, to provide coaching and encourage informal principal collaboration around data use and other areas. Teacher effectiveness data use for talent decisions is an increasingly important network topic. Another approach to coaching principals has been to refashion

the position of principal supervisor or area director as a support role that includes encouraging and assisting with principal data utilization.

New Institutional Procedures or Tools

To facilitate principal data use, districts can also implement tools and procedures that simplify and clarify data use and talent management procedures. Principals often noted the need to "make it easier." For example, one principal told us: "Somebody should just pull it all together and say, 'Hey, this is [the data] we have for teacher hiring. These are some of the reports that you should look at.' That's really never been done before." Although we encountered numerous examples of institutional changes to facilitate data use (e.g., data dashboards, data reports organized by talent decision area), here we highlight three examples of changing how the system does business to streamline principals' decision processes and encourage data-driven talent decisions.

The first example is one system's comprehensive hiring process, which balances central involvement with principal autonomy. Central staff rigorously screen candidates, then provide principals with information collected about the candidate pool. For within-system transfer applicants, principals are provided candidates' prior effectiveness information. Principals trust the quality of the screening and information provided ("I live by that data"), which they then use to invite candidates to school interviews. Principals are trained to score demonstration lessons according to the same rubric used for teacher evaluations. Principals described this data-rich process as improving the quality of the teachers they hire.

The second example highlights work to aid principals in guiding teachers' professional development. Central staff directly aligned PD offerings with indicators on the teacher observation rubric. Each PD resource, tagged to address specific elements associated with strong teaching

practices, is listed by indicator on a web site. Principals then use the PD resource to recommend specific PD offerings to teachers seeking to improve in areas identified in their own observation data. In sum, alignment encourages targeted teacher support.

A third example shows one system's efforts to identify teacher support needs and remove low performers. Each fall, central personnel help principals pull together indicators of teacher effectiveness (e.g., value-added scores, three years of final evaluation ratings) for every teacher. Central and school leaders then discuss each teacher, identifying less effective teachers and planning individualized supports and PD to get them to specified performance benchmarks. For teachers not able to demonstrate improvement, the review process includes discussions with school support personnel and legal counsel to determine whether termination is warranted and, if documentation is lacking, coach principals on additional steps to take before a case for termination can proceed.

Building a Data Use Culture

Several systems have worked to create a district culture where data use is the norm. Changing culture is challenging, ill-defined work, but we identified several markers. Central leaders in these systems talk often about data. They model data use by having it inform their own decisions (Honig & Coburn, 2008) and communicate that process to school leaders in principals' meetings and other venues. They also set and communicate clear expectations for principals' engagement with data in various facets of their work. Principals in these systems described knowing definitively that they were supposed to make use of data for decisions.

Central leaders also hold principals accountable—often informally—for basing talent decisions on observation scores, value-added, and other measures. In one system, the superintendent was known to call principals seemingly randomly to ask about the basis for recent hiring decisions. Principals were

not bothered by this checking-in because expectations were clear and because the superintendent's own personnel decisions were similarly guided by effectiveness data. As in other systems, teacher effectiveness measures were becoming key criteria for moves into leadership. Other systems are beginning to track teacher effectiveness data amongst newer hires to identify principals who consistently hire strong teachers, and conversely, those who hire a disproportionate number of teachers who are moved to improvement plans or terminated from the district. Some districts monitor teacher effectiveness data to determine the frequency that members of support networks (e.g., data coaches) are deployed to work in schools. Also, at least one system is fine-tuning recruitment efforts by using data to concentrate recruiting time and resources at universities producing larger numbers of teachers who later demonstrate effectiveness.

Is Principal Data Usage Higher in High-Support Systems?

To provide descriptive evidence on whether schools' use of teacher effectiveness measures for talent management decisions varies according to the level of central support provided, we complement data from the interviews with the principal survey data, which capture perceptions regarding data use quantitatively across (nearly) all principals in the district. We first investigate whether principals' perceptions of the barriers to their utilization of teacher effectiveness measures varies by the level of central office investment in supporting principal data use, with districts/CMOs categorized as *low*, *medium*, or *high* support.

Table 2 reports predicted mean values for low-, medium-, and high-support systems for seven barriers. The table shows that principals generally perceive largest barriers as related to timing of data availability, teacher perception of measure validity, time required to use measures, and autonomy in decision-making. Also, in all but two cases, principals in high-support systems perceive lower barriers to their use of effectiveness measures than principals in low-support systems. The exceptions are

barriers related to data systems, where low- and high-support systems are similar and, in fact, medium-support systems face the greatest barriers, and issues related to time, which are similarly challenging for principals across systems. Differences between low- and high-support systems are particularly large for barriers related to autonomy and teacher trust of measure validity. The finding that principals perceive greater trust of teacher effectiveness measures in high-support systems stands in contrast to prior studies reporting general skepticism of these measures (AUTHOR, 2015).

Next, we ask whether these lower barriers translate into differences in reported usage. Table 3 shows the results; the set-up is similar to Table 2. The first set of items pertains to frequency of usage of teacher effectiveness measures for talent decisions in general. Presumably, more frequent usage would suggest more consistent usage in various areas of talent management decision-making throughout the school year. Principals report using teacher observation data much more frequently than growth data or composite evaluations. Use of observation data and growth data also are meaningfully higher in medium- and high-support systems than in low-support systems: nearly a full rating point for observations and half a rating point for growth data.[10] Differences in reported frequency of use for composite evaluation measures, which often are not made available to principals until the subsequent school year, are small and statistically insignificant.

Remaining items examine the weight principals give to teacher observations, student growth measures, and composite evaluation scores in hiring and assignment decisions. In every system, central office leaders articulated that principals were expected to consider teacher effectiveness measures to some degree in making these and other talent management decisions. The reported importance of each measure generally is similar, averaging around 3.5 (moderately-to-very important) for both hiring and assignment. There are, however, important differences by level of system support. For all three effectiveness measures, principals in low-support systems report placing the least weight on the

[10] The *p*-value for the difference between high- and low-support systems for growth data is 0.13.

measures in hiring decisions, and principals in the high-support system report the greatest weight; all differences between low- and high-support systems are statistically significant at the 0.05 level. Similarly, there are meaningful differences between principals in low- and high-support systems in their use of teacher observations and composite scores in assignment decisions, with greater support predicting greater emphasis on the measure. For student growth measures, the direction is similar, though differences between high- and low-support system principals are not statistically significant. Although clearly not causal, these results suggest that principals perceive fewer barriers to data utilization and prioritize data usage in decision-making in systems organized to provide greater support for such use.

Discussion and Conclusions

Findings from our interviews with central office leaders and principals in eight urban districts and CMOs investing heavily in systems to facilitate data-driven decision-making reinforce the idea that simply collecting data and making results available via a data management system are insufficient for ensuring that principals make use of the information. Principals face a number of barriers to incorporating teacher effectiveness measures into their talent management decisions. Our study identified barriers to the utilization of these measures in three areas adapted from an existing framework for understanding educator data use (Marsh, 2012): access, analysis, and action. Common themes among these barriers include challenges with technology, issues of data timing, insufficient principal skills or knowledge, and scarce time for data utilization. These barriers are thematically similar to many obstacles to teachers' use of student achievement and other data to make instructional decisions in their classrooms (e.g., Ingram, Louis, & Schroeder, 2004; Marsh, Pane, & Hamilton, 2006), suggesting that many of the challenges to effective data use, despite differences in the details of the data and decisions they inform, are common to actors throughout educational organizations (see

also Honig & Venkateswaran, 2012). More informed school-level decisions around teacher quality and teacher development that lead to greater student performance are a key selling point in the heavy investments currently being made in new systems to observe and evaluate teachers. These barriers constitute substantial implementation challenges to reaching that policy goal.

Some central offices are, however, building important supports for helping principals circumnavigate barriers to utilizing teacher effectiveness measures. These supports include creating principal professional development and training opportunities; building connections for principals to sources of expertise around data access, analysis, and talent management action; making structural changes to encourage data utilization; and engaging in practices to promote a general culture of data use in the district. Again, we see alignment with findings from research on actions principals take to support data use among teachers in their schools, which can include creating structural supports and tools, building human capital around data use, and creating a conducive school climate by, for example, setting expectations and holding teachers accountable for data use (e.g., Farrell, 2015; Levin & Datnow, 2012).

Moreover, evidence suggests that these investments are encouraging changes in principal behaviors around utilization of teacher effectiveness measures. Principals in systems with a high degree of support report not only fewer barriers to the use of teacher effectiveness measures in their talent management decisions, but more frequent engagement with the measures and greater emphasis on the measures in decisions around teacher hiring and assignment. These findings illustrate some ways in which school districts play a mediating role between higher level (state and federal) policies aimed at changing educator practice and decision-making in schools (Moss, 2012).

These results, then, suggest a way forward in realizing the goal of principals using teacher effectiveness measures to improve their hiring, assignment, development, and retention/dismissal

practices. Our results demonstrate the importance of designing supports for principals in tandem with the implementation of new evaluation systems. Principals cannot go it alone. Even the principals in our high-support systems wanted more training and more intensive assistance. As in other areas of data-driven decision-making, greater principal utilization of the measures created by new evaluation systems can be facilitated by more usable technology systems; focused training on the logistics of access and appropriate analysis; strategies for freeing up principal time through, for example, the distribution of leadership tasks; connections to resource personnel who can provide them with direct assistance with data; and streamlined decision procedures that incorporate effectiveness data (Feldman & Tung, 2001; Love, 2004; Marsh et al., 2006; Supovitz & Klein, 2003; Wayman, 2005).

These observations were generated from a study of a small sample of urban systems that were early adopters of multiple measures-based teacher evaluation systems. Other systems are likely to face many of these same challenges and others, particularly smaller systems with less central office capacity and those without the substantial philanthropic or federal investment that many systems in our study had received. Future research delving into the implementation difficulties principals face as these kinds of systems go to scale will be valuable for identifying new barriers and associated supports. We also acknowledge the limitations of relying on interviews and surveys to study data use, and suggest that future studies engage in close observations of principal data use in practice in their schools, which can yield new insights about data-use obstacles and institutional supports (Coburn & Turner, 2012; Little, 2012). Additionally, future studies would benefit from longitudinal data and the incorporation of teachers' perspectives, neither of which were available here. Future work might also begin to map the connections among central supports, data-driven talent management decisions, and outcomes, including changes in school culture, classroom instruction, and the distribution of teachers.

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Table 1: Examples of Central Office Supports to Address Major Barriers to Principal Data Utilization

<table>
<tr><th></th><th colspan="3">Categories of Data Use Barriers</th></tr>
<tr><th></th><th>Access</th><th>Analysis</th><th>Action</th></tr>
<tr><td>Implementing Professional Development or Training for Principals</td><td>Topics:
How to use the data system
Use of prior years' data when current year is unavailable
Where to turn for support/assistance</td><td>Topics:
Which data to use when
How to use data tools
How to draw appropriate conclusions
Where to turn for support/assistance</td><td>Topics:
Building trust around data use
Crucial or difficult conversations
Where to turn for support/assistance</td></tr>
<tr><td>Building Connections to Expertise</td><td colspan="3">Staff or groups to assist principals in each barrier category:
Data coaches
Human resources (HR) partners
Data-focused area directors/principal supervisors
Principal networks with focus on data use
Knowledge management teams</td></tr>
<tr><td>Creating New Institutional Procedures or Tools</td><td>Data dashboards
Data calendars aligned to talent decisions</td><td>Central data reports
Data reports organized by talent decisions</td><td>Alignment of professional development offerings to observation rubric
Fill-in forms for assistance plans
Check-in lists for teachers at risk for nonrenewal
Systematic teacher review processes</td></tr>
<tr><td colspan="4"><u>Cross-Cutting</u>: Building a Data Use Culture
Setting and communicating clear expectations
Formal and informal accountability for data use from the top
Modeling data use in central decisions</td></tr>
</table>

Table 2: Principals' Perceived Barriers to Use of Teacher Effectiveness Data for Talent Management Decisions

	Low Support	Medium Support		High Support	
Technology	1.84	2.47	***	1.87	
Lack of skills/knowledge to use data	1.67	1.91	**	1.47	**
Timing of data vis-à-vis decisions	2.91	2.92		2.38	**
Do not have time to use data	2.41	2.27		2.19	
Lack of autonomy over the decisions informed by data	2.42	1.84	**	1.64	**
Principal does not trust validity of data	1.73	1.98		1.22	*
Teachers do not trust validity of data	2.54	2.58		1.78	***

N ≈ 470 across items. Scale: 1 = Not a barrier, 2 = Minor, 3 = Moderate, 4 = Strong. Asterisks indicate statistically significant differences from Low Support group. * $p < .1$, ** $p < 0.05$, *** $p < 0.01$. Cells show predicted mean values for each group from a regression model that includes principal years of experience in the school, school level, enrollment size, percent students who are black, and percent students who are Hispanic.

Table 3: Principals' Reported Use of Teacher Effectiveness Data for Talent Management Decisions

	Low Support	Medium Support		High Support	
Frequency of Use for Talent Management Decisions (N ≈ 515 across items)					
(Scale: 1 = Never, 2 = Yearly, 3 = Quarterly, 4 = Monthly, 5 = Twice/month, 6 = Weekly, 7 = Daily)					
Teacher observation scores	3.56	4.39	**	4.41	*
Student growth measures or value-added	2.86	3.27	*	3.29	
Composite evaluation scores	2.62	3.12		2.96	
Weight Given in Teacher Hiring Decisions (N ≈ 515 across items)					
(Scale: 1 = Not a factor, 2 = Minor, 3 = Moderately important, 4 = Very important)					
Teacher observation scores	3.26	3.36	**	3.83	***
Student growth measures or value-added	3.41	3.67	**	3.73	**
Composite evaluation scores	3.36	3.51		3.72	**
Weight Given in Teacher Assignment Decisions (N ≈ 470 across items)					
(Scale: 1 = Not a factor, 2 = Minor, 3 = Moderately important, 4 = Very important)					
Teacher observation scores	3.32	3.34		3.66	***
Student growth measures or value-added	3.46	3.51		3.68	
Composite evaluation scores	3.20	3.38	**	3.59	***

Asterisks indicate statistically significant differences from Low Support group. * $p < .1$, ** $p < 0.05$, *** $p < 0.01$. Cells show predicted mean values for each group from a regression model that includes principal years of experience in the school, school level, enrollment size, percent students who are black, and percent students who are Hispanic.

Appendix: Matrix for Scoring Central Office Supports

Key: *TE = Teacher Effectiveness* *TM = Talent Management* *CO = Central/home office* *3As = Access, Analysis, Action*	**(1)** Not happening or happening to a very small extent.	**(2)** Some evidence practices are happening, or happening to a moderate extent.	**(3)** Many of these practices are in place. Others are in process of being designed/ implemented.	**(4)** A*lmost all* practices are actively in place and ongoing. CO continues to fine-tune supports and seeks additional ways to build upon/ improve these supports/practices.
Implementing Professional Development for Principals *Support for TE data* use is ongoing, job-embedded, allows principals to use their own data. CO facilitates opportunities for collaboration amongst principals. Principals receive ongoing training in each of the 3As.				
Building Connections to Expertise CO personnel proactively support principals' use of data. Principals are aware of whom to turn to when they need help. The CO is organized so that personnel such as data coaches, HR partners, etc. are available to work closely with principals *to support their use of TE data.*				
Creating/Changing Institutional Structures/Tools The CO is working to ensure data reports that can be used internally and by principals for TM decisions are available. The CO has developed procedures and tools, which they provide to principals to assist use of TE data for TM decisions (PIP plan templates, file review, etc.). The CO is working to align TM decisions to when data are available.				
Building a Data Use Culture There are clear expectations about the use of TE data use for TM decisions. The CO has formal and/or informal mechanisms that hold principals accountable for the use of TE data for TM decisions. The CO is using TE data in evaluation of schools and principals, identifying areas of needed support through TE data analysis.				