

Uncloaking the 'Shadow Army':
Understanding the Changing Role of Principal Supervisors

By

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To my teachers and professors
whose encouragement made this path possible.

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CHAPTER I

INTRODUCTION

The job of the school principal is changing. Over the last several decades, the focus of the principalship has shifted from managing buildings and student behavior to ensuring high-quality teaching and learning in classrooms (Hallinger, 1992; Neumerski, 2013). Despite growing awareness of the importance of developing principals' instructional leadership skills, little attention has been paid to improving the quality of support and supervision that principals receive from the district central office as one possible avenue for going support and development of principals. Recently, some urban districts have begun to reorient central office structures and roles toward providing high quality, tailored principal and school support (see Gill, 2013; Syed, 2015). Specifically, they have focused on revising the role of principal supervisors from one of compliance and management to one of coaching and support around instructional leadership.

Transforming principal support and supervision is a daunting task. Until recently, most sitting principal supervisors occupied a role that had changed little since the first days of school district consolidation (Sergiovanni & Starratt, 1998). Supervisors were traditionally left to their own devices to determine how best to manage their principals, as few districts provided training on how to provide effective support and leadership to them (Corcoran et al., 2013). Supervisors were also typically saddled with large caseloads of 24 principals or more (Casserly et al., 2013). Consequently, principals in districts across the country could expect to receive little to no professional development or instructional

leadership support from their supervisors and were unable to rely on them when they needed assistance with instructional matters.

Recent research has shown that principal supervisors can play an important role in supporting and developing principals' instructional leadership. District-level studies of the last several decades have argued that the capacity of those working in the central office is paramount to school improvement (Elmore, 1993; Marsh et al., 2005; Spillane & Burch, 2006). Honig (2008) linked certain principal supervisor practices with strengthened principal instructional leadership. These practices included differentiating of supports in response to principal capacity, modeling instructional leadership beliefs and actions, and developing and using tools that help principals engage in instructional leadership practices. Drawing upon this and other research, the Chief Council of State School Officers released the first set of Model Principal Supervisor Standards in 2015 (CCSSO, 2015). Districts that have made changes to the principal supervisor role to incorporate the growing understanding of effective supervisory practices have experienced large changes in the quality of support their principals receive. For example, principals in districts participating in the Wallace Principal Supervisor Initiative, which provided funds to six districts to overhaul their systems of principal supervision, reported more productive relationships with their supervisors that were increasingly focused on instructional leadership (Goldring et al., 2018).

Along with changing the role of principal supervisors directly, school districts have sought to reorient roles and structures in the central office to better support principal supervisors and the work of school support (Johnson & Chrispeels, 2010; Knapp, Copland, Honig, Plecki, & Portin, 2010). These reforms may extend beyond redefining

the principal supervisor role to encouraging cross-department collaboration with supervisors and their principals, restructuring of organizational processes to promote more efficient resource deployment to schools, and the creation of special central office support teams to assist supervisors in serving the neediest principals and schools (Goldring, Grissom, Rubin, Rogers, & Neel, 2018). In addition to structural and procedural changes, districts must also contend with changing the individual mindsets and practices of their own personnel.

There is presently no standard recipe for how districts might redesign the supervisory role. Common approaches include reducing the number of principals that each supervisor oversees, improving job-embedded training opportunities, and holding supervisors accountable for their work with principals (see Corcoran et al., 2013; Gill, 2013; Rainey & Honig, 2015). Nationally-recognized standards such as the 2015 Model Principal Supervisor Standards provide districts with a common blueprint from which to begin determining the competencies and practices they envision for their supervisors. These standards are only a launching point, however: Districts must still determine for themselves how to translate the standards into the everyday practice of helping principals improve school instruction.

The empirical research base on principal supervision is just emerging and has not thoroughly examined how districts and principal supervisors engage in the redesigned role. For example, recent research has shown that supervisors' view of their role as one of teaching rather than managing is associated with deepened principal leadership capacity (Honig & Rainey, 2014). Yet, more research is needed to understand how supervisors translate new expectations around instructional leadership into their work with principals,

or how principals respond to supervisors' new emphases and practices to assist them to become better leaders. In this dissertation, I address this gap by studying how principal supervisors interpret and enact their new role in the day-to-day, the extent to which the larger district organization supports the revised role of principal supervisors, and how this work influences principal performance. In particular, I ask:

1. What practices define principal supervisors' new role, and to what extent have these changed over time?
 - a. To what extent are practices standardized across principal supervisors?
 - i. Hypothesis 1a: Supervisor routine practices will become more standardized across principal supervisors over time.*
 - b. To what extent do principal supervisors specialize in instructional leadership in their work with principals?
 - i. Hypothesis 1b: Principal supervisor focus on instructional leadership will increase over time.*
 - c. To what extent do principal supervisors adapt their practices according to principal characteristics?
 - i. Hypothesis 1c: Supervisors vary their practices according to principal years of experience, performance, and/or school-level value-added.*
 - d. To what extent are principal supervisor practices related to principal ratings of supervisor effectiveness?
 - i. Hypothesis 1d: Principal supervisor practices are positively related to principal ratings of supervisor effectiveness.*

2. How does the district central office support principal supervisors in their new role?
 - a. How is principal supervisors' work integrated with the organizational goals and processes of the central office?
 - b. How is principal supervisors' work interdependent with other central office departments or roles?
 - c. How is the principal supervisor role differentiated from other central office roles?
3. To what extent are principal supervisors' practices and behaviors related to principal performance improvement?
 - a. *Hypothesis 3: Principal supervisor practices and behaviors are positively related to principal performance improvement.*

By addressing these questions and sub-questions, my aim is to develop an integrated understanding of how principal supervision fits into the mission of improving principal instructional leadership. This study, implemented in a mid-size urban district in the Southeastern United States over the course of 2016-18 and 2017-18, takes advantage of unique, multi-wave survey data that contain both principal supervisors' and principals' perceptions of the role during that time. The surveys capture supervisors' day-to-day work, such as time use, frequency and focus of visits to principals, and practices, as well as perceptions of supervisor and central office efficacy. I incorporate principal performance measures in the form of observation scores and teacher climate surveys, which I link to particular supervisor behaviors. I deepen quantitative findings with

qualitative interview data from central office personnel, supervisors, and principals.

Interview topics are similar to those addressed in surveys but pay particular attention to how organizational context shapes supervisor interpretation and enactment of the new role.

CHAPTER II

THE THEORY AND PRACTICE OF PRINCIPAL SUPERVISION

Defining Principal Supervision

Classical definitions of *supervision* refer to the act of overseeing another's work and "[ensuring] that management directives are carried through at the production level" (Rosen, 1982, p. 312). Comparable definitions of supervision emphasize the inspection and the gathering of performance information. The goal of supervision is to collect information about employee performance in order to assess whether the employee is meeting pre-determined expectations for productivity. This process can be described as "accountability": supervisors hold employees accountable by directing their actions, gathering information about their performance, and correcting them as necessary in the pursuance of organizational goals.

More modern theories of supervision have moved beyond the evaluative input/output-measuring aspects of supervision by focusing on the importance of relational aspects of the work, such as a supervisors' ability to motivate and stimulate employees, create trust among them, and instill a sense of team ownership. This supervision is sometimes called "developmental" (Glickman, 1985) or "collaborative" (Blase & Blase, 2003). The theory of action for these models is that supervisors are most effective at developing subordinates when they create supportive relationships in which subordinates feel comfortable receiving and acting on critical feedback.

Developmental supervision has been examined at length regarding principal instructional leadership of teachers (Glickman, 1985; Reitzug, 1997), but rarely at the principal supervisor level. Exceptions are Honig's (2008, 2012) and Honig and Rainey's (2014) qualitative studies of the role of central office personnel, including principal supervisors, in promoting principal instructional leadership. Using a framework of sociocultural and organizational learning theories, they find in each case that central office administrators who view their role as one of teaching and support, rather than overseeing, are more likely to engage in practices that are associated with improved adult learning and strengthened principal instructional leadership. Perhaps most distinctively, Honig (2012) shows that effective supervisors engage in "joint work" with their principals, in which they share and work toward mutual goals as partners. Such work is the core of developmental supervision, in which the most effective supervisors are those who wield "earned prestige" over "official status" in order to get things done (Campbell et al., 1980).

Despite a proliferation of research that emphasizes the importance of providing principals with strong coaching and development, many school systems continue to rely on concepts of principal supervision that are no longer aligned with their increasingly school and student oriented-missions (Kimball, Arrigoni, Clifford, Yoder, & Milanowski, 2015). It is unclear why central offices have been slow to alter their definitions and descriptions of principal supervision. One likely cause is the bureaucratic inertia that tends to creep into large, hierarchical organizations such as school districts, an issue that has long been as a key impediment to school reform (Chubb & Moe, 1991). Another cause may be district obligation to meet requirements imposed at the federal and state

levels. Districts faced with the need to improve student achievement may shy away from altering existing models of supervision, particularly if these models assist in meeting standards of accountability.

Principal supervisors have been characterized as a “shadow army” of behind-the-scenes administrators (Oliva, 1989, p. 4). The first principal supervisors occupied a generalist role which did not require any existing expertise in teaching, learning, or leadership development. The primary task of these administrators was to enforce bureaucratic compliance (Campbell et al., 1980). Despite the influence of the human relations school, school districts never completely abandoned their commitment to certain principles of scientific management. The prospect of reducing difficult-to-measure concepts such as “school effectiveness” into simple inputs and outputs continues to appeal to educational leaders and policymakers, and so oversight and efficiency have remained consistent features of modern supervision (Sergiovanni & Starratt, 1998). The lingering effects of scientific management were further rejuvenated through the standards and accountability movements which began in the late 1990s and culminated in the passage of No Child Left Behind in 2001 (see Mehta, 2015). The resulting legacy of both movements is a supervisory role that emphasizes both development-oriented support and continual evaluation and correction.

Common Features of the New Role

Only recently have common standards and competencies become available for districts to use in formulating the principal supervisor job description, a fact that may explain the wide variation in principal supervisor job descriptions across districts

(CCSSO, 2015). The 2015 Model Principal Supervisor Standards drew on current research in education leadership and central office transformation. They were also designed to align with the refreshed version of the ISLLC professional standards for school principals (see Murphy, 2015). The supervisor standards outline desired supervisor qualities and actions pertaining to eight standards organized around three domains of support: educational leadership, promotion of district organizational effectiveness, and principal supervisors' development of their own capacity as leaders.

Taken as a whole, the standards describe a principal supervisor role that can be distilled into two primary functions: principal *evaluation* and *support*, and an ancillary function, *administrative liaising*, which remains an important part of the role. First, in the vast majority of districts, principal supervisors evaluate principals. A national survey of supervisors in 2012 found that 87% of supervisors conducted principal evaluations (Cassery, Lewis, Simon, Uzzell, & Palacios, 2013). According to the Model Principal Supervisor Standards (2015), principal supervisors help principals to grow as instructional leaders by using evaluations to identify professional development needs, create personalized learning plans that target these areas of improvement as goals, and monitor progress toward achieving these goals.

Given that the supervisory role historically has focused on such managerial issues, supervisors may not necessarily possess existing expertise in assessing indicators of effective leadership. Although a majority of principal supervisors do report receiving professional development related to using principal evaluation systems, this training is rarely systematically designed to improve supervisors' skills and knowledge in these areas (Corcoran et al., 2013). Consequently, principal supervisors may require training in

two areas surrounding performance evaluation: first, they must understand how to effectively conduct evaluations, and second, they must be trained to utilize evaluation results to guide their work with principals, including adapting their work based on individual principal performance.

Second, the standards emphasize that principal supervisors mainly support principals through coaching. In contrast to evaluation, coaching by nature requires supervisors to adopt a non-judgmental, growth-oriented approach to their work with principals. However, coaching in education has always been a vaguely defined practice. The Model Principal Supervisor Standards recommend that supervisors serve as coaches with their principals, but do not explicitly define it as a practice other than to emphasize its importance as “the ability to build strong relationships with principals that result in trust, candid communication, innovative thinking, and continues improvement of leadership practice” (CCSSO, 2015; p. 16). In practice, this coaching is often suffused with a special focus on instructional leadership. In a study of central office administration within three urban school districts, Honig and colleagues (2010) identified five “high-quality” practices of effective principal supervisors: differentiating (adapting) supports; modeling instructional leadership and action; developing and using tools to support principals’ engagement in instructional leadership; brokering external resources to help principals focus on instructional leadership; and engaging all principals as resources on instructional leadership to help their peers. Supervisors who consistently engaged in these activities were better able to deepen principal instructional leadership practice and were more likely to be reported as effective by principals and other administrators.

Finally, the standards clearly outline the expectation that principal supervisors remain the primary links between school principals and the central office. This organizational position creates the opportunity for supervisors to serve an administrative liaison role, brokering the relationship between school leaders and the central office, and thus aiding in the mission integration of the central office as a whole. When liaising is not performed effectively, the messages principals receive from their supervisors and other central office departments can conflict, leading to confusion and frustration (Corcoran et al., 2013). To complicate matters, supervisors often manage or depend on teams of central office personnel to coordinate messaging and deploy resources (Goldring et al., 2018). The specific configurations of these teams can take many forms, from “partners” from each department assigned to work with a specific supervisor and principal network to separate personnel positions devoted entirely to handling operational issues on behalf of the supervisors. These teams can improve the efficiency of supervisory work but can create conflict if their goals are inconsistent with those of the supervisor, or if, in the words of Honig and colleagues (2010), they lead “around” supervisors rather than “through” them (p. 63).

The CCSSO standards are useful in that they provide a common national blueprint for districts to use in revising and assessing their current principal supervisor job descriptions. However, limited empirical data are available to describe how standards are being implemented and whether they are truly consistent with improved principal performance. The standards are therefore likely to evolve as researchers and districts learn more about how best to support instructional leadership.

Summary

District and state leaders, policymakers, and researchers alike recognize the need to revise the role of principal supervisors following extensive changes in the principal role in the last few decades. Research up to this point has focused on determining and prescribing *what* supervisors should know and be able to do in this area through discussion of standards, but more work is needed to understand how supervisors translate these new expectations into their daily work. Furthermore, research on district attempts to revise the principal supervisor role suggests that district context and capacity plays a large role in its ability to support principal supervisor role change (Goldring et al., 2018). More research is needed to understand how supervisors perform their new work within the context of the urban district organization, which may or may not be equipped to support principal supervisors in the new role as both coaches and evaluators. The extent to which supervisors are able to translate expectations for their work into practice with a heterogeneous network of principals is an important question that must be further explored. Finally, whether and how this work is related to principal performance is an important question that remains unaddressed.

CHAPTER III

CONCEPTUAL FRAMEWORK

As discussed in Chapter II, the notion of supervision in education is not a new one, but it was not until recently that researchers began to consider the role of principals and district administrators in promoting improved teaching and learning within schools. The growth of top-down accountability in education systems at the federal and state levels has accelerated this focus on instructional leadership by charging districts with raising school achievement to meet state-developed standards. However, as the accountability movement has demanded tighter alignment between district/school administrators and the instructional core of schools, it has also underlined the pervasive loose coupling, or lack of alignment, between these two segments of the educational system (Diamond, 2012).

Institutional theorists have described the resulting efforts by educational organizations to create stronger couplings between the policy environment, administration, and instructional core as *recoupling* (Hallett, 2010). Districts may engage in several processes to recouple administration to the instructional work of schools, including reorganizing systems and structures and revising roles to facilitate the implementation of policy in schools. Mid-level administrators themselves enact recoupling; they play a core part in implementing state and district policies by serving as “intermediaries” (Spillane et al., 2002) between the central office and schools.

Principal supervisors serving in the new role can be viewed as key levers to district efforts to recouple the central office and schools. This chapter situates the role and goals of principal supervisors within the theoretical framework of recoupling. I examine recoupling from two perspectives: (1) as a top-down means of implementing school improvement and accountability policies within schools, and (2) as a bottom-up means of increasing the central office's awareness and responsiveness to the instructional core.

I begin the chapter by discussing recoupling as a theoretical goal of principal supervisor role change. I then define the components of effective supervision as they are identified in management and organizational literature and discuss their transferability to principal supervision in particular. These components inform the research hypotheses that follow them.

From Loose Coupling to Recoupling

The theoretical frame of this study is drawn from the neo-institutionalist concept of *recoupling*, “the process of creating tight couplings where loose couplings were once in place” (Hallett, 2010, p. 54). Because schools and their governing bodies have long been loosely coupled, relying on separate and independent processes for completing their work (Weick, 1976), scholarly investigations of the interchange between top-down policy and school practices often identify recoupling as a source of tension for schools used to autonomy and decentralized authority. Most studies of recoupling have focused on the tightening of accountability with teachers' practices (Diamond, 2012; Hallett, 2010; Spillane et al., 2002). These studies identify the importance of intermediaries, such as

principals or teacher networks, to assist in the interpretation and sense-making of the external policies.

School districts are historically loosely coupled organizations, marked by decentralized control, a lack of coordination between units, and uncertain organizational goals (Meyer & Rowan, 1977; Weick, 1976). Teachers largely controlled the work within their classrooms—the technical or instructional core—without interference from school leaders who worked in the administrative sphere. Simultaneously, the connection between schools and district administration mirrored the weak connection between teachers and school leaders in that principals were largely left to their own devices in controlling the day-to-day work of the school. Lacking apparatuses for coordination across units, school districts often exhibited uncertain organization goals—that is, how to define and measure effective concepts such as good teaching and student academic attainment—leaving them vulnerable to the proliferation of multiple, sometimes conflicting goals among personnel and external stakeholders (Bidwell & Kasarda, 1975; Gamoran & Dreeben, 1986). These features supported autonomy of teachers and principals over their work while also discouraging the development of bureaucratic systems and structures to monitor and improve the technical core.

Recoupling within school districts is a response to pressures from the institutional environment. Modern educational accountability reform has emphasized tighter links between the bureaucratic arm of educational organizations and the technical work of schools (Spillane & Burch, 2006). Out of the need to conform to federal and state mandates for improved academic outcomes, districts must implement systems and structures to shape and monitor the instructional core, including shifting the decision-

making authority over instruction away from teachers toward centralized administrators, disseminating transparent goals and processes that standardize instruction, and coercing school personnel into adhering to these new goals through evaluation. These changes require substantial administrator participation and indeed, redefine the goal of administration to be the administration of *instruction*.

Recoupling in educational systems can be disruptive. Hallett (2010) identified recoupling as a source of “turmoil” for teachers who subsequently grappled with decreased authority over their work and mourned the loss of the status quo. Within Chicago schools, Diamond (2012) described “partial recoupling” after observing that some aspects of teachers’ work, such as their specific pedagogical techniques, were less easily recoupled. He hypothesized that these aspects may be “more central to their professional identities as teachers” (p. 172), whereas aspects such as lesson content may have been less important. While these studies focus primarily on teachers, they also highlight the role of school leaders in facilitating recoupling by increasing academic press and aligning school priorities with larger district priorities, and the unexpected ways that teachers can respond to principals’ increased involvement in their work.

Principals have been increasingly viewed as instrumental to the successful recoupling of administration and teaching within schools. A separate study of reform in Chicago schools found that school leaders consciously made connections between their leadership and their school’s achievement outcomes, providing evidence that principals viewed their work as tightly coupled with the instructional core of their school (Spillane et al., 2002). The authors describe principals as intermediaries between the central office and teachers who must successfully implement district policies while also gaining the

trust and cooperation of teachers, a dual role that may create tension if not executed well. Spillane and colleagues (2002) do not address the role of the central office in supporting principals' navigation of the dual role and implementation of its instructional policy; when principals sought advice, they turned to informal peer networks, suggesting that they were offered little support from their superiors.

Studies of recoupling tend to focus only the role of the district central office in aligning the technical core with district and state policy. However, recoupling can also orient the administrative level of the central office toward supporting the technical core. Research on these "learning-centered" districts describes central office systems that more coherent in their educational goals, adaptive to school needs, and able to create enabling conditions to support effective teaching and learning (Hightower, 2002; Johnson & Chrispeels, 2010; Thompson, Sykes, & Skrla, 2008). A hallmark of learning-centered districts is their fostering of two-way channels of support between schools and the central office. For instance, Johnson and Chrispeels (2010) identified five "linkage" mechanisms that facilitated interaction between the central office and schools in a highly effective district: resources, structures, communication, relationships, and ideology. Because they were two-way, these linkages facilitated both bureaucratic control and responsiveness to school needs.

Another push within learning-centered districts is to support and develop the instructional knowledge and capacity of principals in recognition of their importance in implementing district instructional goals (Johnson & Chrispeels, 2010). These districts can be contrasted with those that engaged in one-way recoupling in which principals were largely on their own in their linking the technical core of their schools to district

policies. Instead, learning-centered districts provide resources and supports to principals in the form of principal coaches, supervisors, district instructional specialists, or third-party organizations (Knapp et al., 2010). To effectively support principals in the arena of instructional leadership, central office personnel must themselves be knowledgeable about teaching and learning. Consequently, in addition to investing in principal professional development, many learning-centered districts invest in professional development to build the capacity of their central office staff (Burch & Spillane, 2004; Marsh et al., 2005)

Change in the principal supervisor role can be viewed as a strategy for recoupling schools to the central office in an effort to both support principals' implementation of district policies and to make the central office more learning centered. In this case, supervisors are the intermediaries between the central office and the school. They act as both a connecting "bridge" and protective "buffer," linking their principals to resources as well as deflecting or reshaping excessive central office demands, just as principals do with their teachers (DiPaola & Tschannen-Moran, 2005). The new role also requires supervisors to possess knowledge and expertise in the realm of instruction in order to effectively coach and guide principals. Unlike the rigidness of accountability in teacher-focused studies of recoupling, central office recoupling is not one-way: supervisors may help the central office become more instructionally focused just as they work to orient principals toward meeting its expectations through the processes of evaluation and coaching.

A question concerning principal supervisors as agents of district recoupling is whether supervisor role change is sufficient to change the course of an entire central

office. One criticism of coupling theory as it is commonly applied is that it treats school district as monolithic entities. In reality, school district central offices are segmented collections of sub-units (departments) which exhibit varying degrees of capacity and responsiveness to institutional changes (Spillane, 1998). While recoupling of the central office administration to the technical core is likely to tighten vertical links between at least some central office units and schools, recoupling may not occur evenly in all central office departments. It is also unclear how recoupling will affect lateral segmentation among central office departments. Aside from principal supervisors, school districts employ several classes of school support and instructional personnel who are also charged with supporting the technical core. If other central office departments and personnel do not also shift toward learning-centered support for principals, it seems unlikely that full recoupling can occur.

Theoretical Components of Effective Supervision

In this section, I deepen the theoretical framework by answering the questions: What conditions must be present for principal supervisors to achieve the district goal of recoupling the central office with schools? What practices must supervisors engage in to support principal instructional leadership? While the literature on principal supervision is recent and still developing, research on effective supervision and management in organizations lends insight into key components of effective supervision that can be applied to the study of principal supervision and the capacity of supervisors to recouple the central office and schools. Figure A1 in the Appendix depicts a conceptual model of the theoretical components that make up this study's conceptual framing of principal

supervision. These components can be divided into three overarching perspectives: organizational (supervision as situated within the central office organization), functional (supervision as interpreted and enacted by supervisors), and translational (supervision as it translates to principal experiences and outcomes).

The first research question can be answered by examining the functional components of the role. These components describe how supervisors interpret and enact their role, and encompass their practices, knowledge, and beliefs relating to principal supervision. Supervisor specialization of knowledge and skills; standardization of practices across supervisors; and adaptation of work according to principals' performance and needs.

Organizational components describe how the principal supervisor role and its activities are situated within the district central office organization, and how the central office supports and interacts with principal supervisors. These components follow from the second research question and include differentiation of the role from other central office roles; interdependence of supervisors' work with other units or personnel; and organizational integration of the work.

Finally, translational components refer to principal experiences and outcomes as a result of their work with their principal supervisors. The clearest translational outcome of the new supervisory role is improved principal instructional leadership, which comprises the multitude of principals' beliefs, practices, and behaviors that improve the instructional quality of their school. The third research question tests whether principal supervisor work leads to improved principal instructional leadership.

Functional: Principal Supervision as Interpreted and Enacted

Standardization of practices and processes. As managers, supervisors have historically been afforded a large amount of discretion in their actions with principals. Owing to the historic loose coupling, or unit isolation, of supervisors, few practices and tools among supervisors within a district were standardized. Such isolation meant that principals with different supervisors in the same district could experience vastly different support.

Whitley (1980) points out that a lack of standardization is a defining aspect of managerial roles, which he distinguishes from purely administrative ones:

Different managerial activities organize different human and material resources in different ways to develop different firms. This conception of managerial activities implies that they are discretionary and involve choices rather than being routinely administrative and governed by external formal rules. In order to make a difference to the resources they organize, and so to economic outcomes, those carrying out managerial activities have to be able to decide which resources are being combined and how they are to be coordinated. Management can therefore be distinguished from administration by its ability to select and change (p. 211).

Complete standardization of practices and perspectives among supervisors may therefore be neither possible nor desirable. However, districts have often lacked common expectations for supervisors' work, which results in a widely idiosyncratic supervisory experience for principals. Many districts have made strides at standardizing certain aspects of principal supervision by adopting competency rubrics, communicating expectations (e.g., minimum number of visits supervisors must make to each of their principals), and holding supervisors' accountable for this expected work by adopting an evaluation system that is aligned to mandatory competencies and practices.

Common expectations set the tone for the supervisors' role, but supervisors work largely in isolation from one another and from the central office, which can lead to

mission drift and a poor sense of ownership over shared goals. Supervisors who participate regularly in structures that promote “collective decision-making” and ownership over shared goals – both between supervisors and among supervisors and the larger central office – will in theory be more likely to align themselves, both in worldview and practice, with the overarching goals and expectations for their work, as has been shown in studies of teacher learning communities and organizational goal-setting (Honig & Hatch, 2004).

There is a link in the literature between standardization and effectiveness. Researchers have found that supervisors are more effective when they can draw upon a repertoire of shared tools and practices (Honig, 2012). However, following Whitley, total standardization would be an unrealistic and perhaps deleterious goal for supervisors as managers who must often use discretion with little time for deliberation. Additionally, it is unclear *which* practices and behaviors of supervisors should be standardized, and which should be left “loose.” One possibility is that practices that place a relatively small cognitive load on supervisors and principals may be more readily standardized because they may be easier to mandate, observe, and measure. For example, it may be relatively easy for a district to standardize the number of visits principals receive from their supervisors, but less easy to standardize an expertise-driven, high-order coaching practice such as modeling effective teacher feedback.

Hypothesis 1a: Supervisor routine practices will become more standardized across principal supervisors over time.

Specialization of supervisor skills and knowledge. In their previous role as compliance managers, principal supervisors were necessarily generalists in their day-to-

day work (Campbell et al., 1980). As districts have begun to redefine the role away from generalist management and toward the more specialized role of leadership development, the need to develop supervisors' expertise in curriculum, instruction, and instructional leadership has become apparent. However, developing expertise alone is insufficient to reorient the role toward instructional leadership: supervisors' work roles must also be narrowed so that they may specialize in developing instructional leadership. This specialization involves the removal or reduction of time spent on tasks for which supervisors were previously responsible, e.g., those involving school operations, logistics, administration, or any formal non-instructional responsibilities within the wider district organization.

The advantages and drawbacks of enacting a generalist *versus* a specialist role have been studied extensively in other fields. For example, in healthcare, studies have found that specialist physicians possess greater awareness of current knowledge and practice in their area of specialization, which in turn impacted their practices with patients (Ayanian et al., 1994). Other studies that over-specialization of role can limit workers' ongoing skill development and lead to boredom and disengagement and due to the narrow scope of tasks. A study of pharmaceutical firms in the UK and Ireland found that most knowledge workers in the industry (e.g., scientists, engineers) fulfilled roles that could not be purely categorized as specialist or generalist, and often moved back and forth between the two throughout their careers (Kelly et al., 2011). Unlike assembly line workers, who are perhaps the purest example of specialists, knowledge workers must develop the human capital necessary to ensure solve complex problems in an ever-changing environment. Consequently, knowledge workers who occupy "specialist" roles

are unlikely to specialize entirely– the possibility for novelty and uncertainty in their work requires them to retain some level of generalized human capital.

Principal supervisors can be considered knowledge workers, or “employees who apply their valuable knowledge and skills (developed through experience) to complex, novel, and abstract problems in environments that provide rich collective knowledge and relational resources” (Swart, 2007, p. 452). They continually draw upon specific expertise to coach and evaluate principals. Although they are increasingly expected to work with principals as instructional leadership specialists, the shifting terrain of public education organizations coupled with evolving expectations of what school leaders ought to know and be able to do means that supervisors encounter some level of uncertainty and novelty in their work. Additionally, low capacity of other departments may force supervisors to continue to perform these tasks. Consequently, principal supervisors may increase their use of instructional leadership focuses and practices with principals but may retain some generalist non-instructional leadership-related expertise and practices.

Hypothesis 1b: Principal supervisor focus on instructional leadership will increase over time.

Adaptation of work according to principal characteristics and needs.

Specialization and standardization lead supervisors to deliver common approaches to supporting principals, but supervisors do not oversee principals with homogeneous needs. Within a single supervisor’s span of control, there may be considerable diversity in principal background and experience, instructional expertise, or leadership ability. Additionally, principals may present with different supervision needs according to the particular characteristics of their teachers, students, and community. Supervisors must

therefore be able to *adapt* their support to the needs of each particular principal (via a process that is often referred to in education as “differentiation”).

Adaptation requires two steps: First, supervisors diagnose and understand the supervision needs of a particular principal. This is increasingly accomplished through analysis of data (principal evaluation scores, teacher evaluation scores, student test scores, staff environment surveys), but may also be drawn from the supervisor’s own observations during school visits and conversations with the principal. Second, supervisors must have the capacity to adapt their practices to support each principal most effectively. While standardized tools and assessments can help supervisors evaluate and diagnose supervisor needs, they are unlikely to be of much use during the adaptation process. Adaptation instead requires supervisors to possess deep expertise in supervision and coaching, as well as the autonomy to use their discretion in how they choose to adapt their support.

Hypothesis 1c: Supervisors vary their practices according to principal years of experience, performance, and/or school-level value-added.

Organizational Perspective: Central Office Support for Principal Supervision

Interdependence of supervisor work with other central office departments.

Many scholars have written on the loosely coupled nature of school district organizations, a feature which allows the organization to withstand shocks from the external environment such as budget shortfalls or changes in legal regulations, but also inhibits cross-department interdependence and uniformity of approach (Rowan, 1980; Spillane, 1998; Weick, 1979). For example, the work of the Human Resources department and the Curriculum department in a given school district may depend very little one each other.

Nevertheless, each departmental unit is expected to contribute to the output of the district as a whole, i.e., to contribute to the pooled interdependence of the central office.

With the revised role of supervisors, interdependencies with central office are important in two main ways. First, because they are the main bridge from the central office to the principals, supervisors' work is interdependent with the quality of output of other central office departments with which they work. Second, since supervisors are no longer responsible for some specific tasks, other departments in central office are by necessity responsible for tasks for which principal supervisors were formerly responsible. The ability of these departments to adequately take on these tasks from supervisors can also be interpreted as a measure of the level of interdependence among supervisors and the central office. Departments that do not adequately assume these tasks inhibit smooth interdependence and thus, supervisors' ability to carry out their roles.

Organizational integration. Closely related to interdependence, integration describes the extent to which an organization is engaged in "the process of achieving unity of effort among the various subsystems in the accomplishment of the organization's tasks" (Lawrence & Lorsch, 1969). Within the context of the central office, integration describes the level of purposeful coordination, communication, and collaboration among different office departments as well as between the central office and schools.

As with interdependence, integration most directly impacts supervisors' ability to serve as administrative liaisons and representatives to principals. Poor integration limits supervisors' ability to deliver consistent communication to principals. Beyond liaising, poor organizational integration can limit supervisors' ability to carry out their tasks as these tasks may not be well-defined, may conflict with other messages or goals from the

central office, and may limit supervisors' ability to secure resources for schools. Poor integration may also limit the support and training supervisors get for their own work, as the district may lack a clearly defined vision for how the supervisory role fits into the greater mission of the central office.

Role differentiation of principal supervisors. Differentiation in an organization refers to the extent of division of labor among subunits, either vertical (referring to the hierarchical separate of tasks, e.g., between principal and principal supervisor) or horizontal (referring to the division of different work tasks among units, e.g., the Office of Schools and the Office of Human Resources in the central office). Differentiation and specialization tend to appear in tandem, although they are different concepts: While specialization refers to the singularity of focus in the supervisors' job description (the extent to which each work responsibility is related to the other), and differentiation is the extent to which this role differs from the roles of other units or personnel. The greater the differentiation among personnel in terms of the specific sets of tasks for which they are responsible, the more personnel are able to specialize in those tasks. Differentiation is more common in large organizations where there is the capacity for unit specialization (Blau, 1972).

Two implications of differentiation emerge for the supervisor role. As supervisors shift into the new role of instructional leadership support, the extent to which this work can be differentiated from other central office personnel who have traditionally focused on instructional matters may shift. At the same time, functional differentiation of supervisors requires that tasks for which they were previously responsible are subsumed elsewhere, either by administrative staff or other line personnel. Simultaneously, other

personnel or departments may transfer certain responsibilities to supervisors if these are more clearly aligned to the supervisor job description. For example, personnel in the Office of Academics, which supports curriculum and instruction, may engage in instruction-related work with schools, but this work will be different from the work principal supervisors do in these schools. Additionally, ambiguous tasks that could previously be performed either by principal supervisors and other central office personnel will now be either entirely within the job description of either the supervisor or other personnel.

Translational: Principal Supervision as a Driver of Principal Improvement

Principal instructional leadership does not comprise all of a principal's job description, but it has received the most attention in recent years as a challenging shift in the role of the principal from manager to leader of the school instructional program. Hallinger and Murphy (1985) defined the tasks of instructional leadership to be "defining the school's mission, managing the instructional program, and promoting a positive learning climate" (p. 218). They concluded that principals who engaged in instructional leadership rather than focusing on operations and compliance fostered more effective and productive schools.

The primary goal of the new principal supervisor role is to help improve principal instructional leadership. Improved principal performance should be positively related to supervisors' use of behaviors that are theoretically linked to improved instructional leadership. There may also be a component of supervisor effectiveness that is not captured solely in reported practices but rather the principal's impression of their supervisor's overall competence in a variety of areas (e.g., socio-emotional, managerial,

instructional), akin to the “transformational leadership” qualities that motivate and inspire workers to improve (Leithwood, Seashore, Anderson, & Wahlstrom, 2004; Marks & Printy, 2003). Principal perception of supervisor effectiveness should also be positively related to growth in their instructional leadership performance.

Hypothesis 3: Principal supervisor practices and behaviors are positively related to principal performance improvement.

Summary

I ground the principal supervisory role in three perspectives: the practices and beliefs that supervisors draw upon and use in their day-to-day work, supervisors as members of a central office organization, and the outcomes of principal supervisor work with principals. Although each component is defined separately, they should not be viewed as parts summing to a whole of principal supervision but rather key concepts that shape the role in expectation and practices.

CHAPTER IV

STUDY CONTEXT: PRINCIPAL SUPERVISION IN AN URBAN DISTRICT

District Context

The proposed study is a case study of a mid-sized urban district in the Southeastern United States. The district serves a diverse population of about 85,000 students. Forty-three percent of students are a race other than White, and a quarter of students live in households below the federal poverty line (National Center for Education Statistics, 2019).

At the time the study commenced, the district was in the midst of implementing district reforms designed to improve the quality of its principal instructional leadership. The district decided to make changes to its principal support and supervision structure prior to the 2016-17 school year, after conducting an assessment of its organizational capacity and weaknesses. A transition report prepared for the incoming superintendent repeatedly identified a need for stronger central office structures and processes to support student learning, communications and community engagement, and talent management. These recommendations were then incorporated into the district's strategic plan, which includes a focus on making the district organization more efficient and effective, particularly regarding communication and data analysis capacity.

While the district strategic plan does not reference principal supervision specifically, both the plan and the transition team report make multiple references to developing human capital, including central office and principal leadership and

supervision, within the district. These changes focused on front-end investments in human capital, such as selection, coaching, professional development, and team collaboration. The plan listed raising the percentage of principals who achieve the two highest levels on their state evaluations as a desired outcome but did not specify how much growth would be considered sufficient.

To facilitate improve principal support, the district made several structural changes. In 2016-17, the district increased the number of principal supervisors it employed from 7 to 13, thus reducing each supervisors span of control and allowing for more intense principal support. In the summer before the 2017-18 school year, the district further reorganized its principal supervision structure into four geographic quadrants. An area superintendent leads supervisors in each quadrant. Each area superintendent oversees three regional principal supervisors, who each oversee a group of approximately 10 to 13 principals. These groups, called networks, are primarily grouped by level (i.e., elementary or secondary). As part of the reorganization, principal supervisors received regular training in instructional leadership and coaching in partnership from an external partner organization.

Supervisors' Place in the District Organizational Structure

Supervisors worked under one of the four area superintendents within the Office of Schools. The structure of this office followed the geographic quadrant structure of the district. One area superintendent oversaw three supervisors within each of the four quadrants. A Chief of Schools led the entire Office and reported directly to the district superintendent.

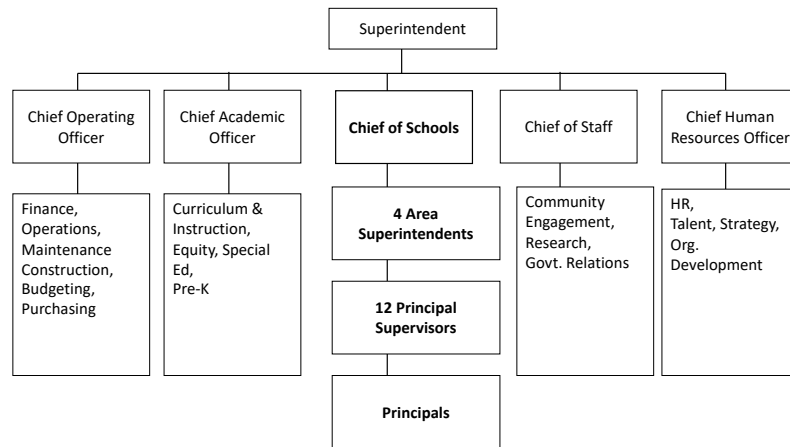


Figure 1. Excerpted District Organizational Chart Showing Position of Principal Supervisors

The Office of Schools was situated among five other offices that housed multiple departments (Figure 1). A chief officer, situated directly below the superintendent, led each office. The Chief of Schools led the Office of Schools, overseeing all of the school support departments within the office of schools. The Chief of Schools directly oversaw the work of the area superintendents and evaluated them on their performance.

Supervisors and area superintendents often interacted with the other offices. The Office of Academics controlled the district program of curriculum and instruction and was made up of academically-oriented departments such as Curriculum and Instruction, Special Education, and Instructional Technology. The Office of Operations handled operational departments such as Facilities and Finance. The Office of Staff encompassed technical and community-facing departments such as Communications and Research. The Office of Human Resources housed departments dedicated to staff recruitment and hiring,

employee relations, and staff development. Due to supervisors' increased focus on instructional leadership, they collaborated most frequently with school-facing departments. (In this analysis, I describe the departments housed within the Office of Academics and the Office of Schools as "school-facing" because they directly supported the instructional core of the district).

Principals also interacted directly with personnel other than their principal supervisor, particularly personnel in departments housed within the Office of Academics. Some principals also employed full-time coaches in literacy or math through these departments. These personnel were primarily responsible for developing teachers' instruction in specific areas, but also planned and collaborated with principals around the instructional program of the school. In most cases, this work took place separately from principals' work with their supervisors.

CHAPTER V

RESEARCH METHODOLOGY

The goal of this study is to analyze the characteristics, organizational context, and effectiveness of principal supervisor support for principals in an urban school district. The study employs a mixed methods framework called convergent design (Creswell and Clark, 2018) in which quantitative and qualitative data are first analyzed separately before qualitative data are embedded within quantitative findings in the final analysis. In selecting this methodology, my purpose was to provide a more multi-layered perspective of how principal supervision is defined, supported, enacted, and experienced within a school district.

This chapter provides the research methods for the study. I begin by describing the mixed methods study design. Next, I describe data sources and the sample/participants for the quantitative and qualitative portions of the analysis. I then define and describe the measures used in the quantitative analyses. Next, I delineate the analytic strategy used in each of the three research questions.

Study Design

The study design follows a *convergent* design with parallel databases as described by Creswell and Clark (2017). This mixed methods design requires separate (parallel) quantitative and qualitative analyses before the final integration of results into mixed methods form during the interpretation phase. In this particular study, I use qualitative

results to deepen and expand upon the interpretation of prior quantitative results by providing explanations for the mechanisms and processes that produced them. This explanatory method borrows from another design described by Creswell and Clark (2017) called explanatory sequential design. The design here is convergent, rather than explanatory, because the qualitative data analysis and sampling for this study did not depend on earlier quantitative findings from the surveys. Instead, qualitative data collection was intended to provide a separate but complementary picture of principal supervision within the case study district.

The mixed methods content of the results varies by research question. Research Question 1, which describes supervisor practices, most closely follows a convergent design. Results for Research Question 2, which explore central office support for supervisors' work, are purely qualitative and do not follow a mixed methods design. Results for Research Question 3, which identifies links between supervisor practice and principal performance, can be considered convergent/explanatory in that the focus of the results is primarily on the quantitative data with qualitative data serving a more supplementary role.

Mixed methods integration of the two data sources proceeded in two steps: (1) I identified findings and patterns in the quantitative results related to the research questions; (2) I integrated findings from qualitative data, analyzed separately and organized into themes, within the quantitative findings to further explain and in some cases to provide additional findings and context beyond the quantitative results. In cases of divergence—where the qualitative data do not support or help explain quantitative findings—possible sources of divergence were noted and discussed.

While the presentation style for convergent design mixed methods studies can vary greatly, results of this study are organized by research question and topic within each research question. For example, the section of the results that focuses on the specialization of supervisor practices integrates the quantitative and qualitative data regarding specialization of practice.

Data

Study data are drawn from a mid-sized urban public school district in the Southeastern United States in the 2016-17 and 2017-18 school years. Data collection methods were endorsed and monitored by the Internal Review Board at Vanderbilt University. The study district also granted explicit permission for the collection of survey data and the recruitment of interview participants.

Data for the quantitative portion of the study are drawn from:

1. Surveys of principals and principal supervisors
2. Principal and school administrative data from the state
3. Teacher responses to school climate surveys, aggregated to the school level

Data for the qualitative portion of the study are drawn from one-time interviews with principal supervisors, principals, and central office personnel at the end of the 2017-18 school year.

Principal and Principal Supervisor Surveys

Vanderbilt researchers surveyed the population of principals and principal supervisors in the district at the end of each semester for a total of four survey waves during 2016-17 and 2017-18. The questionnaires were adapted from previous survey

instruments developed by Vanderbilt researchers for the Wallace Principal Supervisor Initiative (Goldring et al., 2018). The surveys were developed and tested by a five-person research team over six months and administered in six urban school districts with demographics similar to the proposed study district. When possible, item sets were developed using published, validated scales. Response rates were high, ranging from 87% to 92% for principals and 100% for supervisors, as shown in Table 1. The surveys were administered from an online platform (Qualtrics) to all participants through email and were designed to be completed in 30-45 minutes.

Principal and School Administrative Data

Since 2011, a law in the study district's state has required principals to receive an annual summative evaluation from a lead evaluator (usually the principal supervisor in the study district). The summative evaluation is based on the evaluator's incorporation of qualitative input from principal observations, data meetings, coaching conversations, and artifact collection on by the evaluator, according to guidelines from the state's department of education. An overall average observation score is also available for each principal, which averages rubric ratings across all 17 indicators in the four standards. New principals do not have evaluation data available prior to their year of hire, but principals who were employed in the district prior to 2017-18 have evaluation data available in the state database as far back as 2011-12.

In addition to principal performance data, the state database also houses school-level achievement and effectiveness measures, including scale scores of annual state tests for math and reading and school and teacher value-added scores. Unfortunately, in the 2015-16 school year, a computer error during testing rendered the tests for students in

grades 3 – 8 as invalid for that year. Consequently, many achievement metrics and value-added scores for elementary and middle schools in the study district that year are not available.

Other measures available in the state administrative data include demographic information for principals and sometimes for administrators, although administrator data suffers from high rates of missingness. These data are used to supplement missing demographic data on district surveys.

Teacher Climate Surveys

The study uses three waves of teacher climate survey data collected from all schools in the district. The study district contracted with Panorama Education to administer school climate surveys to teachers in all schools in the district in Spring 2017, Fall 2017, and Spring 2018. Each survey asked teachers to rate the quality of their school's climate in several domains. The domain of interest, School Leadership, measures perceptions of the school leadership's effectiveness. While domains changed with each administration of the survey, the School Leadership domain was used in all three climate survey administrations. This scale is most conceptually similar to the overall observation score principals receive from their supervisor's evaluation.

Surveys were developed by Panorama Education company based on previously developed survey scales. Survey scales were piloted and tested in focus groups before being subjected to expert review and cognitive pretesting (Gehlbach & Brinkworth, 2011).

Personnel Interviews

To supplement quantitative data, one-on-one interviews were conducted in Summer 2018 among some central office leaders, all principal supervisors, and a sample of principals. I developed four separate interview protocols depending on the level and surmised knowledge each participant had of principal supervision. The four protocols were: the Chief of Schools, area superintendents, principal supervisors, and principals.

Interviews followed a semi-structured format designed to last approximately 45 minutes to 1 hour. Interview topics focused on district support for supervisors and principals, supervisors' practices and beliefs about their work, and participants' perceptions of the effects of supervision on principal performance. Interviews also probed for the presence or absence of the organizational concepts derived from the conceptual framework (Chapter III). As with surveys, protocols for interviews were based on but not identical to previously developed Vanderbilt protocols used in the study of the Wallace PSI (Goldring et al., 2018).

I conducted all interviews in person in secure, one-on-one settings—typically the principal's office or an empty room within their school. Participants provided written informed consent prior to beginning the interview in accordance with the requirements of the Vanderbilt IRB. Interviews were recorded to facilitate efficient information-gathering, deidentified using participant codes, and transcribed. I uploaded final transcripts to a secure, encrypted server and an encrypted qualitative coding platform, Dedoose. After each interview or set of interviews (when multiple interviews took place back-to-back) I also wrote post-interview memos that reflected on the interview's themes

and patterns, the participant's general impression of supervision, and anything unusual about the content of the interview.

Sample

Survey Sample

To construct the sampling frame for surveys, I consulted staff rosters provided by the district for each school year. The sampling frame consisted of the population of principal supervisors and principals working in the study district in the 2016-17 and 2017-18 school years. Supervisors and principals in district charter schools were excluded from the sampling frame because they were not bound to the same district policies and requirements as the traditional schools.

Table 1 shows the administration dates for each wave of the survey, the available population of principals and supervisors for each wave according to district rosters, and the number of responses and response rate. The district scheduled time for supervisors and principals to take the surveys during their professional learning meetings. The final survey sample comprised 49 supervisor-by-wave observations and 480 principal-by-wave observations.

Table 1
Survey Sample and Response Rate by Administration Wave

Participant Type	Administration Window	Available Population	Respondents	Response Rate
Supervisor	Wave 1: October 2016	13	13	100%
	Wave 2: May 2017	12 ¹	12	100%
	Wave 3: Nov. 2017	12	12	100%
	Wave 4: May 2018	12	12	100%
Principal	Wave 1: November 2016	131	117	89%
	Wave 2: May 2017	131	114	87%
	Wave 3: Nov. 2017	138	129	93%
	Wave 4: May 2018	138	120	87%

Note: Population excludes charter school supervisors and principals.

Surveys collected demographic information about respondents that provide further insight into the makeup of the final sample. The next two sections summarize that descriptive statistics for the sample of supervisors and principals, respectively.

Supervisor descriptive statistics. Table 2 lists the background and characteristics of supervisors who took surveys, averaged across time. Sample statistics are unweighted and represent the average over observations over all waves of data collection. Although survey response rates were 100% for all supervisors for all waves, each supervisor may not have provided responses to all items. Additionally, some characteristics (such as the number of years the supervisor worked in the role) were asked only during some waves of the survey, as noted in the table.

¹ In Spring 2017, one of the supervisors was placed on administrative leave. I exclude this supervisor from the available population because this supervisor was not supervising schools in the role.

Table 2
Supervisor Sample Characteristics and Background

VARIABLE	Obs.	Prop.			
<i>RACE/ETHNICITY</i>					
White	10	0.32			
Black	17	0.55			
Hispanic (any race)	4	0.13			
Missing	18	0.37			
<i>GENDER</i>					
Male	6	0.12			
Female	29	0.19			
Missing	14	0.28			
<i>PRIOR POSITION BEFORE HIRE</i> (2017-18 school year only)					
Principal at an elementary school	4	0.17			
Principal at a middle school	12	0.50			
Principal at a high school	4	0.17			
Other	4	0.17			
Prior position was in another district	10	0.21			
VARIABLE	Obs.	Mean	SD	Min	Max
<i>PROFESSIONAL BACKGROUND</i>					
Total years as a principal	48	6.38	3.05	2	14
Years principal supervisor, this district	49	2.24	3.19	0	16
Years principal supervisor, other district (2017-18 only)	24	0.25	2.83	0	5

Note: Observations represent frequency counts of responses for each variable. The total number of supervisor-by-wave observations is 49.

Supervisors were racially and ethnically diverse. The majority of supervisors (55 percent) reported their race as Black or African-American, 32 percent were White, and 13 percent reported Hispanic ethnicity. Of principal supervisors whose gender was reported, the majority were female. However, a large proportion of supervisors did not have a race or gender category that could be identified from surveys or state administrative data. Supervisor race and gender are subsequently excluded in covariates in the analyses presented in this chapter.

Almost all supervisors had previously served in one or more principal roles. Most had been actively serving in a principalship immediately before becoming supervisors. The average supervisor in the district had spent an average of 6.4 years as a principal before becoming a principal supervisor and had been in the role for an average of just over two years. Supervisors' experience covered a wide range, from no experience to 16 years. In 2017-18, principal supervisors also reported their experience outside of the district; only two of the twelve supervisors in that year reported having spent any time in the supervisor role in another district, with an average of 3 years of experience spent in the principal supervisor role between them.

Principal descriptive statistics. Principal descriptions are drawn from principal responses to bi-annual surveys in 2016-17 and 2017-18 and from state administrative data. Table 3 provides information about principals' professional background and placement, school characteristics, and demographics. The average principal in the district had just under 10 years of total experience in the role on average, with 3.97 years of experience of that time in their current school. The modal principal in the data was in the first year of working with his or her supervisor, a statistic that highlights both the district's decision to increase the number of principal supervisors in 2016-17 as well as supervisor turnover over the two year period.

Table 3
Principal Sample Characteristics and Background

VARIABLE	Observations	Prop.			
SCHOOL TYPE					
Elementary	259	0.54			
Middle	109	0.23			
High	82	0.17			
Other	25	0.05			
RACE/ETHNICITY					
White	242	0.50			
Black	202	0.42			
Hispanic/Other	22	0.05			
Missing	14	0.03			
GENDER					
Male	181	0.38			
Female	287	0.60			
Missing	12	0.03			
VARIABLE	Observations	Mean	SD	Min	Max
Principal's overall observation score	473	3.54	0.50	2.07	5.00
School overall climate score (not in Fall 2016)	355	3.73	0.36	2.40	4.63
Literacy achievement at principal's school (standardized)	452	-0.14	1.15	-3.94	3.19
Math achievement at principal's school (standardized)	456	-0.14	1.04	-2.96	2.70
Principal years worked with current PS	441	1.29	0.98	1	10

Note: Data drawn from surveys and state administrative data. Achievement scores are standardized across all state schools within year.

Principal demographics are not subject to the missingness observed in the supervisor data, and nearly every principal's race and gender can be determined from the data. Because so few principals identify as Hispanic, Asian, two or more races, or other race, I combine these categories into one Hispanic/Other category. Principals in the district are relatively racially diverse: at least 47 percent identify as a race other than White, compared to 20 percent of administrators in the state overall. The majority (89 percent) of principals of color identify as Black.

Interview Participants

To construct the sampling frame for interview participants, I consulted district rosters for the 2017-18 school year. The proposed all principal supervisors, a sample of principals, all four area superintendents (who oversee the principal supervisors), and the Chief of Schools (who heads the department that houses area superintendents and principal supervisors).

Principals were sampled for interviews as follows: First, principals were stratified according to supervisor network and school level (i.e., elementary, secondary) and sorted according to total years of experience and achievement. Two principals were then randomly sampled from within each supervisor network. In cases where there was a mix of school levels in a portfolio, one elementary and one secondary principal were sampled from the network. The initial sample of 24 was checked to ensure that a range of school achievement levels, principal experience, and school levels were represented. Schools were then randomly redrawn according to the initial sampling criteria until maximum variation in these characteristics was achieved and the sample appeared balanced. Table 4 displays the proposed and final sample of interview participants.

Table 4
Summary of Interview Sample and Response Rates

Participant Type	Proposed Sample	Final Sample	Response Rate
Central Office	5	5	100%
Supervisor	12	8	75%
Principal	24	18	75%
<i>Total</i>	<i>41</i>	<i>31</i>	<i>76%</i>

Stratification and re-drawing were built into the sampling procedure to secure an interview sample that reflected the makeup and distribution of personnel within the

district. Table 5 displays characteristics of the final set of interview participants and the principal subset.

Table 5
Select Characteristics of Interview Participants

	Role	Quadrant	School Level(s)	Years in Role
All Participants (n=31)	Central Office:	Northeast: 21%	Mixed: 33%	1-2 years: 39%
	16%	Northwest: 28%	Elem/K8: 30%	3+ years: 61%
	Supervisor: 26%	Southeast: 17%	Middle: 23%	
	Principal: 58%	Southwest: 34%	High: 14%	
Principals Only (n=18)	--	Northeast: 17%	Elem/K8: 39%	1-2 years: 28%
		Northwest: 33%	Middle: 39%	3+ years: 72%
		Southeast: 17%	High: 17%	
		Southwest: 33%		

Source: District rosters, surveys, and interviews, 2018.

Once sampled, I contacted interview participants by email to set up interviews and followed up as many as two additional times before ceasing recruitment efforts. Central office administrators assisted in setting up initial contacts with interview participants. As an incentive, participants were offered \$25 gift cards in compensation for their time. All participants were assigned random identifier numbers prior to interviews to protect anonymity and encourage honesty.

The time frame for interviews spanned from June to the end of August 2018, with one interview taking place in September. It was important to ensuring the accuracy of interviews that they take place as close in time to the 2017-18 school year as possible to allow for comparison with the survey data. Additionally, because the new school year in the study district began in late August, any interviews conducted after that time risked inducing inaccuracies in participants' memories of their experiences in the previous year. Consequently, I decided not to recruit participants after the 2018-19 school year had

begun. After examining the sample of interviews obtained by September 2018, I determined that the interviews had achieved sufficient saturation. The final sample represented at least one principal supervised by each supervisor, a range of principal school-specific experience from 1-11 years, low and high achieving schools, and all school grade levels.

Despite saturation, some personnel characteristics were not evenly represented within the interview sample due to the voluntary nature of participation. For example, principals and supervisors who worked in the southwest quadrant chose to participate at rates higher than those who worked in the southeast quadrant. Middle school principals are also overrepresented in the sample.

Quantitative Measures

In this section, I organize measures as follows: supervisor practice measures drawn from principal and supervisor surveys, supervisor effectiveness measures drawn from principal surveys, principal performance measures, and other variables used as predictors or controls. The specific measures used in each analysis vary by research question. Several measures are used to answer more than one research question. Table 6 below shows how each of the measures that follows is used in Research Questions 1 and 3 (Research Question 2, being entirely qualitative, does not include survey measures).

Table 6
Use of Measures by Research Question

Research Question	Dependent Variables	Independent Variables	Control Variables	Descriptive Variables
1a. To what extent are practices standardized across principal supervisors?				<ul style="list-style-type: none"> • Number of meetings • Duration of meetings • Focus on instructional leadership • Frequency of high-quality coaching practices
1b. To what extent do principal supervisors specialize in instructional leadership in their work with principals?	<ul style="list-style-type: none"> • Focus on instructional leadership • Frequency of high-quality coaching practices 	<ul style="list-style-type: none"> • Wave (time) 		
1c. To what extent do principal supervisors adapt their practices according to principal characteristics?	<ul style="list-style-type: none"> • Number of meetings • Duration of meetings • Focus on instructional leadership • Frequency of high-quality coaching practices 	<ul style="list-style-type: none"> • Principal overall observation score (prior semester) • Principal years in school • Principal prior year school achievement • Principal school type • Principal race • Principal gender • Principals years overseen by supervisor 	<ul style="list-style-type: none"> • Supervisor span of control (some models) • Supervisor years of experience as a principal (some models) 	
1d. To what extent are supervisor behaviors associated with principal ratings of supervisor effectiveness?	<ul style="list-style-type: none"> • Supervisor effectiveness 	<ul style="list-style-type: none"> • Number of meetings • Duration of meetings • Focus on instructional leadership • Frequency of high-quality coaching practices (jackknife measure) 	<ul style="list-style-type: none"> • Principal overall observation score (prior semester) • Principal years in school • Principal prior year school achievement • Principal school type • Principal race • Principal gender • Principals years overseen by supervisor 	

			<ul style="list-style-type: none"> • Supervisor span of control • Supervisor years of experience as a principal
3. To what extent are principal supervisors' practices and behaviors related to principal performance improvement?	<ul style="list-style-type: none"> • Principal overall observation score • School Leadership climate scale 	<ul style="list-style-type: none"> • Number of meetings • Duration of meetings • Focus on instructional leadership • Frequency of high-quality coaching practices • Supervisor supportiveness 	<ul style="list-style-type: none"> • Principal years in school • Principal prior year school achievement • Principal school type • Principal race • Principal gender • Principals years overseen by supervisor • Supervisor span of control (some models) • Supervisor years of experience as a principal (some models)

Supervisor Practices

The practice measures summarize the extent to which supervisors define, enact, and vary in practices that are theorized to be important to the role. Supervisor *practices* are defined as the observable/reportable activities and behaviors principal supervisors engage in while performing in their role, particularly regarding principal support and supervision. Table 7 provides the individual survey items comprising each measure.

Table 7
Supervisor Practice Items from Surveys

Measure	Internal Consistency (scales only)	Survey Item/Scale Items
Time use (supervisor survey)		In the last three months, what proportion of time did you spend on each of the following activities in a typical week, excluding travel time? (Visiting schools; Communicating with school personnel; In meetings with supervisory team; In other central office meetings; In group meetings with principals; Other)
Number of meetings (principal survey)		In the last three months, how many times have you met with your supervisor in the following setting? (In your school; At district meetings; In network or group meetings with other principals; In district-wide professional development sessions; Other)
Duration of meetings (principal survey)		In the last three months, how many minutes on average have you spent with your supervisor in a typical meeting in the following settings? (In your school; At district meetings; In network or group meetings with other principals; In district-wide professional development sessions; Other)
Focus (principal survey)		In the last three months, what percent of time working with your supervisor did you spend on each of the following? (0-100) (Instructional leadership; Operational issues; Parent/community issues; Human resource issues; Other)
Frequency of high quality coaching practices (principal survey scale)	Average interitem covariance = 0.60 Cronbach's α =0.85-0.94	In the last three months, when your supervisor visited you at school, how often did your supervisor do each of the following? (Never; Rarely; Sometimes; Usually; Always) <ol style="list-style-type: none"> 1. My supervisor informed me in advance of the visits to my school. 2. My supervisor communicated the goals of our work during the visit. 3. My supervisor developed a specific agenda in advance of visits to my school. 4. My supervisor used a system for monitoring my growth and change from one visit to the next. 5. My supervisor documented what we discussed during a school visit. 6. My supervisor worked with me to assess teachers' effectiveness. 7. My supervisor modeled effective feedback and coaching. 8. My supervisor modeled effective teaching practices. 9. My supervisor role-played practices he/she hoped to see in my school. 10. My supervisor worked directly with other leaders in my schools, e.g., assistant/vice principal 11. My supervisor worked directly with teachers in my school 12. My supervisor and I decided jointly on goals for visits to my school.

Note: All items listed in the table appeared on all four survey waves.

Time use. This variable captures how supervisors reported spending their time. Supervisors reported the average percentage of time spent on various activities in the last three months, excluding travel time. Supervisors could specify other ways they spent their time that were not listed; example responses to the “other” option were meeting with parents, attending meetings at the state department of education, and attending external trainings or seminars.

Number of meetings. This set of variables captures how often principals met with their supervisors in a variety of settings in the last three months. Principals could specify other settings in which they met supervisors; example responses to the “other” option included school extracurricular activities and at other district schools. In particular, the variable that tallies the number of occasions principals met with their supervisor *in their schools* captures the core of supervisors’ individual coaching work with principals and thus is featured prominently in this study.

Duration of meetings. This variable tallies the average length of supervisors’ meetings with principals in each setting described in the previous variable. Principals reported the number of minutes, on average, they spent with their supervisors on a typical occasion in each setting. This study frequently uses duration of meetings *at school* to capture the average amount of time supervisors spent with each principal when they met with them at school.

Focus on work. This variable measures the content focus of all the time principals spend working with their supervisors. Principals reported the percentage of their work with their supervisors that was spent on each of five focus categories in the last three months: instructional leadership, parent/community issues, operations, human

resources, and other issues. Principals could specify other foci of their supervisors' work; example responses to the "other" response included student discipline issues and work on School Improvement Plans. Together with number and length of meetings, focus helps capture how supervisors and principals spend their time together; however, it does not provide information about the specific practices or behaviors supervisors engaged in with principals during their work.

Of the five foci, only Focus on Instructional Leadership is used as a dependent or independent variable in regression models.

Frequency of high-quality coaching practices (scale). This scale variable captures supervisors' use of coaching practices that are theorized to lead to high quality principal learning and development. Principals indicated how frequently their supervisor used each of 12 coaching practices according to a 5-point frequency response scale ("Never"; "Rarely"; "Sometimes"; "Usually"; "Always"). The time frame for all items was the last three months. The Cronbach's alpha of reliability of the overall coaching practices scale ranged from 0.85 – 0.94 in each survey wave (Table 6, Column 2) and 0.90 overall, indicating high internal consistency for the scale (DeVellis, 2003).

Supervisor Effectiveness

Supervisor *effectiveness* measures are defined as principals' perceptions of their supervisors' level of effectiveness in various activities and behaviors related to principal support and supervision. Table 8 details principal survey items used to create supervisor effectiveness measures.

Table 8
Supervisor Effectiveness Items from Surveys

Measure	Internal Consistency (scales only)	Survey Item/Scale Items
Supervisor Effectiveness (principal survey scale)	Average interim covariance: 0.70 Cronbach's $\alpha=0.97$	How effective would you say your supervisor is at each of the following? (Not at all effective, Not very effective; Somewhat effective; Effective; Very effective) <ol style="list-style-type: none"> 1. Holding me accountable for taking specific steps or actions 2. Helping me set goals for my development 3. Developing me to meet the needs of diverse learners 4. Providing me with actionable feedback 5. Advocating for my needs with district leadership 6. Protecting my time from trivial issues 7. Connecting me with other central office personnel when needed 8. Encouraging me 9. Helping me to improve the quality of feedback I give to teachers 10. Helping me to improve my teachers' instruction 11. Assisting me with non-instructional issues 12. Developing a trusting relationship with me 13. Helping me focus my time on instructional leadership 14. Helping me implement challenging curricula and assessments 15. Creating a professional learning community among the principals in my network 16. Helping me use and understand school data
Supervisor Supportiveness (principal survey sub-scale)	Average interitem covariance: 0.78 Cronbach's $\alpha=0.93$	<ol style="list-style-type: none"> 1. Advocating for my needs with district leadership 2. Protecting my time from trivial issues 3. Encouraging me 4. Developing a trusting relationship with me 5. Connecting me with other central office personnel when needed

Note: All items listed in the table appeared on all four survey waves.

Supervisor effectiveness (scale). The effectiveness scale captures principals' perceptions of their supervisor's overall level of effectiveness in the supervisor role. Principals rated their supervisors' effectiveness on 16 indicators related broadly to their supervisor's practices and support, such as helping the principal set goals for their own development and providing actionable feedback to them. Effectiveness items were anchored on a 5-point unipolar response scale from "Not at all effective" to "Very effective." Cronbach's alpha of internal consistency for the supervisor effectiveness scale

ranged from 0.96 – 0.97 over the four survey waves (Table 7, Column 2) or 0.97 overall, signifying that the scale was highly internally consistent (DeVellis, 2003).

The supervisor effectiveness (scale) is highly correlated with the frequency of coaching practices scale ($r=0.73$).

Supervisor supportiveness (sub-scale). Factor analysis revealed a sub-scale within the larger scale of overall supervisor effectiveness (see Appendix Tables A1 and A2 for a description of the factor analysis) that captured principal perceptions of their supervisors' effectiveness in indirect and affective support for the principal outside of providing direct job coaching and feedback, which I broadly term *supportiveness*. The supportiveness scale is a 5-item subset of the effectiveness scale that comprises principals' perceptions of the effectiveness of supervisor bridging behavior (“Connecting me with other central office personnel when needed”), buffering behavior (“Protecting my time from trivial issues”; “Advocating for my needs with central office leaders”) and affective support (“Encouraging me”; “Building a trusting relationship with me”).

Principal Performance Measures

The third research question investigates the relationships between supervisor practices and behaviors and principal performance improvement. I define the outcome variables *principal performance improvement* as measurable indicators of change in principal's rated effectiveness as an instructional leader. Principal performance is captured in two metrics: evaluation scores on the administrator evaluation rubric and teacher responses on climate surveys.

Principal overall average observation score. The observation score measures principal job performance over the course of a semester. The study uses data collected

each semester between Spring 2016 and Spring 2018 (5 semesters). For the observation portion of the evaluation, principal supervisors observe and assess principals twice per year using a common rubric composed of four domains or standards: Instructional Leadership for Continuous Improvement, Culture for Teaching & Learning, Professional Learning & Growth, and Resource Management. Of these four domains, the first two are most salient to the theory of action behind principal supervisor role change for principal instructional leadership; however, research has shown that the domains are highly intercorrelated with one another, suggesting that evaluators likely do not distinguish principal performance at the domain level (Grissom, Blissett, & Mitani, 2018). Within each domain, supervisors score principals on each indicator on a scale of 1 – 5 (1 = “Significantly above expectations”; 2; 3 = “At expectations”; 4; 5 = “Significantly above expectations.”) The overall average observation score measure is the average of the supervisor’s rating of the principal on all 17 indicators across the four domains. Principal observation scores in the district tend to cluster in a tight distribution toward the top of the scale, consistent with state-wide patterns (Grissom et al., 2018). In most analyses, principal overall observation scores are standardized within the state and semester to a mean of 0 and a standard deviation of 1.²

Teacher climate surveys. The study uses teacher climate survey measures collected each semester from Spring 2017 to Spring 2018 (3 semesters). Teacher ratings of their school climate on the Panorama Teacher Survey are used to provide an additional measure of principal performance that is independent of any rater bias that may be

² Some principals had multiple entries per semester for their observation scores. In many cases, one of these entries was incomplete or blank and was subsequently dropped from analysis. In cases where two or more full sets of observation scores were available for a single principal within semester, these observations were averaged to one entry.

present in the principal supervisor. These items ask teachers to specifically rate their beliefs about the capacity and effectiveness of aspects of their school climate, including school leadership. Some items and domains vary across waves. When scaled to a single overall scale measure, the overall climate scores are highly intertemporally correlated, at 0.73. The partial correlation coefficient between the climate survey overall measure and principal average observation score is 0.42. This coefficient is comparable to that obtained in a Tennessee statewide analysis that compared the relationships between principal observation scores and a different statewide climate survey (Grissom et al., 2018), suggesting that the climate survey is a concurrently valid proxy for principal performance.

School Leadership scale. The School Leadership scale measures teachers' perception of the capacity and quality of their school leadership. The scale is composed of 9 items (Table 9). The School Leadership scale appears in all three waves of the climate survey (Spring 2017, Fall 2017, Spring 2018). Sample items include, "How clearly do your school leaders identify their goals for teachers?" and "How positive is the tone that school leaders set for the culture of the school?" Wording on response scales varies according to the item (e.g., "Not at all clearly" or "Not at all positive"). All response scales are unipolar in measuring teacher perceptions of the favorability of the item from a minimum to maximum scale. The three waves of the School Leadership scale are highly intertemporally correlated, at 0.74. Additionally, the scale has very high internal consistency, with Cronbach's alpha of 0.95 – 0.96 per survey wave, and 0.95 overall.

Table 9
Panorama Climate Survey Items for School Leadership Scale

Item	Response scale				
How clearly do your school leaders identify their goals for teachers?	Not at all clearly	Slightly clearly	Somewhat clearly	Quite clearly	Extremely clearly
How positive is the tone that school leaders set for the culture of the school?	Not at all positive	Slightly positive	Somewhat positive	Quite positive	Extremely positive
How effectively do school leaders communicate important information to teachers?	Not at all effectively	Slightly effectively	Somewhat effectively	Quite effectively	Extremely effectively
How knowledgeable are your school leaders about what is going on in teachers' classrooms?	Not knowledgeable at all	Slightly knowledgeable	Somewhat knowledgeable	Quite knowledgeable	Extremely knowledgeable
How responsive are school leaders to your feedback?	Not at all responsive	Slightly responsive	Somewhat responsive	Quite responsive	Extremely responsive
For your school leaders, how important is teacher satisfaction?	Not important at all	Slightly important	Somewhat important	Quite important	Extremely important
When the school makes important decisions, how much input do teachers have?	Almost no input	A little bit of input	Some input	Quite a bit of input	A tremendous amount of input
How effective are the school leaders at developing rules for students that facilitate their learning?	Not at all effective	Slightly effective	Somewhat effective	Quite effective	Extremely effective
Overall, how positive is the influence of the school leaders on the quality of your teaching?	Not at all positive	Slightly positive	Somewhat positive	Quite positive	Extremely positive

Source: Panorama Education, 2015.

For each climate survey wave, individual teacher responses were averaged to the school level. In some analyses, the School Leadership scale is standardized wave to a mean of 0 and a standard deviation of 1.

Other Variables

In the first research question, I quantitatively estimate links between principal and school characteristics and supervisor practices. In the third research question, I control for principal-level and supervisor-level variables that may confound relationships between supervisor practices and behavior measures and principal performance outcomes.

Principal and school level variables. A variety of variables are used as predictors or controls at the principal level because they may influence both supervisor practices and principal performance.

Principal total years of experience. This variable captures principals' total time spent in the principal role in any school, inside or outside the study district. On surveys, principals reported in whole numbers their total years of experience in the role. Values greater than 50 were recoded to missing.

Principal years of experience in current school. This variable captures principals' years of school-specific experience. On surveys, principals reported their years of experience in their current school, irrespective of their total years of experience as a principal. Values greater than 50 were recoded to missing.

Principal race/ethnicity. On surveys, principals identified their race according to the following categories: White, Black or African-American, Asian, Native Hawaiian or Pacific Islander, and American Indian or Alaska Native. Principals then indicated whether their ethnicity was Hispanic or not Hispanic. Principals were able to select multiple racial categories. The measure was recoded to three categories: White, Black, and Hispanic/Other race or ethnicity. Principals who selected Hispanic as an ethnicity were included in the Hispanic/Other category, regardless of selected race.

Surveys asked principals for their race and ethnicity in the 2017-18 school year only. To recover principal race and ethnicity for the 2016-17 school year, demographic files from state administrative data were used to back-fill race/ethnicity values for principal respondents in that year.

Principal gender. On surveys, principals identified their gender as Male, Female, or Other. Other was not selected by any principal on surveys and is therefore not tabulated in descriptive statistics. Surveys asked principals to identify their gender in the 2017-18 school year only. To recover principal gender for the 2016-17 school year, demographic files from state administrative data were used to back-fill gender values for principal respondents in that year.

Years supervisor has overseen principal. On all waves of the survey, principals reported to the nearest whole number the number of years their supervisor had supervised them to. Although all supervisors were new to the district's most recent incarnation of the supervisor role, some had been working in prior iterations of the supervisor role before 2016-17. Principals reports of the total number of years they had worked with their current supervisor in ranged from 1 to 10 years.

School math and English achievement. These variables measure student proficiency in math and English at the school level. To construct a school-level achievement measure in math and English, individual student scale scores on summative math and reading tests in 2014-15 (elementary and middle schools only), 2015-16 (high schools only), 2016-17, and 2017-18 were aggregated to the school level and standardized within state, year, and test type to a mean of 0 and standard deviation of 1. At the high school level, end-of-course test scores in all math levels (Algebra I and II; Math I, II, and III) or English levels (English I, II, and III) were used to create the math and English achievement variables. At the elementary and middle school level, state achievement test scores for grades 3 – 4 (elementary and 5 – 8 (middle school) in math and reading/literacy were used to construct the respective achievement variables. Math

and literacy achievement scores in the district are somewhat below the state average, although there is wide variation in the achievement of the individual schools that each principal oversees.

Because 2015-16 test results are not available in the state administrative data, the first year of the study, 2014-15 test results are used as a prior year achievement measure for elementary and middle schools in analyses that require prior year measures. In schools with unusual grade level spans, such that both end-of-course and state achievement test scores were available in the same year, end-of-course tests are due to the availability of more recent 2015-16 scores.

Supervisor level predictors/controls. In models without supervisor fixed effects, I include two supervisor variables in models that may influence both their practices with principals and their ratings of principal performance.

Supervisor span of control. This variable tallies the total number of principals a supervisor oversaw in each semester. On surveys, supervisors entered their current span of control. Individual supervisor span of control ranged from 5 to 14 during 2016-17 and 2017-18.

Supervisor years of principal experience. This supervisor survey variable tallies the total years of experience a principal supervisor spent in the principal role, either inside or outside of the study district, before becoming a principal supervisor. Individual supervisor years of principal experience ranged from 2 to 14.

Method of Analysis

This section describes the design and method of analysis for the overall study as well as each research question. First, I describe the overarching mixed methods framework in which the study is designed and within which results will be presented. Second, I describe the qualitative coding structure and framework. Third, I outline the quantitative analytic strategy for the first and third research questions (the second research question, being purely qualitative, does not include quantitative analysis).

Qualitative Methods

Code development. Once interviews were transcribed and collected into a single database, I coded them using thematic coding techniques described by Miles and Huberman (1994) in which codes are generated via an emergent, iterative process. One limiting factor of the coding process described above is the lack of any second coder or external auditor to establish the trustworthiness and replicability. To ensure trustworthiness, I also followed guidance provided by Nowell and colleagues (Nowell, Norris, White, & Moules, 2017) for thematic qualitative studies. First, I developed an initial coding structure according to the guiding concepts of the literature on supervision and organizational function as well as themes that had emerged from post-interview memos. Example initial codes included Interdependence, Adaptation of Practice, and Supervisor Role. I then randomly selected one central office leader, two principal supervisors, and two principals (16 percent of all transcripts) and coded them with the initial structure.

During the initial coding phase, I added new codes to reflect emerging themes in the qualitative data. These themes appeared independently from quantitative findings and

did not necessarily correspond with them. Emergent parent codes included Organizational Culture, Relationships, and District mission/values. After completing the initial coding phase of the five transcripts, I revised the coding structure and re-coded the same five transcripts to determine code saturation. I then compared my final coding tree with post-interview memos to ensure that major themes were represented in the coding tree. Once the coding tree was deemed satisfactory, I coded all 31 transcripts with the final coding framework. In total, I generated 29 parent code categories and 52 total codes (Table 10).

Table 10
Descriptions and Applications of Qualitative Codes

Title	Description	Total Application
Accountability	Accountability of personnel (CO, PS, P) within organization, not for teachers/students	36
→ Evaluation and feedback	Evaluation of personnel (CO, PS) within organization for accountability purposes; not principals or teachers	24
Adaptation of Practice	Supervisors' adaptation of practices in response to principal characteristics or needs	83
Autonomy/Variation	Variation in supervisor practice that is not adaptive. May be framed as supervisor autonomy	27
Challenges	General challenges or, when double-coded, challenges/breakdown/failure in this area	232
Communication	References to communication, including systems and structures, within CO or among CO/PS/P	28
Data	References to data in general, not work PS and P do with data	17
Decoupling	Segmentation or silos within CO or between CO and schools	45
District mission/values	References to formal aspects of district mission and informal missions/values espoused by top leadership	77
→ Achievement/accountability	Student achievement and school accountability to state/district expectations and frameworks	20
→ Equity	Mentions of equity or inequity within the district, e.g., in achievement, resources, teaching	5
→ School/Principal Support	General district support for principal/school growth and improvement. Does not include evaluation.	43
External Environment	Influence or interactions with external environment, e.g., community, state, foundations.	21
→ Budget	References to budget or funding in general.	9

→ Legitimation/Signaling	District efforts to signal to external environment	3
Generalism	PS behaving or engaging in generalist behaviors not specific to the new role	19
High Quality Instruction	Refers to form/function of HQI in general in the district, not the instruction work PSs do with Ps	14
Instability/Turnover/Chaos	Organizational instability including leadership/system change, turnover. Includes crises and chaos, whether internal or in response to external events.	26
Instructional Leadership	Refers generally to leadership of teaching and learning, not IL work PSs do with Ps. Distinct from HQI in that it focuses on leadership, not instruction itself.	53
Interdependence	Includes any: pooled (default), sequential, or reciprocal	79
→ CO/PS Interdependence	Interdependence between CO and PS	26
→ P/CO Interdependence	Interdependence between P and CO	6
→ P/PS Interdependence	Interdependence between P and PS	34
Local Context	References to the influence of local context on PS or CO work, including geography and history	16
Org Integration	Vertical/lateral - "the quality of the state of collaboration" among units that have to work together	121
Organizational Culture	Broad discussions of the present culture within the CO.	17
→ Historic	Discussions of CO culture in the past.	4
PS Coaching and Support	Any coaching and support PS receive from CO or external provider. Not evaluation.	12
PS Hiring	PS hiring process or plans.	4
PS/PS Collaboration	PS working with other PS to collaborate, plan, reflect, problem-solve.	21
Recoupling	Intent of any system, structure, change, or behavior to recouple schools and CO.	61
Relationships	Discussions of relationships with other personnel or departments, including importance of. Double-code with Challenges for interpersonal conflict.	46
Role	General references to the PS role.	378
→ Actual role	Theory of the new role in action	15
→ CO work/liaison	Aspects of the role that have to do with central office work, including liaising for principals.	38
→ Coaching/feedback	Coaching and feedback from PS to P. Not evaluation.	78
→ Compared to old role	Discussions that compare/contrast new PS role to former role or role expectations.	22
→ Empowerment	PS empowerment, encouragement, or supportiveness of P in role.	40
→ Evaluation/Assessment	PS evaluation of P, both formative and summative, informal and formal.	43
→ Ideal/theorized role	Any espoused theory of the new role, including district expectation	27
→ Instruction/Data	PS work with P on teachers' instruction or any school data	57
→ Non-instructional	PS work with P that is non-instructional, e.g., managerial, operational, logistics	38
→ Principal meetings	References to PS-conducted principal/network meetings. Not all-district meetings.	54

→ PS Skills/Beliefs/Background	Discussions of supervisor skills, areas of expertise, background and experience	37
→ Time/visits	Discussions of how PS spend time and when, how long PS visits P at school	59
Role Differentiation	Discussions of how similar or difference the PS role is from other CO roles	31
Specialization	PS specialization or increasing specialization in some focus with P (especially IL)	45
Standardization	Discussions of consistency of practice among all PS or reflections on consistency over time. Also includes district standards for PS practice.	88
Superintendent/Cabinet	References to superintendent or superintendent meetings with “cabinet” chiefs	20
Systems/Structures/Meetings	References to systems/structures/meetings in which PS participate, in general or double-coded to refer to specific systems	130
→ Span/Network assignment	PS span of control or discussions of network and assignment to network	40
Training	Trainings for PS or trainings for other personnel that involve PS.	25

Note: Codes preceded by an arrow are sub-codes.

Code analysis. Once coding of all transcripts was complete, I sorted excerpts according to the concepts outlined in the conceptual framework: Standardization, Specialization, Adaptation, Integration, Interdependence, Role Differentiation, and Principal Performance. Within each concept, I sorted findings by theme and then by participant type (central office, principal supervisor, principal). I then developed a separate qualitative analysis of themes. Once quantitative analysis was complete for research questions 1 and 3, I matched qualitative themes to relevant quantitative findings and interpreted the integrated results.

Member checking. Once the initial qualitative analysis was complete, I created a separate qualitative write-up of major themes and findings. I then submitted this write-up to district leadership, who proposed a presentation and feedback session with district leaders, principal supervisors, and principals. This meeting would have allowed for member-checking (Creswell & Clark, 2018) in which participants could affirm or dispute

the accuracy of qualitative findings. Regrettably, sudden turnover of key district leadership prevented this meeting from taking place. Consequently, participants did not review final qualitative findings and member checking was not completed.

Quantitative Analytic Strategy

Research questions 1 and 3 estimate quantitative relationships between principal-reported supervisor practices and key dependent variables. This section describes the estimation strategies used in each of the research questions.

Research question 1: Supervisor practices. The first research question asks: what are the practices that define principal supervision, and to what extent have these changed over time? The quantitative analyses presented in this research question are all descriptive in nature. I begin by first summarizing the means, standard deviations, and ranges of each variable at the district level.

RQ1a. To what extent are practices standardized across principal supervisors? Standardization is the extent to which a practice or belief is the same from one supervisor to the next. Statistically, means of practice or beliefs that do not vary across supervisor suggest that a practice is standardized. I measure standardization in the following areas captured by principal surveys: number of meetings at school, duration of meetings at school, focus on instructional leadership during meetings with principals, and frequency of high-quality coaching practices.

I first generate descriptive box plots of principal-reported practices at the supervisor level for the year 2017-18 to look at differences across supervisors. Next, I generate box plots of principal-reported practices over each wave of the survey to look for evidence that variation between supervisors is decreasing over time.

To statistically test for standardization in RQ.1a, I use the OLS regression equation,

$$Y_{ijt} = \beta_0 + Supervisor_{ijt}\beta_1 + \pi_t + e_{ijt}$$

in which Y represents a supervisor practice as reported by principal i supervised by supervisor j in time t, *Supervisor* is an indicator for who the principal's supervisor is, π is an indicator for survey wave (time), and e is individual error. Errors are clustered at the principal supervisor level. If no variation in the practice exists across supervisors, coefficients (means) for *Supervisor* will not be significantly different from one another.

To test for standardization over time, I compare intra-class correlations (ICCs) in principal-reported practices across waves. ICCs measure the proportion of variance that is explained by group membership (Snijders & Bosker, 1999). If standardization is occurring, the ICC in both the supervisor and principal-reported practice will shrink over time

RQ1b: To what extent do principal supervisors specialize in instructional leadership in their work with principals? First, I examine descriptively the percentage of time supervisors spend focusing on instructional leadership with principals relative to other foci.

To determine whether supervisors are increasing their focus on instructional leadership over the course of 2016-17 and 2017-18, I regressed the two measures of instructional leadership—percentage of focus on instructional leadership and frequency of coaching practices—on each wave of the survey. Because the seasonally-dependent nature of supervisors' work indicates that specialization in instructional leadership may not proceed linearly, wave is included as a categorical variable with Wave 1 (Fall 2016)

as the reference category. I use fixed effects regression estimation as specified in the model:

$$Y_{ijt} = \beta_0 + Wave2_t\beta_1 + Wave3_t\beta_2 + Wave4_t\beta_3 + \gamma_j + e_{ijt}$$

where Y alternately represents principal-reported proportion of time spent focusing on instructional leadership and supervisors' use of high-quality coaching practices; $Wave2$, $Wave3$, and $Wave4$ are dummy indicators for Spring 2017, Fall 2017, and Spring 2018; γ is a supervisor fixed effect; and e is robust principal-level error. I also estimate models without supervisor fixed effects, clustering errors at the supervisor level. If specialization in instructional leadership or coaching is increasing among supervisors over time compared to Fall 2016, the coefficient on each $Wave$ indicator will be positive and significant.

RQ1c: To what extent do supervisors vary their practices according to principal characteristics? The third question estimates relationships between principal variables and supervisor practices by regressing principal-reported practices on quantitative principal predictors. Preliminary descriptive analysis of the first wave of survey data suggested large variation in the characteristics and number of principals assigned to each supervisor. Therefore, in addition to district-level estimation, supervisor fixed effects are included in some models to facilitate within-supervisor comparisons. These fixed effects regressions are estimated from the following model:

$$Y_{ijt} = \beta_0 + YearsSchool_{ijt}\beta_1 + PriorObsScore_{ijt}\beta_2 + PriorAchieve_{ijt}\beta_3 \\ + SchType_{ijt}\beta_4 + Race_i\beta_5 + Gender_i\beta_6 + PSYrs_{ijt}\beta_7 + \gamma_j + \pi_t \\ + e_{ijt}$$

where Y represents some principal supervisor measure of time and focus reported by principal i who is supervised by supervisor j in time t , $PriorObsScore$ represents the principal's prior semester overall average observation score, $YearsSchool$ is the years the principal has served in his or her current school, $PriorAchieve$ is the standardized achievement score from the previous year, $SchType$ is the type of school the principal works in, γ is a supervisor fixed effect, $Race$ and $Gender$ represent the time-invariant principal demographics race and gender, $PSYrs$ is the number of years the current principal has been overseen by their supervisor, γ is a supervisor fixed effect, π is a wave fixed effect, and e captures error. In models without supervisor fixed effects, supervisor span of control and years of experience as a principal are included as controls and errors are clustered at the supervisor level. If related to practice Y , the coefficient on a principal characteristic will be significant and positive or negative depending on the relationship.

RQ1d: To what extent are principal supervisor practices related to principal ratings of supervisor effectiveness? As an extension of the analysis of predictors of supervisor practice, I also examine predictors of principal-reported supervisor effectiveness. Specifically, I estimate the relationship between supervisor practices and principal perceptions of supervisor effectiveness. The relationship is estimated with the equation

$$Effectiveness_{ijt} = \beta_0 + Meetings_{ijt}\beta_1 + Duration_{ijt}\beta_2 + ILFocus_{ijt}\beta_3 + Practices_{ijt}\beta_4 + \delta_{it} + \gamma_j + \pi_t + e_{ijt}$$

where the scale of effectiveness ratings for principal i within supervisor j in semester t is a function of principal practices (number of meetings at school, duration of meetings at school, focus on instructional leadership, and scale of frequency of coaching practices), δ

is a vector of time-varying principal and school controls (school achievement, years of experience in school, school type, race, gender, and number of years supervised by current principal), γ is a principal supervisor fixed effect, π is a wave fixed effect, and e is an individual error term.

Given that the dependent and independent variables in this model are derived from a common source, the survey responses of an individual, resulting estimates may be biased (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). In particular, because the scale of coaching practices and scale of effectiveness are highly intercorrelated ($r=0.73$), bias in the coefficient on practices is a concern. Leniency bias may also be a concern on both the measure of focus on instructional leadership and measure of coaching practices: Principals who feel positively about their supervisor may be inclined to inflate their reports of the supervisor’s engagement in these activities if they believe them to be signals of a “good” supervisor. In order to reduce any bias induced by common source and method, I construct jackknife (leave-one-out) estimators of both focus on instructional leadership and use of coaching practices by using the technique described by Abdi and Williams (2010) in which the jackknife value for principal i is equal to the supervisor group mean of the variable when principal i is excluded, in the form of:

$$\hat{\theta}_* = \frac{1}{n-1} \sum_{i=1}^n \theta_{-i}$$

This measure is used in place of the single-source measure in models without supervisor fixed effects. In models which include jackknife measures I exclude the supervisor fixed effect and instead control for supervisor span of control and supervisor’s years of experience in school, which may moderate the relationship between supervisor practices and principal perceptions of supervisor effectiveness. I also estimate a model

with supervisor fixed effects, which limits the comparison of principal ratings of supervisor effectiveness to those with the same supervisor. The small size of supervisor groups severely restricts the amount of variation that can be leveraged to estimate within-group relationships, therefore preventing the inclusion of the jackknife measure. In this model, I use the original single-source measure of focus on instructional leadership and use of coaching practices.

Research question 3: Principal performance improvement. The third research question asks: to what extent are principal supervisor practices and beliefs related to principal performance improvement? To answer this question, I estimate a growth model of the form:

$$Y_{ijt} = \beta_0 + Y_{ijt-1}\beta_1 + Meetings_{ijt}\beta_2 + Duration_{ijt}\beta_3 + ILFocus_{ijt}\beta_4 + Practices_{ijt}\beta_5 + Supportiveness_{ijt}\beta_6 + \delta_{it} + \gamma_j + \pi_t + e_{ijt}$$

Where Y is principal performance (variously observation score or teacher ratings of school leadership on climate surveys) for principal i within supervisor j in semester t is a function of principal's prior-semester performance, principal-reported supervisor practices (number of meetings at school, duration of meetings at school, focus on instructional leadership, and scale of frequency of coaching practices), the scale of principal-reported supervisor supportiveness, δ is a vector of principal and school controls including prior year achievement, principal total years of experience, and school type, γ is a principal supervisor fixed effect, π is a wave fixed effect, and e is an individual error term. Some models exclude supervisor fixed effects and instead include controls for supervisor span of control and supervisor years of experience as a principal.

CHAPTER VI

RESULTS AND FINDINGS

Results are divided according to the three central research questions of the dissertation. The first section, principal supervisors' work, examines whether supervisors' practices are consistent from one supervisor to the next, specialized in focus, and adapted to principal and school characteristics. The second section, central office support, draws on qualitative data to describe the role the district central office plays in facilitating supervisors' work with principals. The third section, influence on principal performance, regresses two principal performance indicators (evaluation scores and climate surveys) on principal supervisor practices of interest to determine whether supervisor practices can be associated with subsequent principal performance improvement. Each section concludes with a short discussion of findings.

Findings: Principal Supervisors' Work

The first main research question asks: what practices and beliefs define supervisors' new role? I combine descriptive statistics drawn from principal supervisor and principal surveys with qualitative interview data to answer this question. First, I describe supervisor practices overall. The three analyses of the standardization, specialization, and adaptation of supervisors' work that follow focus on principal ratings of four aspects of supervisors' work: (1) the number of times they met with their supervisor at school, (2) the average length of their meetings together, (3) the percentage of their work with their supervisor that focuses on instructional leadership, and the frequency of the supervisor's use of coaching

practices. I include principal ratings of supervisor effectiveness as a natural extension of supervisor practices in all three analyses. I also include principal supervisors' reported time allocation in the standardization and specialization analyses.

The Structure of Supervisors' Work

Supervisors also reported on aspects of their current role (Table 11). The average span of control for a supervisor was about 11 principals. However, span of control varied greatly by supervisor. Some supervisors reported as few as five and as many as 14 schools in their group of principals, or principal *network*. This variation had to do with the structure and assignment of principal networks. The district primarily organized networks by grouping same-grade level schools (such as elementary schools) together geographically. However, in some cases, the district assigned supervisors to schools in other geographic areas due to uneven numbers of schools in each geographic "cluster" area. Sixty-five percent of supervisors reported that their principals were assigned to them mainly on the basis of grade levels served, with geography (35 percent) and feeder patterns (22 percent; the pattern of student movement from one school another due to neighborhood zoning) also serving as criteria for network assignment. School theme and school performance were rarely used as criteria to form and assign networks to supervisors; instead, themed and low-performing schools were typically mixed into other networks.

Table 11
Characteristics of Supervisors' Current Role and Network Assignment

VARIABLE	Obs.	Prop.			
NETWORK GROUPING AND ASSIGNMENT METHOD					
Grade level	32	0.65			
Geography	17	0.35			
Feeder patterns	11	0.22			
School theme (e.g., STEM)	5	0.10			
School performance (e.g., turnaround)	7	0.14			
Other	5	0.10			
SUPERVISOR NETWORK ASSIGNMENT CRITERIA (Spring 2018 only)					
Knowledge of particular grade levels	10	0.83			
Knowledge of low-performing schools	5	0.42			
Knowledge of geographic area	3	0.25			
Assignment not influenced by PS knowledge/don't know	4	0.33			
VARIABLE	Obs.	Mean	SD	Min	Max
Current span of control	48	11.08	2.07	5	14

Note: Supervisors could select multiple network assignment methods and criteria.

Although principal networks were primarily formed according to grade level, many supervisors believed that their knowledge and expertise in multiple school characteristics directly influenced their assignment to particular networks. The majority of supervisors (66 percent) reported that they believed that assignment to their principal networks was purposeful. These supervisors reported that their knowledge and understanding of school characteristics including grade level (83 percent), knowledge of low-performing school contexts (42 percent), and geographic area (25 percent) influenced their assignment to particular networks.

Describing Supervisor Practices

Supervisors and principals reported extensively on their supervisors' strategies and practices during their work together each semester.

Table 12

Means and Standard Deviations of Supervisor-Reported Time Allocation, Averaged Over Time

VARIABLE	Observations	Mean	SD	Min	Max
Visiting schools	49	51.4	16.7	10	80
In meetings with other central office personnel	49	12.7	10.1	2	60
In supervisor team meetings	49	11.4	6.7	0	35
In group/network meetings with principals	49	7.3	5.8	0	30
Individually communicating with school personnel	49	14.0	10.6	0	50
Other	49	3.2	9.8	0	60

Table 12 gives means, standard deviations, and ranges of supervisors reports of time allocation semester. They spent the majority of their time visiting schools. District leaders stated in interviews that the district expects supervisors to spend 60 percent of their time or three days per week visiting principals, a goal that is slightly above the percentage of time that supervisors report spending in schools (51.4 percent). When they were not in their schools, supervisors communicated with principals by phone and email. Supervisors reported spending 14 percent of their time communicating with school personnel, including principals. Supervisors spent the rest of their time meeting with central office personnel, the supervisor departmental team, or with principal networks.

Principals reported on the setting, duration, and focus of their meetings with their supervisors. They also reported the frequency supervisors engaged in high quality coaching practices and rated their supervisors' overall effectiveness. Table 13 displays means, standard deviations, and ranges for the main principal-reported supervisor practice variables of interest.

Table 13
Principal-Reported Supervisor Practices and Experiences, Averaged Over Time

VARIABLE	Observations	Mean	SD	Min	Max
<i>MEETINGS AT SCHOOL</i>					
At school	474	4.7	3.5	0	25
At district meetings	474	3.8	2.7	0	44
In principal group meetings	475	2.7	1.9	0	20
In district PD	474	2.0	3.1	0	50
Other	474	0.2	1.6	0	30
<i>MEETING DURATION (MINUTES)</i>					
At school	455	102.3	78.1	0	420
At district meetings	423	119.0	118.1	0	450
In principal group meetings	398	192.4	153.7	0	450
In district PD	439	87.23	120.7	0	450
Other	475	1.4	14.5	0	240
<i>FOCUS OF MEETINGS (PERCENT)</i>					
Instructional leadership	475	52.2	27.6	0	100
Operational issues	475	16.7	15.7	0	98
Parent/community issues	473	14.2	14.9	0	100
Human resources issues	473	12.8	14.0	0	100
Other	465	4.4	14.6	0	100
Supervisor use of high-quality practices (scale)	475	3.5	0.8	1	5
Supervisor effectiveness (scale)	475	4.0	0.8	1	5
Supervisor supportiveness (scale)	475	4.1	0.9	1	5

Note: Reported values were replaced to missing if they exceeded 60 for visits and 480 for meeting duration. Percent focus responses were limited to a range of 0-100.

District leaders reported that they expected supervisors to visit each principal in their network at least twice per month (about 6 times per semester) during the school year, a goal that is slightly above the actual number of visits principals report receiving on average. Across 2016-17 and 2017-18, principals reported meeting with their supervisor at school an average of 4.7 times in a three month (one semester) period, with each meeting lasting for an average of 109.7 minutes. While school visits are typically principals' only opportunities to meet with their supervisors in dedicated one-on-one settings, principals have many other opportunities to meet in group settings with their supervisors. In total, principals report meeting with their supervisors 13.4 times in a

three month period when meetings at school are combined with district meetings, principal group (network) meetings, principal professional development meetings, and other meetings.

Principals reported that they spent the majority of their meetings with their supervisors on instructional leadership issues (52.2 percent of time), with responses ranging from zero to 100 percent. Operational issues were the second largest area of focus (16.7 percent of time), followed by parent/community issues (14.2 percent of time), and human resources issues (12.8 percent of time). Other issues, such as dealing with school emergencies or principals' personal issues, comprised 4.4 percent of principals' reported focus in their work with their supervisors.

Principals rated their supervisors as sometimes engaging in high-quality coaching practices and as effective in their role. Principals reported on the frequency of supervisors' use of 14 high-quality coaching practices (for example, "My supervisor jointly decided with me on the goals for our visit"), on a five point frequency scale from never to always. When scaled, principals' reported ratings of coaching practices averaged 3.5 out of 5 scale points. I interpret this number to indicate that, on average, principals reported that their supervisors engaged in each coaching practice at least sometimes. Similarly, principals rated their supervisors on 19 effectiveness items (for example, "holding me accountable for taking specific steps or actions") on a five point scale of effectiveness from not at all effective to very effective. Principals' reported ratings of supervisor effectiveness average 4.0 out of 5 possible scale points. On average, principals rated their supervisors as effective in their role.

Standardization of Supervisor Practices

Research question 1a asks, to what extent are practices standardized across principal supervisors, and to what extent have they become more standardized over time? Standardization refers to the consistency of practice among supervisors. *Standardization of work processes* is the

term used by management theorists to describe aspects of work that are specified or programmed rather than left to the autonomy of the individual (Mintzberg, 1979). Standardization removes the need for constant supervision by allowing each worker to work independently while also ensuring that work is coordinated across each worker.

The number of supervisors working in the district each year and high yearly turnover from the position introduced possibilities for variation in how supervisors worked with principals. Each year, the district employed at least 12 supervisors to oversee approximately 138 principals. Between the 2016-17 and 2017-18 school years, 19 different individuals held the supervisor role in the district; five held the role in both years.

District expectations for supervisor consistency. In interviews, district leaders within the Office of Schools expressed a desire for consistency across principal supervisors in terms of key practices. Area superintendents viewed their main responsibility as coordinating the work of school support across the quadrants, including coordinating the work of the principal supervisors. In addition to the mandate that supervisors spend three days a week in schools, area superintendents further implemented expectations for what they considered “non-negotiable” supervisor practices. Area superintendents expected all supervisors to use the same coaching framework, which provided a structured approach to how supervisors gave ongoing feedback to principals on their own practice. This framework was developed by an external provider, who trained supervisors in the use of the framework throughout the 2017-18 school year. They also expected supervisors to implement 6-8 week long “inquiry cycles” with all of their principals in which the supervisor and principal worked to analyze school data to identify teacher problems of practice and implement a plan of improvement. Principal supervisors provided structured feedback to the principal throughout the process. Supervisors received ongoing training from a

different external provider on how to conduct inquiry cycles. A final expectation from area superintendents was for all supervisors to document their work with each principal over time and to make this ongoing document accessible to principals.

Area superintendents were hesitant to create many formal expectations for supervisor practice out of the concern that doing so would make their work rigid. They did not officially state expectations for how much time supervisors should spend focusing on instructional leadership issues with principals except to state that this should be the primary focus of their work. One area superintendent (the supervisors of the principal supervisors) explained that district leaders had held off on prescribing the amount of time supervisors should spend working with principals on instructional leadership because this would likely depend on the level of intensity or “tier” of support each school needed. At the same time, area superintendents described the main role of the principal supervisor as to help principals become instructional leaders.

The majority of supervisors’ instructionally-focused work with principals occurred during one-on-one visits to schools. School visits tended to center around classroom walkthroughs. Besides walkthroughs, supervisors also visited schools to observe the principal at work in other areas, such as having a post-conference with a teacher, leading a meeting of the data team or instructional leadership team, or conducting a parent event. These events were important for helping the supervisor get an accurate picture of the principal’s leadership for state-mandated evaluations but could also lead to valuable coaching sessions.

After the visit, supervisors usually provided feedback to principals using the coaching model the district had adopted from an external provider. Feedback was oral (immediate), written (sent later), or a combination of both. At least two quadrants created or adopted tools to

facilitate supervisor feedback, which supervisors reported was very helpful for organizing their feedback. Some supervisors acknowledged that it was difficult to provide detailed feedback to principals after every visit because of time constraints.

Standardization of practices across supervisors. Within the context of principal supervision, I hypothesized that, in revising the role, the district would standardize some aspects of supervisors' work and that practices would become more consistent over time among supervisors, with smaller variation in practices in the 2017-18 school year compared to the 2016-17 school year. Appendix Table A3 provides pair-wise correlations of supervisor practices of interest.

By the 2017-2018 school year, principal supervisors had not achieved consistency of practice in three of the four practices examined. Figure 2 displays box plots of principals' reported supervisor practices averaged over the fall and spring of the 2017-18 school year.

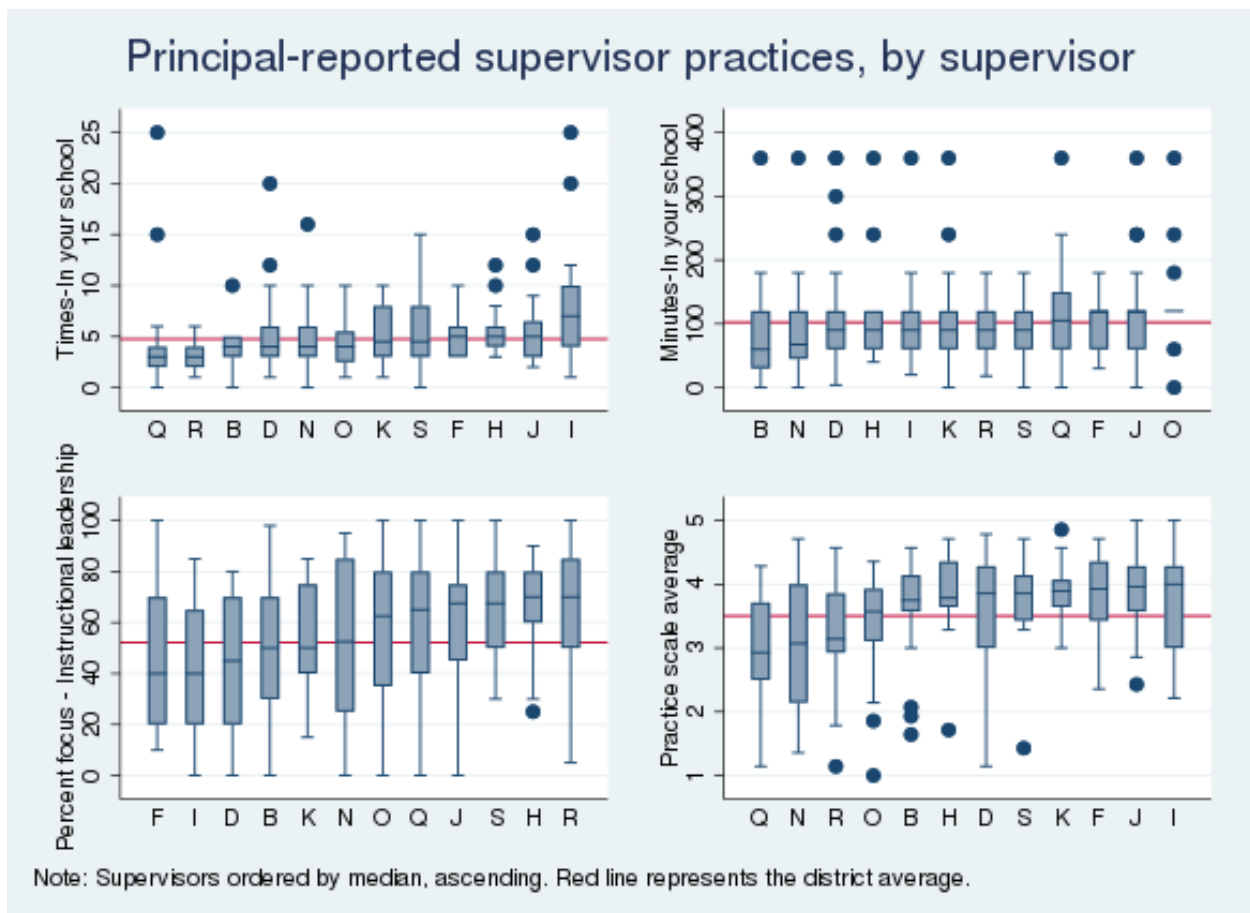


Figure 2. Box Plots of Principal-reported Supervisor Practices in 2017-18, By Supervisor

Regressions of each of the four practice measures on supervisor indicators (controlling for semester) confirmed that there were statistically significant differences in number of visits, time spent on instructional leadership, and use of coaching practices across supervisors; differences in the duration of meetings at school were not significant, indicating that supervisors were generally consistent in this practice. Appendix Figure A2 displays margins plots from the regressions.

Qualitative interviews revealed that inconsistency of practice between supervisors was a known problem within the district and an issue that central office leaders and supervisors were working to address beginning in 2017-18. Central office leaders and supervisors described very

few universal supervisor practices. While central office leaders clearly articulated the academic goals for principal supervision, processes for how principal supervisors should work with principals to meet these goals remained loosely defined.

“Looseness” in principal supervision supported principal supervisors’ ability to differentiate across and within quadrants by allowing them autonomy to work as they saw fit, but it also prevented the supervisors from calibrating their expectations and practices at a district level. Some central office leaders blamed the inconsistency on the clustering of supervisors into geographic quadrants. Supervisors reported collaborating more frequently with their quadrant area superintendent and quadrant supervisors, but not with supervisors in other quadrants. An area superintendent explained that, as the 2017-18 school year progressed, supervisors in some of the four geographic quadrants appeared to be working more effectively with principals compared to other quadrants:

We started out with a vision around it being pretty tight across all quadrants. And then we said, well, the purpose of us being by the quadrants and networks is because every quadrant is a little different. And so we started to loosen up. But then, when we were able to loosen up, then what we were met with is the idea that some quadrants were getting more than others, some were moving faster than the others, and others were being left behind.

Varying practices across supervisors made the onboarding of new supervisors particularly challenging. These supervisors had few universal systems to latch onto and instead learned that each veteran supervisor had his or her own system for working. A supervisor who was new to the district in 2017-18 described a system of ad hoc learning in which veteran supervisors offered to share their own individual tools, protocols, and systems with newly hired supervisors:

The more seasoned supervisors were helpful in letting new supervisors know what their systems were. ... They offered for new supervisors to shadow them and do things with them, just so they could kind of see what they had been doing and how.

Perceived inconsistency of practice across supervisors was the main frustration principals expressed in interviews. Principals heard about differing supervisor expectations from other principals, which fed the belief that there was little accountability for how supervisors worked. For instance, one principal described hearing that principals in another supervisor network did not have to regularly turn in and discuss their time sheet with their supervisor, as she did. This difference led her to wonder why there were not “checks and balances” in the district to ensure that supervisors had the same expectations for their principals.

Principals’ perception of inconsistency of supervisor practice mainly centered around evaluation. Perceived unspoken rules and differences in evaluations from one supervisor to another created anxiety for principals. They were particularly concerned that different supervisors communicated different expectations and rules or required different documentation for principal evaluations. For example, some supervisors requested specific documentation from principals to demonstrate competence in certain leadership areas, while others left documentation up to the principal. Many principals believed that their supervisor’s evaluation process was at best idiosyncratic and at worst produced unfair evaluations.

Standardization of practices over time. Standardization may also occur over time. As the district deepens implementation of the new principal supervisor role, supervisors’ practices may grow more consistent. For example, while there may still be consistent variation in supervisor practices from one supervisor to another in Spring 2018, this variation may be considerably less than it was in Fall 2016 or Spring 2017. Figure 3 displays simple boxplots to visually track principal reported distributions of supervisor practices over the fall and spring semesters of 2016-17 and 2017-18.

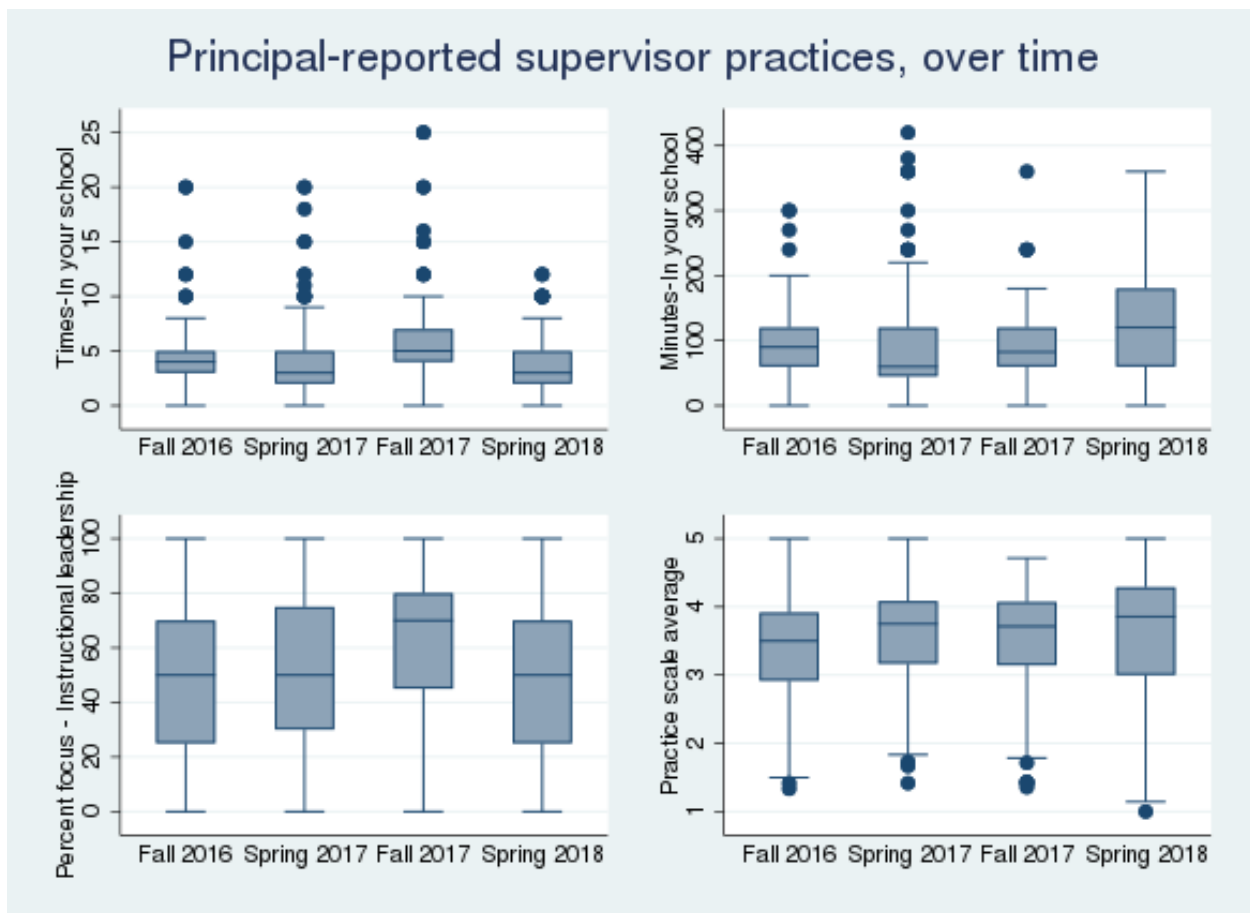


Figure 3. Box Plots of Principal-Reported Supervisor Practices, Over Time

Boxplots that shrink in interquartile range (the distance between the top and bottom of the box, representing the 25th and 75th percentiles of the distribution of the variable) and minimum/maximum values may indicate increasing consistency in reported supervisor behaviors over time. The boxplots in Figure 3 do not appear to suggest that variation among principal reports of supervisors’ practices have shrunk.

The next analysis compares intraclass correlations (ICCs) from mixed model analyses to gain insight into the amount of between-supervisor variance in key practice measures over time. The ICCs represent the proportion of the total variance that is between supervisors. Thus, the ICC may shrink over time if (1) between-variance is decreasing, a sign that supervisors are

becoming more alike in their practice, or (2) the variance within each supervisors' group of principals is increasing. Table 14 gives the means, standard deviations, and intraclass correlations of the key practice measures over time.

Table 14
Means, Standard Deviations, and Intraclass Correlations of Principal-Reported Supervisor Practices

VARIABLES	Fall 2016	Spring 2017	Fall 2017	Spring 2018
Meetings at school	4.61 (3.01)	4.36 (3.79)	6.04 (4.22)	3.85 (2.50)
<i>ICC</i>	<i>0.11</i>	<i>0.16</i>	<i>0.04</i>	<i>0.07</i>
Duration of meetings at school	94.42 (55.00)	105.89 (98.48)	87.39 (52.65)	130.73 (105.64)
<i>ICC</i>	<i>0.10</i>	<i>0.14</i>	<i>0.08</i>	<i>0.00</i>
Focus on instr. Leadership	49.29 (26.42)	49.38 (29.22)	61.39 (24.23)	48.02 (28.64)
<i>ICC</i>	<i>0.14</i>	<i>0.23</i>	<i>0.15</i>	<i>0.00</i>
Coaching practices (scale)	3.35 (0.78)	3.56 (0.73)	3.54 (0.75)	3.57 (0.96)
<i>ICC</i>	<i>0.28</i>	<i>0.10</i>	<i>0.07</i>	<i>0.10</i>
Observations	117	113	126	119

In general, the ICCs increase slightly between Fall 2016 and Spring 2017 before trending downward over time for all variables. It is possible that the changes after Spring 2017 represent a decline in between-supervisor variance, but it is also possible that the variance within each group of supervisors has grown, particularly because total variance increases over time for all measures except meetings at school. In Spring 2018, the ICCs of the instructional leadership and duration of meetings measures are nearly zero; none of the variance in these measures can be explained by between-supervisor differences. Taken as a whole, the ICCs suggest that, over the two years, differences between supervisors decreased relative to the total variation in each practice measure, a possible sign of increasing consistency of practice. This finding is important

to contrast with the box plots shown in Figure 2, which illustrates differences across supervisor practices in 2017-18; while variance may have shrunk, it did not disappear entirely.

In interviews, central office leaders and supervisors who had been in the district for at least two years expressed that, while variation in practices persisted across principal supervisors, their consistency of some practices had improved over time, particularly during the 2017-18 school year. Central office leaders and supervisors indicated that the combination of external training they received on principal coaching and feedback, district training on conducting principal evaluations, and new district expectations for the amount of time supervisors needed to spend in schools helped to gradually improve consistency by introducing common tools, schedules, and protocols for work with principals. At the same time, none of the interview participants believed that supervisors had achieved optimal consistency of practice.

Principal reports of consistency of practice over time were mixed. Veteran principals spoke of a constantly rotating cast of supervisors who worked with them in previous years whose practices were ad hoc and idiosyncratic. While some of these principals did not see a strong difference in the way their supervisor worked with them in the supervisor role over the course of 2017-18, most veteran principals did notice a change, particularly in the amount of contact they had with their supervisor and the supervisors' increased focus on teaching and learning. One principal described the work with her supervisor as "more focused" compared to the past: "In the past, it was more random check-ins... [this year] we always had to sign up for visits and our work was focused around specific practices." This idea of a more consistent, planned approach to principal support was echoed by other principals in other supervisor networks.

Specialization in Instructional Leadership and Coaching

Research question 1b asks, to what extent do principals specialize in instructional leadership in their work with principals? Unlike standardization, specialization does not imply consistency; supervisors may be considered specialists if their work concerns one primary focus rather than disparate focuses. The district's revised principal supervisor role called for supervisors to spend more time working with principals on developing instructional leadership and relatively less time on other aspects of the principal role, such as operations and human resource management. Principal reports of supervisors' focus on instructional leadership confirm that supervisors spend more time on instructional leadership with principals than any other focus (ranging from 49 to 61 percent per semester), suggesting that supervisors are specializing in instructional leadership.

One challenge to capturing increasing specialization *over time* may be the seasonal nature of supervisors' work. For instance, supervisors may spend more time focusing on instructional leadership with principals in the fall than in the spring due to the many managerial/operational demands principals face in the spring such as coordinating testing and creating a budget for the following school year. In a separate analysis, principal supervisors' behaviors were found to change significantly depending on the semester. Specifically, supervisors met with principals less frequently in the spring and spent less time on instructional leadership. When they did meet with principals at school, supervisors typically stayed longer. Neither frequency of supervisor coaching practices nor supervisor effectiveness varied significantly by season. Figure A3 in the Appendix displays kernel density results that illustrate seasonal differences in supervisors' work.

To determine whether supervisors increased their focus on instructional leadership over time, I regressed percentage of focus on instructional leadership and frequency of coaching

practices on the nonlinear time trend variable, wave. Treating time as a nonlinear variable allows for seasonal differences in supervisors' work. Table 15 displays estimation results of the specialization regression.

Table 15
Estimation Results of Supervisor Specialization in Instructional Leadership Over Time

VARIABLES	(1) Percent focus on IL	(2)	(3) Frequency of coaching practices	(4)
Wave 2 (Spring 2017)	0.09 (3.35)	-0.09 (3.44)	0.00 (0.12)	-0.05 (0.12)
Wave 3 (Fall 2017)	12.10* (4.48)	18.75*** (4.12)	0.00 (0.19)	0.38 (0.24)
Wave 4 (Spring 2018)	-1.27 (4.18)	5.61 (5.17)	0.00 (0.18)	0.39 (0.25)
Constant	49.29*** (3.51)	45.85*** (2.33)	-0.00 (0.17)	-0.19 (0.12)
Observations	475	475	475	475
R-squared	0.04	0.06	0.00	0.02
Supervisor FE	N	Y	N	Y

Note: Robust standard errors in parentheses. The scale of frequency of coaching practices is standardized within wave to a mean of 0 and standard deviation of 1.

*** p<0.001, ** p<0.01, * p<0.05

The results in Table 15 support the hypothesis that supervisors increasingly specialized in instructional leadership with their principals, although this trend was not monotonic. Principals reported in Fall 2017 that their supervisors spent significantly more time with them (61 percent) on instructional leadership compared to Fall 2016 (49 percent). As noted previously, supervisors reported spending less time on instructional leadership with their principals in the spring due to the seasonal work cycle of the school year; however, principals did not report spending more time on instructional leadership with their supervisors in Spring 2018 compared to Spring 2017.

Principal-reported supervisor use of high-quality coaching practices also did not increase over time. Figures 4 and 5 visually convey linear predictions of each outcome variable over time.

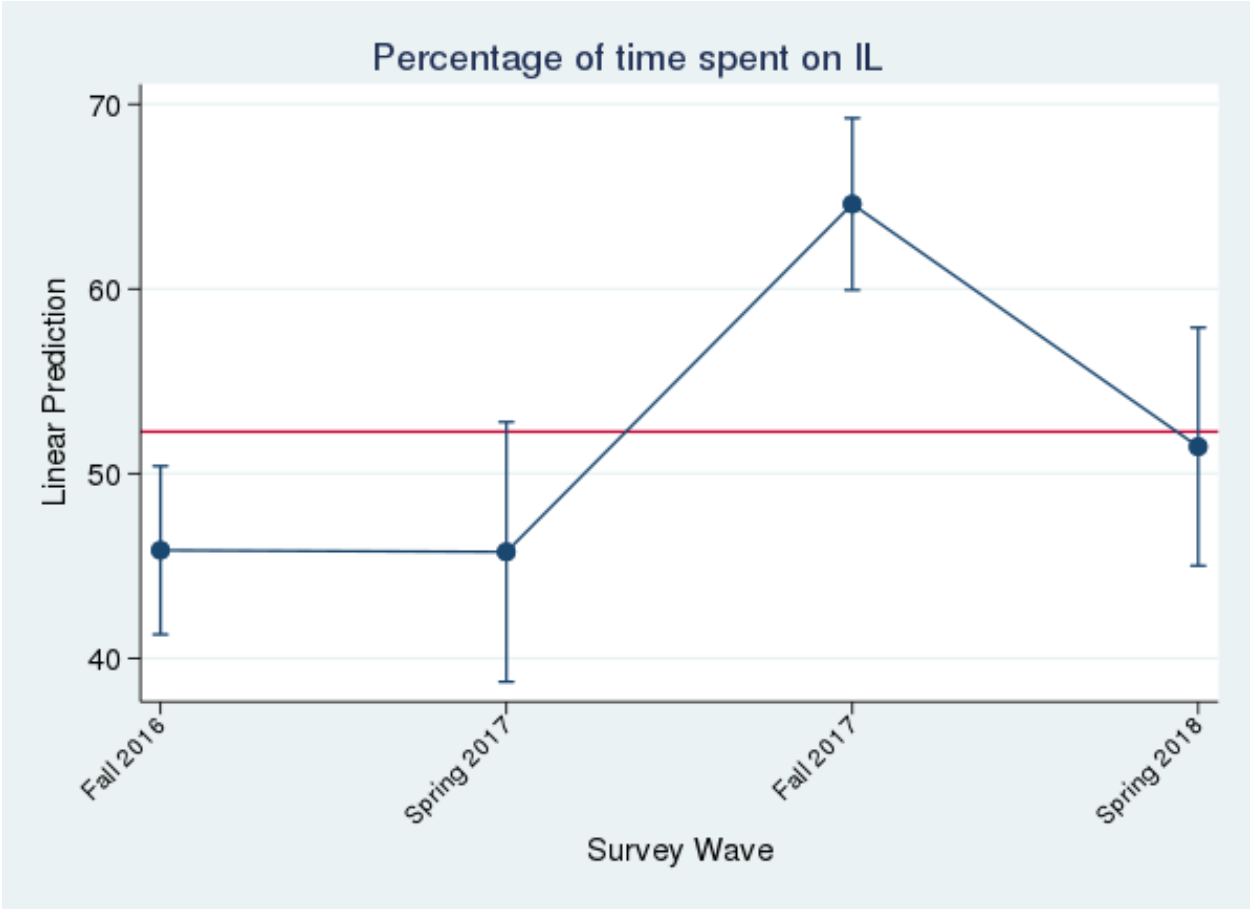
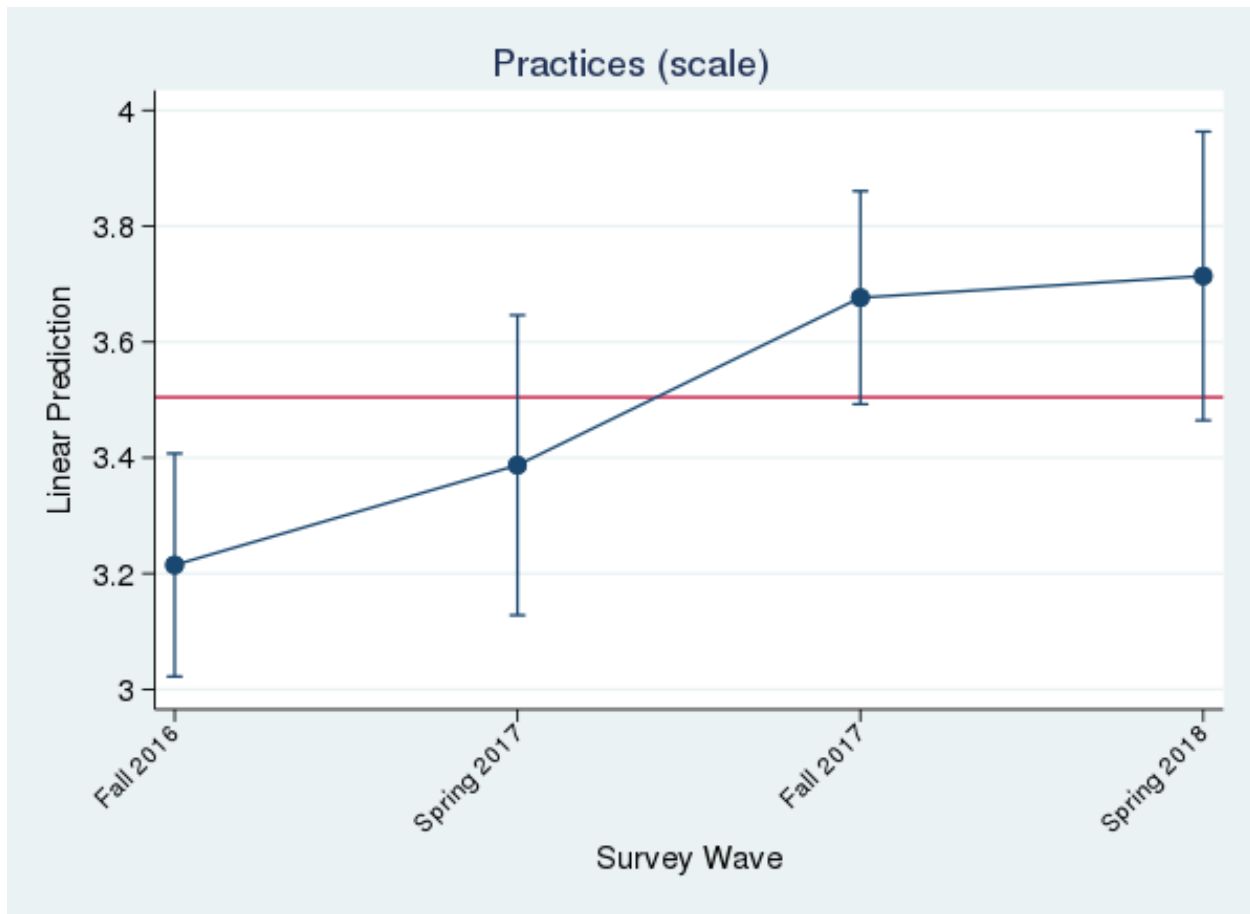


Figure 4. Marginal Change in Principal-Reported Supervisor Focus on Instructional Leadership Over Time

Note: Red line represents predicted overall mean.



Note: Red line represents predicted overall mean.

Figure 5. Marginal Change in Principal-Reported Supervisor Frequency of Coaching Practices Over Time

The increase in supervisors’ specialization instructional leadership work with principals was a prominent theme in interviews. Supervisors who had been in the role at least two years spoke of a major shift in the relative proportion of time they spent working with principals. A supervisor in her second year of the role compared her focus and practices in 2017-18 compared to the previous year:

We purposefully have team walkthroughs and establish frameworks for our principals to work from, to make sure that it’s a focus on instruction. I know that my work had definitely shifted to more of an instructional focus. ... I would say 80% of my role the

first year was around technical type work and I would say that the next year, huge swing, 75%-80% was on instruction.

As supervisors' focus on instructional leadership increased, their time on management and operations, human resources issues, and parent issues decreased somewhat. However, supervisors still reported taking a generalist role with most of their principals in order to meet their needs, many of which were not instructional in nature. Most supervisors believed that non-instructional work with principals was a necessary and expected part of their role when it occurred in a consultation-like setting, such as asking a supervisor to check the language in a letter of reprimand. Many principals agreed, and several noted that, as they themselves were already strong instructional leaders, they saw greater value in the non-instructional support their supervisor was able to provide.

The upward trajectory of supervisors' focus on instructional leadership declined in Spring 2018. At that time, a large and unexpected district budget shortfall forced supervisors and principals to reduce or suspend their ongoing instructional leadership work together in order to revise principals' school-based budgeting plans. Supervisors unanimously expressed frustration at their inability to protect their work with principals from external crises such as this one. One supervisor regretted that this process consumed so much time with principals: "Our shift goes from instruction to [budget] and ... we totally took our focus off of where it needed to be." The budget crisis was considered by nearly all of the central office leaders, supervisors, and principals interviewed to have caused a major decrease in the frequency, quality, and consistency of supervisors' instructional leadership focused work with principals in Spring 2018.

Adaptation of Practices

Research question 1c asks, to what extent do principal supervisors adapt their practices according to principal characteristics? Supervisors in the district did not support each principal in

the same way. The district recognized that its schools had different needs, and to some extent systematized differentiated support to schools through the creation of the quadrant system and quadrant-based teams. Central office leaders explained that supervisors within different quadrants were expected to adapt their practices and strategies to meet differing population needs.

To answer this question empirically, I conducted regression analysis of the key measures of supervisor practice—number of meetings at school, duration of meetings at school, focus on instructional leadership, and frequency of coaching practices—over measurable principal characteristics. Table 16 displays the intercorrelations of each of the principal characteristic variables.

Table 16
Pair-Wise Correlations Between Principal Characteristic Variables

	White	Black	Female	Yrs. in school	Years with PS	Climate score	Obs. score	Math achiev.	English achiev.
White	1								
Black	-0.853	1							
Female	-0.167	0.195	1						
Yrs. school	0.101	-0.065	-0.080	1					
Yrs. with PS	0.049	-0.022	0.037	0.155	1				
Climate score	0.041	-0.011	-0.155	0.123	0.117	1			
Obs. score	0.133	-0.101	-0.110	0.204	0.079	0.481	1		
Math achiev.	0.167	-0.160	-0.021	-0.047	-0.096	0.166	0.092	1	
Eng. achiev.	0.249	-0.214	0.022	-0.040	-0.063	0.208	0.104	0.813	1

The correlation between standardized school math and English achievement is high ($r=0.813$); consequently, in the following analysis, I use math only as a predictor. Correlations among the principal and school characteristic variables are low, suggesting that multicollinearity among the variables is not a problem. Additionally, while the school leadership climate score is included among the intercorrelations, the small number of observations available for climate score by

wave precludes its use as an independent variable in the main analysis. For completeness, an identical analysis which includes climate score as a predictor of supervisor practices can be found in the appendix (Table A4).

The results of the main regression analysis show some evidence for patterns in principal supervisors' practices with principals (Table 17). The results for each practice measure include wave fixed effects and, in even number models, supervisor fixed effects to limit comparison to be among principals supervised by the same individual, removing any endogeneity induced by non-random principal assignment to supervisor networks.

Several patterns emerge between supervisor time on instructional leadership and principal characteristics. First, a principal's years of experience in his or her current school are associated with increased supervisor focus on instructional leadership when working with the principal. Each additional year of experience is related to an additional 1.27 percent in supervisor's focus on instructional leadership issues during work with the principal. When restricting comparisons to within supervisor, each principal year of experience in school is associated with an additional 1.49 percent of focus on instructional leadership. Supervisors place more relative focus on instructional leadership with their experienced principals compared to their newer principals. Second, supervisors also differ in their focus on instructional leadership according to their principals' school level. Supervisors place significantly less focus on instructional leadership with high school principals compared to elementary principals, about 18.34 percent less focus across the district. For supervisors who oversee both high school and elementary principals, the difference increases to 21.36 percent less focus on instructional leadership. This difference is large—about 77 percent of a standard deviation.

Table 17

Estimated Relationships Between Principal-Reported Supervisor Practices and Principal Characteristics

VARIABLES	(1) Meetings at school	(2)	(3) Focus on instructional leadership	(4)	(5) Duration of meetings	(6)	(7) Freq. of coaching practices (scale)	(8)
P years school	0.05 (0.05)	0.06 (0.06)	1.27** (0.39)	1.51** (0.43)	2.89* (1.37)	3.18* (1.45)	0.03* (0.01)	0.03 (0.02)
Prior observation score	-0.42 (0.28)	-0.70* (0.25)	-2.62 (1.87)	-2.68 (1.59)	-1.96 (5.73)	-2.62 (6.21)	-0.03 (0.06)	-0.09 (0.07)
Prior yr. Math achiev.	0.54* (0.21)	0.58* (0.20)	0.51 (1.59)	0.47 (2.09)	-1.84 (4.26)	-0.70 (5.54)	0.04 (0.10)	0.04 (0.11)
RACE/ETHNICITY								
Black	0.08 (0.33)	-0.14 (0.47)	6.04* (2.74)	2.36 (2.64)	12.85 (10.56)	17.75 (10.91)	-0.19 (0.13)	-0.26 (0.17)
Hispanic/Other	2.26 (1.90)	2.16 (1.84)	-2.93 (3.16)	-6.50 (3.57)	-0.21 (23.11)	1.05 (23.27)	-0.17 (0.30)	-0.33 (0.28)
P is female	0.62 (0.40)	0.64 (0.39)	-2.91 (4.58)	-1.19 (4.48)	0.27 (8.33)	1.35 (8.55)	-0.06 (0.14)	-0.01 (0.15)
SCHOOL TYPE								
Middle school	1.06 (0.61)	1.23 (0.79)	-8.45 (4.22)	-4.84 (6.47)	-17.96* (7.53)	-15.08 (14.26)	-0.15 (0.26)	-0.08 (0.28)
High school	1.25* (0.54)	1.37 (1.21)	-17.68*** (3.52)	-21.11** (5.59)	-22.16 (11.71)	-28.97 (25.54)	-0.40 (0.23)	0.14 (0.40)
Other school type	1.43 (1.12)	0.84 (1.77)	-8.28 (10.82)	-9.05 (10.63)	10.41 (32.07)	3.49 (42.74)	-0.19 (0.41)	0.08 (0.54)
Years supervised by PS	0.14 (0.13)	-0.04 (0.09)	2.32 (1.37)	-0.47 (1.20)	16.73** (5.37)	12.75* (5.25)	0.03 (0.05)	-0.04 (0.07)
PS yrs. principal	0.13 (0.06)		-1.77** (0.51)		1.04 (1.63)		0.02 (0.02)	
PS span of control	-0.25 (0.12)		-1.26 (0.72)		3.17 (2.12)		0.00 (0.06)	
Constant	4.88** (1.34)	2.83** (0.80)	68.78*** (8.88)	43.27*** (5.50)	19.28 (31.65)	60.52* (21.36)	-0.13 (0.67)	-0.22 (0.22)
Observations	393	393	393	393	374	374	393	393
R-squared	0.17	0.17	0.18	0.13	0.13	0.11	0.05	0.06
Wave FE	Y	Y	Y	Y	Y	Y	Y	Y
Supervisor FE	N	Y	N	Y	N	Y	N	Y

Note: Robust standard errors in parentheses. Prior observation score and frequency of coaching practices measures are standardized within semester, prior math achievement is standardized within year. Models without supervisor FE cluster errors at the supervisor level. "P" = Principal; "PS" = Principal Supervisor.

*** p<0.001, ** p<0.01, * p<0.05

The associations between some principal characteristics and supervisor focus on instructional leadership are to some extent supported by qualitative data. Many supervisors emphasized the importance of technical work for principals who were new to their buildings. This work could be either instructionally or non-instructionally focused, but often centered on putting technical structures and systems in place within the school. Supervisors varied the most in how they dealt with more veteran principals who had strong school systems and management in place. Some supervisors provided a minimum level of support to these principals out of the belief that this honored the principal's autonomy as successful leaders, preferring to avail themselves as a "sounding board" when the principal needed them. At the same time, supervisors described situations in which they were compelled to give extra assistance to veteran principals and principals in high-performing schools. This work could be the most challenging for the supervisor because it involved "richer" or "deeper" conversations with principals or, atypically, conversations with principals who were not always willing to consider modifying their practice because their schools were doing well.

Secondary school principals and their supervisors reported spending less time on instructional leadership in ways that also align with the quantitative results. One of the area superintendents reported that the high school supervisors and high school principals themselves had grappled with understanding what it meant to be an instructional leader at the high school level in the face of operational challenges that seemed "massive" compared to those faced by elementary school principals. She believed that high school principals lacked the organizational capacity and systems that would allow them to work on instructional leadership:

The hardest tier, leadership-wise, to move in this district is high school. I mean, we've got schools with 2,400 kids. And that's a lot. It's quite complex. ... And we do let some of the operational things get in the way, but high school principals can be just as much of an instructional leader as everybody else. It's about how you prioritize your time and

what you feel like are really the hybrid practices that need to happen on a daily basis. ... But in practice, we can't get them there. ... And I think the principal supervisors want to do more of it [instructional leadership work], but we've got to get the principals in a space to do it.

Despite this insight, it was unclear whether supervisors' decreased focus on instructional leadership with high school principals reflected intentional differentiation according to these principals' needs or whether supervisors responded to the challenge of engaging in instructional leadership work at that level by focusing on other issues.

The estimation results also indicate the supervisors differentiate according to principal performance. In Model 2, which includes supervisor fixed effects, a principal's prior observation score is negatively associated with the number of times that principal reported meeting with their supervisor at school. The difference is small—a principal whose prior semester observation score is fully 1 SD higher than his or her peers can expect to meet 0.7 fewer times with their supervisor in a semester.

In interviews, supervisors spoke often of using measurable principal and school indicators, including principal evaluation, to categorize principals into three support “tiers.” The tier to which a principal belonged determined how often supervisors visited their schools. Supervisors were given autonomy to determine how to support each of their tiers as they saw fit as long as the neediest tier received more support than the lower needs tiers.

While the relationship between meetings at school and number of visits aligns with the district's system of tiered support, supervisors also reported that they tiered and differentiated support according to indicators that do not appear to significantly predict supervisor practices in the models, such as school achievement. It is possible that the measures in the model do not approximate the more finely grained district-level student achievement data that was available to supervisors. Alternatively, supervisors may have given more weight to principal factors, such as

years of experience in the school, compared to school factors, particularly for supervisors who oversaw networks of schools with similar achievement levels. Additionally, while supervisors had multiple quantitative indicators available to them to help them tier support, most supervisors described a holistic approach to differentiation that took into account both quantitative and qualitative or experience-based indicators. Qualitative indicators centered around the supervisor's assessment of the "individual needs" of principals, such as interpersonal skills, instructional background, or relationships with teachers and parents. These indicators are unobserved in the quantitative data and cannot be empirically linked to differentiation.

A fourth, and somewhat unexpected, sign of differentiation from the quantitative results appears between the years a principal has worked with their supervisor and the duration of their meetings at school. This pattern occurs both across district and within supervisor. For each additional year a principal reported having been overseen by their principal supervisor, their meetings with their supervisor increased in length by 17.18 minutes. When comparing principals who were supervised by the same supervisor, the difference in meeting length was slightly smaller but still significant. A similarly positive relationship appears between the number of years the supervisor has overseen the principal and the length of meetings at school. These findings are contrary to what might be expected given the previous findings that suggest that new principals require extended support.

A few other relationships appear in the data. Across the district, Black principals report greater focus on instructional leadership with their supervisors compared to White principals, high school principals meet with their supervisors about once more per semester than elementary school principals, and each additional principal year of school experience is associated with a 3 percent SD increase in supervisor frequency of coaching practices. These findings do not hold in

supervisor fixed effects and, indeed, are likely more indicative of nonrandom assignment of principals to principal supervisors than of supervisor differentiation. Without additional context, they are difficult to interpret.

While not related to differentiation, the lack of significant coefficients on the two principal supervisor controls (prior years of experience as a principal and span of control) is surprising. Supervisor span of control is not related to any of the key practice measures. The lone significant finding—the negative relationship between supervisor experience as a principal and focus on instructional leadership—is opposite of what was hypothesized. In many principal interviews, principals expressed the belief that supervisors with principal experience possessed stronger instructional leadership expertise and were better positioned to serve as coaches compared to supervisors who came to the job through other channels. However, the estimation results here show that these principals focused less, not more, on instructional leadership with their principals.

Overall, the findings presented in Table 17 do not provide strong insight into the extent of supervisor adaptation of practice. The majority of the variation in supervisor practices is not explained by the principal and school characteristics in the models. One potential reason for this is that supervisors are adapting their support according to information that is unobserved in the models, as discussed above. Another reason for the absence of significant relationships may be that supervisors do not consistently adapt their practice according to principal needs and variation in supervisor practice is caused by factors that are unrelated to principals or schools. This explanation is supported by the earlier findings in this chapter that illustrate supervisors' inconsistency in their practices, within or between their networks.

When principals were asked about whether they believed their supervisor adapted support to meet their needs, many could point to specific examples of times their supervisor provided support that they felt was tailored to their individual needs or the needs of their school population. These examples tended to be one-time actions, such as a supervisor spending the day with a principal to support a discipline crisis. However, some principals—particularly those who had infrequent contact with their supervisors—felt the support they received was “one size fits all.” They desired support and feedback that was more specific and relevant to their own leadership.

Supervisor Effectiveness

As a natural extension to the analysis of supervisor practices, I examined the determinants of principals’ perceptions of supervisor effectiveness by regressing the effectiveness scale on principal-reported supervisor practices across the district and within supervisor. Because supervisor frequency of practices is highly correlated with principal perceptions of supervisor effectiveness and derived from the same survey source, I use a jackknife estimator of practices in Models 1 and 2 to better understand the relationships between the other three measures and supervisor effectiveness. Results are summarized in Table 18.

Table 18

Estimated Predictors of Principal Perceptions of Supervisor Effectiveness

VARIABLES	(1)	(2)	(3)
Meetings at school	0.06** (0.02)	0.07** (0.03)	0.02 (0.02)
Duration of meetings	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Percent focus on IL (jackknife)	0.00 (0.00)	0.00 (0.00)	
Percent focus on IL			0.01*** (0.00)
Freq. of coaching practices (jackknife)	0.51*** (0.10)	0.40*** (0.10)	
Freq. of coaching practices			0.61*** (0.06)
Principal controls		X	X
Supervisor controls		X	
Constant	-0.17 (0.23)	-0.39 (0.53)	-0.31 (0.17)
Observations	445	374	374
R-squared	0.22	0.27	0.55
Wave FE	Y	Y	Y
Supervisor FE	N	N	Y

Note: Robust standard errors in parentheses. Errors are clustered at the supervisor level in the non-fixed effects model. The dependent variable is a scale, standardized to a mean of 0 and a standard deviation of 1.

*** p<0.001, ** p<0.01, * p<0.05

Model 1 estimates the naïve relationships between the four key supervisor practices and effectiveness. In this model, number of meetings with supervisor at school and the supervisor's use of high-quality coaching practices are positively related with principals' rating of supervisor effectiveness. Each additional meeting with their supervisor at school is related to an increase in principals' ratings of their supervisor's effectiveness by 6 percent of a standard deviation. These patterns are consistent when principal and supervisor controls are added (Model 2).

The jackknife measure of supervisor practices, which uses the supervisor group average minus the principal to estimate the principal's rating of supervisor effectiveness, are positive and significant. When controls are in place, each 1 SD increase in leave-one-out group rating of

frequency of supervisor coaching practices is associated with a 40 percent SD increase in supervisor effectiveness rating. Principals with supervisors who engage in high-quality coaching practices more frequently are judged by their principals to be more effective compared to supervisors who do not engage in these practices frequently. When supervisor fixed effects are added to the models, the jackknife measure cannot be used due to the limited variation within the small supervisor group size; instead, the principal-derived measure is used (Model 3). While bias is a concern in this model, the fact that the coefficients on the jackknife measure of practices in the models without supervisor fixed effects lends credibility to the estimate. When supervisor fixed effects are added, focus on instructional leadership becomes a very small but significant predictor of a principal's rating of supervisor effectiveness. However, the jackknife measure of focus on instructional leadership does not support this finding, suggesting that the positive coefficient on the focus measure in Model 3 may derive from a common-source related form of bias, such as leniency bias. Overall, the results in Table 17 indicate that one-on-one work with supervisors in the form of frequent meetings and frequency of coaching are positively associated with principal perceptions of supervisor effectiveness.

Qualitative data tell complicated story of principal perceptions of supervisor effectiveness. The quantitative results show that principals rate supervisors as more effective when they meet more frequently and engage in coaching work together, but that this work need not necessarily be focused on instructional leadership. Indeed, in interviews, principals rarely directly equated instructional leadership work with supervisor effectiveness. When describing their supervisors' effectiveness in interviews, principals varied greatly. Principals desired different things from their supervisors. Many principals felt their supervisor should be a "thought partner" who could help them reflect more deeply on their leadership. Others wanted a

consultant who could offer quick help when called upon. Still others wanted a single conduit for all of central office who could funnel their requests to the appropriate departments. Varying conceptions of the ideal supervisor influenced principals' experiences and satisfaction with their supervisor: the closer the supervisor matched the "ideal," the more satisfaction the principal expressed.

Principals also valued the relational and supportive aspects of their supervisor's leadership, such as encouraging the principal when they felt overwhelmed, cheering the principal on, and celebrating school successes with the principal throughout the year. Twelve principals (67% of principal participants) expressed that principal supportiveness was part of their supervisor's role. These principals praised their supervisors as highly responsive, caring, good listeners, and mentors. A principal who had just completed their first year in the role described their supervisor's effectiveness in terms of her ability to support her as an egalitarian, empowering "friend":

I could not have asked for a better friend, philosopher, and guide. Right from the start of school, my supervisor was there. She was very responsive to my requests. She will guide you without stepping on your toes. She is not the kind of person who will come into my building and tell me what to do... So, she recognizes my strengths. She recognizes where I need to grow. We have this great relationship.

Similarly, another principal spoke appreciatively of their supervisor's efforts to quell concerns principals had about being judged as needy when they asked for help:

One of the things my supervisor said at one of our last meetings was he joked about when we call, the first thing that we almost always say is, 'Sorry to bother you with this.' And [my supervisor said], 'You don't have to say that. This is what my job is. You're not bothering me. It's why I'm here.' But I think that's kind of how we all kind of look at it. That we think that whatever our problem is, our supervisor is probably dealing with something bigger, so we are bothering, but that the reality is it's not. You're not.

Supervisors' understanding of the principalship, district context, and school demographics were also important indicators of effectiveness for principals. When supervisors demonstrated this knowledge, principals felt comfortable, as the following principal described:

My supervisor really understood what I was dealing with... I just felt like they understood the work and the expectations and the requirements and so I never felt uncomfortable. ... I didn't feel like they were watching me or trying to be critical, but it was more of a thought partner and support.

Some principals acknowledged that their supervisor was not always able to help them with their needs, particularly if these principals worked in schools that served specific populations or were either very high or low performing because these principals tended to face issues that were unique to their school setting. In other cases, principals with new or externally hired supervisors reported that their supervisor was sometimes unable to help with central office issues because they did not yet have sufficient organizational knowledge.

Given principals' much broader construction of supervisor effectiveness in the qualitative data, the hypothesized relationships between supervisor practices and principal perceptions of effectiveness may in retrospect be too narrow. However, it is probable that principals who met with their supervisor more frequently and spent more time focusing on the principals' own development through coaching and feedback also received more relational support and empowerment. Moreover, supervisors who infrequently met with and coached principals likely did not build strong relationships with them through their absence. As one principal who rarely saw their supervisor explained, "If you're not in the building that much, you really can't get a move on what's going on."

Summary: Supervisor Practices

This section examined supervisors' practices with principals. I examined the frequency and consistency of supervisor practices, supervisor specialization in instructional leadership and

coaching, and the relationship between supervisor practices and principal characteristics. In an extension of the main analyses, I also explored whether supervisor practices were related to principal perceptions of supervisor effectiveness.

I found limited evidence that supervisors were becoming more consistent in their practices over time. Intraclass correlations, which indicate the proportion of variance in a measure of practice that is within supervisor, declined over time. However, variance in three of the four measures also increased during this time—obscuring whether declines in intraclass correlations could be attributed to decreasing variance within supervisors or increases among total variance. Interview data suggested that some principals found their work with their supervisors to be more consistent compared to previous years, particularly consistency of interactions at school. Among the four practices, meetings at school was the only practice measure that did not exhibit increasing variance over time.

Supervisors in the new role specialized in instructional leadership, dedicating the majority of their time to focusing on instructional leadership issues with principals. Supervisors focused on instructional leadership to the exclusion of operations, human resources, parents, or other non-instructional matters—particularly in the fall, when schools were not conducting standardized tests or creating budgets. These findings represent a major departure from the former generalist role of the principal supervisor. However, the role was not entirely specialized. Supervisors engaged in non-instructional work with principals, even as their focus on this work decreased. Supervisors' ability to focus on instructional leadership with principal supervisors was also constrained by logistical demands and district turmoil, particularly in the spring. Central office leaders, supervisors, and principals believed that some generalism was necessary in the new role, as supervisors needed to have the flexibility to meet principal needs as they arose.

The notion of flexibility within the role also grounded district expectations for supervisor adaptation of work to meet principal needs. The district expected principals to systematically vary the intensity of the support they provided to each principal through the process of “tiering.” In practice, supervisor tiering was subject to the same variance as other supervisor work, and supervisors reported using holistic judgment in addition to multiple quantitative indicators to create their support tiers.

Some principal characteristics can be linked to principal-reported supervisor practices. A principal’s years of experience in his or her school is positively related to the percentage of time their supervisor spends focusing on instructional leadership with them, as well as the average length of each meeting with their supervisor at school. High school principals also report spending less time focusing on instructional leadership with their supervisors compared to elementary school principals. However, much of supervisors’ work with their principals, including their use of coaching practices, did not appear to be consistently linked to many principal characteristics that might be thought to influence the level of support principals required, such as prior observation score and prior school achievement. Given previous findings that suggest large within-variance in supervisor practices with principals, these results suggest that either (a) much of the variance in reported supervisor practices depends on unobservable principal characteristics or (b) much of the variance in reported supervisor practices is due to factors that are unrelated to principals. Taken together, the findings for Research Question 1 suggest that supervisor practices were idiosyncratic, depending greatly on the capacity and agency of the individual supervisor.

Findings: Central Office Support

The second research question asks: How does the central office support supervisors in the new role? To determine the role of the central office—the people, departments, and structures housed within the central administrative organization of the school district—in facilitating principal supervisors’ work with principals, I drew entirely upon analysis of qualitative interviews conducted with central office personnel, principal supervisors, and principals in Summer 2018.

In describing central office support for supervisor work, I begin with a description of the general position of principal supervisors within the organizational network of the district. Next, I discuss the three organizational components identified in the management literature as influential to organizational performance: integration, interdependence, and role differentiation. I end the section with a summary of findings.

Organizational Integration

Organizational integration refers to “joint behavior toward some common goal or interest” (Pinto, Pinto, & Prescott, 1993), or the unity of effort among central office departments in achieving common organizational goals. Closely aligned with integration are concepts such as coordination, collaboration, and cooperation within an organization. District leaders reported realizing early on that the quadrant model—which essentially partitioned the district organization into four smaller organizations—created tension between the need to adapt to the diverse communities within the district and the need to integrate work across the district as a whole. In particular, they described the importance of creating systems that would allow school-facing departments such as Special Education and Curriculum and Instruction to understand and adjust to one another’s work across the district. Ultimately, the district decided to focus on creating

integration through systems of vertical alignment, in which decision-making was primarily centralized at the top and flowed down the chain of command, and systems of horizontal alignment, in which departments within the central office were brought together through cross-functional structures. The district consequently created three main structures to facilitate vertical and lateral integration: the “through-line”, cross-departmental meetings, and quadrant support teams.

The “through-line.” When it designed the quadrant system, the district implemented a guiding hierarchical model that district leaders referred to as the through-line, a formalized version of the scalar chain of command in which the subordinate and superior of each personnel was clearly defined.

Because the central office was so large, the through-line provided clarity for each individual regarding where they sat in the organization. Each individual knew who they were responsible for developing and supervising as well as who was responsible for developing and supervising them. The through-line concept also in theory facilitated two-way communication by creating controlled channels through which information flowed between the schools and the central office. These channels were also intended to reduce the possibility for ambiguous or conflicting messaging by limiting interactions to one’s immediate superior or subordinate.

In implementing the through-line, the district separated it conceptually from a traditional chain of command by emphasizing its use as a tool for learning rather than compliance. For example, each principal was the subordinate, or “the learner” of his or her principal supervisor, who was in turn “the learner” of their area superintendent, who was “the learner” of the Chief of Schools. The district adopted this terminology at the suggestion of an external provide in order to bring a more teaching-oriented mindset to the work at the central office.

Many district leaders believed that the through-line system was helping those in high-level administrative positions in the central office understand how their work connected to schools, while also keeping their focus narrowed on developing the capacity of their immediate “learners.” A central office leader explained:

It’s a very different way of thinking about designing professional development and supporting people to do their work, versus if I said, “Oh, my learner is the kids.” I’m too far up the food chain to do that, so I’m trying to help build capacity all the way down. And that’s a different concept versus, like an area superintendent will tell me, “Well, I’m impacting the kids.” I’m saying no, you’re not impacting the kids directly. You’re impacting the adults that impact the kids, so how you think about support and designing them to do their job is how you have to think about moving the work.

This central office leader believed that the value of the through-line went beyond clarifying one’s position in the organization, it also clarified one’s role and ultimate goals. The leader gives the example of discouraging area superintendents from talking as if they were directly impacting students because he believed that this thinking obscured their role in “building capacity” of principal supervisors.

In practice, many principals and supervisors ignored the through-line in favor of going to directly to the person in the central office they believed could help them solve a problem or access a resource more effectively. For example, principals sometimes circumvented their principal supervisors to bring problems or requests to an area superintendent, leading supervisors to feel powerless. Below are two perspectives on this practice from a principal supervisor and a principal:

SUPERVISOR: Principal supervisors do not go to the Chief of Schools for anything. We go to our area superintendent. Principals don’t go to area superintendents; they go through us. But it hasn’t really turned out to be that way. And that’s been very difficult. I remember one incident early on where one of my principals did something that I had said we’re not going to do. And she [had gone] straight to my area superintendent who said she can do it. ...It makes me lose all credibility.

PRINCIPAL: It's a hierarchical model, but my area superintendent is someone that I respect and trust. And I would prefer to work with her directly much more frequently. ...I think we could just eliminate all these principal supervisors. Just have that area superintendent. But that's the whole layer model. So there are times that I will go to my area superintendent. I understand there's a power differential in the structure, but as people, there doesn't feel like a power differential.

Both speakers describe principals bypassing the through-line in order to obtain a more preferred response or to work with someone whom they trust. The supervisor in the first quote felt that this practice detracted from the unified front of the central office because the principal was able to receive a different message from the area superintendent. In the second quote, a principal explains that their rationale for ignoring the through-line is that they have an established relationship of "respect" and "trust" with the area superintendent but not with their principal supervisor. The principal believes that this relationship negates the hierarchical "power differential" that otherwise requires them to follow a chain of command. Moreover, the principal states that supervisors themselves are an unnecessary extra "layer," a perspective that may also be a product of the role ambiguity between supervisors and area superintendents. These responses suggest that there was little accountability for breaking the through-line, and that individuals who broke the through-line may even have been able to reach more satisfactory solutions to their problems by doing so. The responses also suggest that interpersonal dynamics shaped much of the interactions between central office and principals, a pattern that district leaders did not seem to have accounted for when they implemented the through-line.

Circumvention of the through-line went both ways. Area superintendents, supervisors and principals all reported that area superintendents sometimes worked directly with principals. Other interviewees suggested that, because there was little incentive to follow the through-line, district attempts to impose it only inflamed pre-existing tensions between principals and the

central office in which principals believed the district wanted to limit their access to the central office. Furthermore, because the through-line was meant to promote integration between the central office, principal supervisors, and principals by forging a single link between them, failed adherence to the through-line created a sense among principals that central office leaders, even those within the Office of Schools, were not working as a single unified front.

Perceptions of a disunified central office served to weaken supervisors' implied authority over principals. Supervisors spoke of a balancing act in which they managed the tension between supervising principals according to central office policy and knowing that principals might go over their heads if they were dissatisfied with their supervisor's actions or decision. Supervisors themselves questioned whether the through line undermined their work, since they could not always trust that the policies, messages, and directives they received from their superiors would be adhered to with fidelity by central office leaders were they to be challenged by principals.

Perhaps the greatest factor undermining the through-line was the inconsistent response to bottom-up communication and feedback from principals to the decision-making levels of central office leadership. Principals and supervisors both spoke of variable receptivity of central office leadership levels to principal feedback and concerns. Principals praised supervisors' increased advocacy for their needs to the central office, but often followed this praise with the admission that the central office did not usually follow up by making changes. In other words, while the through-line facilitated bottom-up communication, this communication could not be linked to changes that made the central office more learning-centered in the eyes of principals. By comparison, top-down communication traveling the through-line was almost always linked to school-level actions that aligned instruction to district policy and directives. This lack of

response from the central office only further reinforced doubts for some principals that supervisors were ineffectual in supporting them.

Cross-departmental meetings. The district sought to laterally integrate departments within the central office by implementing cross-functional teaming across central office departments. Unlike the vertical through-line, which was formalized and “rolled out” to district personnel, the purpose and structure of cross-functional teaming was less clearly defined and prescribed. The district promoted two forms of cross-functional teams: First, district leaders focused in particular on creating teaming structures between the Office of Schools and the Office of Curriculum to facilitate the development and implementation of teaching and learning programs and policies in schools. Second, district leaders also created liaison structures (in the form of regular information-sharing meetings) between these school-facing departments and the more operational, regulatory, and business-oriented departments. Liaison meetings differed from cross-functional teams in that they existed purely to facilitate the exchange of information rather than collaboration.

Cross-departmental meetings served as a structure for cross-functional teaming within the district. They were meant to facilitate communication, collaboration, and group training on district instructional policies among all line personnel in the Offices of Academics and Schools. The district superintendent and the chief recognized the importance of cross-departmental collaboration as a means of ensuring that departments (1) were aware of each other’s work and (2) responded and adapted to each other’s work (mutual adjustment) in order to remain focused on the same district goals. This was especially important for the two school-facing offices, Academics and Schools, because they both worked directly with school personnel on the work of teaching and learning. The Chief of Schools described the symbiosis of the departments:

Think about it like we go to the grocery store. The Chief of Academics would be picking the food, and we're making sure once the food is bought, it's cooked well, tastes good. So the Chief of Academics doesn't get into any implementation, but gets into quality curriculum, the high-level reading.

Having established the differentiation between the two umbrella departments, the Chief of Schools went on to describe the importance of cross-departmental meetings between them:

We sit on cross-collaborative teams with the Office of Academics, all the curriculum and instruction folks, and we talk about our core actions. ... We're not as sophisticated yet, but when we become really sophisticated, then we can all talk about the specific strategy. So when that principal is talking to somebody at [the central office] level, we're not only all talking the same thing, but ... we're helping them to problem-solve ... to help impact teachers to work with students.

The Chief of Schools recognized that the cross-departmental team meetings were not yet “sophisticated” due to their newness but expressed a vision for how the meetings would eventually create policies and practices that would travel down the through-line to impact teaching and learning.

Principal supervisors played an integral part in cross-departmental teams, which were scheduled to occur on a weekly basis in the 2017-18 school year. Their role (along with area superintendents) was to strategize with personnel in the Office of Academics for how best to implement instructional policies and programs in schools and to. However, supervisors noted that the two departments did not make the meetings a priority and often cancelled them. As a result, supervisors reported that they found themselves charged with implementing instructional policies that they did not clearly understand. In deference to the through-line, supervisors sought assistance from their area superintendents, who reported spending time reaching out to other departments to ask for clarification of their policies. An area superintendent described the frustration their department felt: “They create all these things in curriculum and instruction, and

then it's our job to roll it out. But if you create those in absence of us, then we don't really know if that'll roll out like you envisioned."

The central office also implemented multiple liaison meeting structures beginning in 2017-18 to facilitate different kinds of communication. Supervisors were expected to serve as liaisons to other departments and to go to as many of these meetings as possible when they were not in schools. They regularly attended meetings in the math and literacy departments, all-personnel meetings within the Office of Schools, and quadrant meetings which included personnel from support departments such as Facilities and Human Resources. Supervisors described feeling overwhelmed as they attempted to keep up with the schedule of meetings because they did not know they had the authority to say no if they were asked to attend one. One supervisor explained that eventually, supervisors began to "put our foot down" early in the 2017-18 school year and compromised with their superiors on the number of meetings they were expected to attend.

While meetings could happen at an overwhelming pace, they could also be unpredictable. Several supervisors confirmed that, as with the cross-departmental meetings, meetings across the central office were frequently cancelled or rescheduled. Consequently, they had no formal liaising structures through which to gain information on the activities of other departments. Many of these informal channels depended on supervisors' pre-existing relationships with personnel in other departments, a prerequisite that often disadvantaged new supervisors, who had relatively few central office connections. Consequently, supervisors reported feeling that they were the "last to know" when another department had issued a new policy or request to principals, and often had to work through informal channels of information-sharing to learn of new central office policies.

To complicate matters, other departments were now empowered by the vertical through-line to communicate directly with principals. Because the vertical through-line was implemented more strongly than the cross-departmental teaming, principals were sometimes more aware of a new policy from another department before their supervisors were. One supervisor named the principal newsletter as an example. The principal newsletter was a weekly email that featured information on upcoming compliance deadlines and meetings for principals and asked them to contact their supervisor with any questions. The supervisor explained that, although the newsletter asked principals to consult with their supervisors about matters in the newsletter, supervisors were sometimes not aware of the policies in time:

Every time there's a slew of pieces on there that ...they've got to get done [and it says] "For any questions, contact your supervisor." But like, we don't even know what that is. ... I get so frustrated, not at my principals, but towards the end of the year last year, they're bouncing back and forth, "How many days are we supposed to put on the cumulative card?" and they're asking me and I'm trying, and now I'm asking our group of supervisors ...And so not only are they asking the question, they're asking me and I'm asking other people, because apparently they need an answer to that.

Another supervisor shared a similar experience in which supervisors were left out of a central office decision to visit schools at the beginning of the new school year, despite the fact that the supervisor understood this to be the main focus of the role:

Decisions are made at the top. They are, most of the time—not all the time—shared with the area superintendents. Then, they're oftentimes put out to the principals by the district, with the caveat that if you have any questions, talk to your supervisor. But the supervisors float out here in this land of I might know, and I might not know, and I have no clue. ...So maybe a silly example, but out in that main area [at the central office], there's a table. And the table has all the schools, and it has the first five days of school, and the expectation is that people in central office are all going to be in a school the first five days of school to make sure things are going okay. I had no idea that thing was out there, and neither did a couple other supervisors. We go out there, our schools are already taken by people from various departments.

In the above two examples, supervisors linked their exclusion from central office decision-making with reduced ability to support principals. In the first example, the supervisor was unable

to provide principals with critical information they needed to do their jobs. In the second example, supervisors were unable to schedule time to visit their schools in the first week of the new school year because other departments had taken that time. Both supervisors attributed these outcomes to a failure on the part of the central office to create structures to horizontally communicate information to supervisors (and occasionally even their areas superintendents).

Additionally, when meetings did take place, they failed to meet supervisors' and area superintendents' expectations. Some meetings were disorganized, lacking agenda, and sometimes not even attended by key personnel from whom supervisors needed information. Without clear goals and purpose for their collaboration, departments defaulted toward providing surface-level updates of their work in a round robin style; one supervisor noted that, "Sometimes we would get together and the departments would be at tables and we'd do an around-the-world deal, but we never figured out the way that was impactful for people."

Although the district recognized the importance of creating standing meetings as structures to facilitate communication and collaboration within the central office, the lack of follow-through had the effect of reinforcing pre-existing beliefs about an entrenched culture of isolation and departmental silos. One area superintendent believed that, while on the surface the district had appeared to have created a more collaborative central office, the poorly implemented structures had driven departmental silos deeper:

People talk about the silos at central office. And I think that's been every supervisor's agenda is to break down those silos. But I guess my newest analogy is people go underground. It's not that the silos are still standing. They go underground. And sometimes we dig into each other's burrow. But I just see so much more of that work that needs to be done. ... the structure's not quite there to support the communities yet. ...It's kind of by accident that things happen now, or that things work out.

In the view of the area superintendent, silos had become even more difficult to break down because the district was more reluctant to acknowledge that they existed. Several supervisors concurred that divisions persisted in a de facto nature.

Collapse of cross-departmental meetings affected other central office leaders beyond supervisors. Without a system for mutual adjustment, some departments made decisions or created demands that burdened principals and schools. Departments that were operational or regulatory in nature were especially prone to creating unnecessary burden because they were less immersed in the work of schools. An area superintendent used an example from the maintenance department to underscore the importance of system-wide communication:

Last year we kind of fell off of our interdepartmental meeting. ... I think that's really important because then people know this is what we're doing that's really important right now, so how can you help us when we need this, or we need that. Little things like maintenance not cutting the grass during testing. It happens every year. Every year we get some panicked call. They're cutting the grass and the kids are testing. When you shouldn't... little things like that just really can wreak havoc on a district.

As the area superintendent illustrates, the central office was aware that the meeting situation of the past year had hindered organizational performance to the point where student test performance might be affected. At the time of interviews, the supervisors and the leadership team in the Office of Schools were beginning to plan a traditional liaison system where each supervisor would be assigned to liaise with two departments. Each supervisor would then participate in monthly 20-minute meetings with a representative from each department in order to gain information about department activities that affected schools. The impetus for meetings was that supervisors "don't want to be surprised," as one supervisor explained, referring to the common issue of supervisors learning of department policies and programs from their principals rather than from the departments themselves. Supervisors believed liaison meetings would help them support principals more effectively by making them more aware of how other departments

were interacting with principals. For example, if the English Language Learning department created new guidelines for how schools should support English learners, supervisors believed that being apprised of these changes ahead of time would allow them to proactively plan principal coaching and support to address principal's implementation of these changes.

Quadrant support teams. In the 2017-18 school year, the district created “quadrant support teams” to coordinate direct support for principals and schools, reducing the number of intermediaries principals had to go through to obtain central office support. Each of the four quadrants was assigned designated representatives from all departments that deployed personnel to schools. These representatives were typically “lead” personnel and coaches from departments under the Office of Academics, such as Special Education, Math, Literacy, and English Language Learning. Like cross-department meeting structures, quadrant support teams were a version of cross-functional teaming. They facilitated both integration and, potentially, interdependence by reducing departmental silos and providing supervisors with direct contacts in other departments with whom they could share information and coordinate their work.

At the end of the 2017-18 school year, quadrant support teams mainly served as an integrating function for supervisors. When quadrant support team personnel deployed support to schools, they often let the supervisor know through email. Support teams typically did not visit schools with supervisors or coordinate their feedback, although these were aspirations expressed by many in the central office. Supervisors were also not responsible for deploying coaches directly to schools but were expected to collaborate with lead personnel in other departments to coordinate support. Area superintendents also worked directly with their quadrant team personnel, sometimes bypassing leads to deploy coaches themselves.

All supervisors expressed positive feelings regarding quadrant support teams. They believed that the support teams were an important complement to the quadrant model because they narrowed support personnel's support onto a small group of schools. Support teams came together twice a semester to meet and discuss their work, a process that allowed them to adjust and adapt their work to meet the specific needs of the quadrant, even if these needs differed from those of other quadrants. As a result, support team goals and emphases varied across quadrants. While the main purpose of the support teams was to provide more targeted support to the schools in each quadrant, some supervisors recognized that this process also functioned to create a sense of shared ownership at the central office level for school outcomes, as described by this supervisor:

...All the support members from central office, we all get together to talk about what is our vision for the quadrant? What do we need for the quadrant? What do our students need? We look at data. We review the data. It gives everybody a feel for what we need to have happen and how the students are performing. It gives them more of an ownership of their work and their job. ...Because this is a huge district when you look at it as a whole, so breaking it up into smaller quadrants really assisted with kind of giving that service, giving that "we're a team" type feel, and that we're here to support you. I think [principals] felt probably more supported this year.

The supervisor felt that providing opportunities for other departments to see school data helped to align departments' work both to school goals but also the goals of the other departments that served schools, creating a sense of teamwork. Other supervisors confirmed that the support team structure was helping departments develop common understandings of what was happening academically in schools which translated into more responsive principal support. They considered this to be a major shift.

Access to quadrant support teams changed the way some principals worked with their supervisors. Principals liked support teams because they reduced uncertainty in navigating central office support and helped build closer relationships among principals and central office

personnel. As their comfort with reaching out directly to the central office increased, principals found they tended to use their supervisor as a backup support. A principal explained the shift:

Having people who are specifically working with my particular quadrant has been very helpful for me personally. I had a list and I usually looked at the list and I kind of went with that. Then, if I had a question and I wasn't sure, I checked with my supervisor. So personally, I don't think I really had a whole bunch of issues navigating the central office department.

Not all principals found the shift to support team systems to be smooth. Principal experiences with support teams depended on the specific work styles and personalities of the support personnel who were assigned to work with their quadrant. As a result, principal opinions on the efficacy of support teams tended to focus on specific people whom principals categorized as helpful or unhelpful. Where principals found personnel largely unhelpful, they continued to reach out to their supervisor first.

Relatedly, because each quadrant was left to its own devices for determining how to meet district goals of school support, use of the quadrant support team system varied by quadrant. In some quadrants, supervisors invited quadrant support team members to their network meetings with principals so that they could share insights with principals or created opportunities for their principals to hire principal subs so that they could work directly with support team personnel in their buildings. Supervisors also used some support team personnel more frequently, depending on the student needs of the quadrant. For example, supervisors in the quadrant with the highest population of English Learner students frequently contacted their personnel in the English Language Learning department and involved them in their work and trainings with principals. Although some differences in quadrants could be linked to quadrant needs, some central office personnel observed that some quadrants began to surpass others in terms of horizontal

integration and alignment among support team members' work. An area superintendent described this dilemma:

We started out with a vision around [school support] being pretty tight across all quadrants. And then we said, well, the purpose of us being by the quadrants and networks is because every quadrant is a little different. And so we started to loosen up. But then, when we were able to loosen up, then what we were met with is the idea that some quadrants were getting more than others, some were moving faster than the others, and others were being left behind.

Simultaneous integration among the quadrant support team members within each quadrant and disintegration from the larger central office presented a challenge for central office leaders, who valued both district-wide unity and quadrant-specific adaptation. Because district-wide cross-departmental meetings were not happening consistently, some personnel recognized the threat that existed in becoming too quadrant-adapted. Supervisors often expressed a desire for more sharing of best practices across quadrants that included quadrant support team members and other central office "experts," as in the following advice from a supervisor to the central office:

[Create] some type of document that can be shared with strengths, weaknesses, best practices so that we can share across quadrants. Because the quadrants are different...I think it's very important for us to have opportunities to find out what's going on and to have those opportunities to even intermingle with other quadrant members. And even though supervisors collaborate, I'm talking about support teams, experts, things like that.

Beyond greater district-wide sharing, supervisors saw other ways in which the current central office support structures could be deepened. In particular, supervisors wanted to move the work from coordination to active collaboration which included visiting schools together. Some supervisors also recognized that some support team members possessed knowledge that they did not and could provide supervisors with feedback and insight on principal and school leadership. A supervisor described their hope for how support teams could be utilized in the future:

I really want to see access to my support team improve and be more aligned. And then also, I hope that we can do walk-throughs together, like the lead Literacy or the lead Math [personnel]. If they're going to a school, I'd like to be with them so we can involve

the principal together. Because a lot of times, they have expertise. We all see things with different eyes. And so their vision or what they see may be really important to that feedback or that conversation... And then we work together to fix or create that support. Or even give feedback together, so that we're all saying the same thing.

The supervisor quoted above saw value in quadrant support teams not only as a structure for providing more efficient and direct support for principals, but for increasing supervisors' access to the expertise and perspective of their central office colleagues.

Interdependence

Interdependence refers to the degree to which the task performance of supervisors depended on the task performance of other departments or personnel in the central office.

Organizational integration, when it is present, can create interdependence because multiple units within an organization must necessarily coordinate their work toward a common goal (Sorenson, 2003). Interdependence can also create problems in organizations if units upon which many other units depend fail to perform adequately. As a result, the work of any other units that depend on the failing unit will also be negatively affected.

The central office in the study district was described by central office leaders as historically made up of independent units. As the district implemented structures to improve vertical and lateral integration among its departments and schools, it also increased interdependence among supervisors and other central office roles. As principal supervisors became more focused on building principals' instructional leadership, some of their non-instructional former responsibilities were shifted to other roles and departments. Departments that were formerly disconnected from the technical core work of the schools now shared responsibility for school support with supervisors. This new team-based approach to principal support created interdependencies among principal supervisors and other central office

personnel: Supervisors now relied on other central office employees to accomplish certain tasks of school support in order to accomplish their work with principals.

The district expected principals, supervisors, and area superintendents to go directly to relevant departments when they needed help and for these departments to go directly to principals to initiate assistance or make requests. For example, it expected principals to file maintenance requests directly to the Facilities department through an online system. Principals could also reach out to their representatives on the newly formed quadrant support teams for assistance or information. For departments that were not included in the support teams, some principals reported that the central office had provided them with a designated contact sheet from other departments, such as Human Resources, whom they were to call or email directly when they needed assistance. Other principals believed that they were still supposed to contact their supervisor before reaching out to departments. As a compromise, most principals reached out directly to departments via email when they needed assistance but copied their supervisors in case they needed to call for backup later. Interviewed personnel knew of no centralized organizational chart or directory that existed for internal employees.

Area superintendents and supervisors were aware of the new expectations for providing direct support to schools, but this awareness was not widespread in other departments or principals. Although top-level district leaders expected school-facing departments to work together to support schools, area superintendents and supervisors reported that some personnel in other departments were either unreceptive or unaware of new expectations for their work and changes to the principal supervisor role. Some linked this to low departmental capacity caused by central office employee turnover, after which positions could remain vacant for months or

filled by new personnel. One principal linked the multitude of new personnel at the central office to a weakened institutional memory, which in turn slowed down the central office's work:

It's a learning curve... It takes too long to get things done or the communication is not clear as it may have been in the past. And so I would think that that is maybe attributed to just a person that's new and they don't have all the background knowledge that a person that was in the role for 15, 20, 25, 30 years.

Principals noted that some of the contacts they had been given at the beginning of the year for various departments were no longer with the district, and that the knowledge and helpfulness of new employees hired mid-year into these positions was perceived to vary greatly. Some personnel also observed that the new expectations for school support were not clearly or evenly communicated beyond the Office of Schools. They pointed out that even employees who had worked in the central office for many years could be unaware of new expectations for their work. As a result of this combination of low capacity and lack of awareness, many personnel in departments that directly supported principals and schools continued to rely on an outdated organizational memory and routines that no longer fit into the organizational structure of the district in which they shared responsibility with supervisors for supporting schools.

Because of these limitations in central office departments, three unintended consequences of increased interdependence emerged for supervisors: First, departments were not always responsive when supervisors requested resources or assistance for their principals. Common requests supervisors made to other departments included additional maintenance, hiring requests, special budget approvals, or deadline extensions for compliance paperwork. An area superintendent attributed this to a lack of understanding of the new organizational structure cross departments:

Something will happen, and a principal supervisor will say in the kindest words, "Please take care of this." Nothing happens. And then they'll copy me, and they get a phone call. It's just a lack of understanding. Principal supervisors are not ordering you because

they're ordering you. They're asking you because we're trying to move the district. I even think already this year we've gotten better at it.

Because other departments were not aware of their expanded role in principal support, they viewed supervisor requests as a breach of organizational hierarchy, that they were being “ordered” to do something by personnel to whom they were not accountable. Although departments had grown more responsive over time, a lack of widespread understanding of each department’s responsibilities for assisting supervisors and their principals continued to create challenges for some supervisors who depended on other central office departments to honor their requests on behalf of their principals.

Second, some departments continued to make requests of supervisors that were no longer part of their job description. For example, departments continued to go through supervisors to obtain school-level information or to follow up when principals did not reply with a request such as turning in needed paperwork. One supervisor expressed the belief that departments continued to rely on them for assistance with principals because supervisors were known to have greater direct contact with their principals due to the reduced span of control:

I think that sometimes when different departments need more help, they need information to be disseminated or they need to follow up with principals, they will immediately go to the principal supervisor because [they say] “You supervise them so you can help us get this information that they’re not getting to us or you can help disseminate this information, because you have a smaller group,” instead of them reaching out themselves.

Supervisors varied in their responses to these department requests, sometimes fulfilling them and sometimes not. Some supervisors reported fulfilling department requests reluctantly, because it was easier than reminding the department that the request was no longer appropriate.

Third, supervisors and principals found that their instructional leadership work with principals was often dependent on the successful resolution of principals’ non-instructional

needs. These needs were often urgent and reactive, such as a mid-year teacher resignation. When central office departments did not or could not help principals solve these issues, principal supervisors sacrificed their planned instructional leadership work with principals to intervene. One supervisor described principals' needs as a hierarchy, with logistical and reactive needs on the bottom and proactive instructional leadership work at the top. When basic logistical needs were not met, proactive work could not take place: "When you have a focus for a week and you're on that schedule, but then something from outside comes in, sometimes you have to stop. And sometimes, you have to fix this first before you can move on."

Parent complaints were a unique example of a non-instructional need that required supervisor intervention. Although dealing with parent complaints was technically a part of the supervisors' role, the notion of shared responsibility for school support meant that parent complaints tended to pull in additional personnel within the Office of Schools, as a supervisor explained:

When [parents] go up the chain, the chain just sends it back to us. And it just becomes this cycle of dysfunction because the decisions have already been made here. If you're supported by the principal supervisor, it should end right there. But unfortunately, it doesn't. And so if it goes to the principal supervisor and the principal supervisor tries to resolve it and support the principal, it goes to the area superintendent. And if it goes to the area superintendent, then we all get called in and we have to fix it. That's how that goes.

In an attempt to receive more efficient assistance, principals developed workarounds. Principals who were new to the role or district tended to eschew reaching out to the central office in favor of going directly to their supervisors for assistance. These principals were often aware that they could go to other departments but preferred to work with their supervisor because they believed they would receive faster assistance and because they had a stronger relationship with the supervisor. Veteran principals often took the opposite approach: They went directly to

departments but not necessarily to their designated contacts. Instead, they contacted personnel with whom they had developed relationships with over time. Both new and veteran principals made a habit of including their supervisors on emails in case they needed to ask them to follow up with an initially unresponsive department.

Role Differentiation

Role differentiation refers to the extent to which supervisors' work differed from that of other central office personnel. Role differentiation is important to the success of the supervisor role, as roles that are not clearly differentiated from other roles in the central office may appear in tandem with role ambiguity, "a lack of clear information associated with a particular role" associated with employee dissatisfaction, low self-efficacy, and reduced performance (Beauchamp & Bray, 2001, p. 134). As discussed in the previous findings section, principal supervisors' primary role was to provide principals with instructional leadership support; that is, to provide coaching and feedback to principals that would allow them to better design and manage the instructional programming of their schools. Supervisors also evaluated principals using the state administrator evaluation system and connected them to central office resources and personnel when necessary.

Principal supervisors had no other formal roles in the central office, a condition described by one supervisor as "very fortunate" because it allowed them to focus on principal support. However, as the supervisor role shifted from a focus on compliance to instructional leadership coaching and support, supervisors began to liaise with other departments that have traditionally handled instruction under the umbrella of the Office of Academics. While these collaborations could be illuminating for supervisors, they sometimes resulted in uncertainty over which departments owned which aspects of school instructional improvement.

Supervisor role clarity was inhibited by personnel in other departments who were often not aware of the supervisors' new espoused role. Supervisors reported that they were still treated as "catch-alls" by other central office departments and asked to fulfill compliance-oriented tasks that were now under the control of other departments, such as asking schools to provide updated staffing rosters. Compared to the espoused role, the actual role of supervisors was often beholden to the demands and requests of supervisors. Central office leaders identified this as one of the main sources of confusion and frustration for supervisors in determining their role. One area superintendent compared supervisors to "firemen":

[Role change] is not only changing the span of control but getting central office to know how to function with principal supervisors. And that's still a gap for us because they think of them as firemen. Part of the challenge is getting other departments to see the principal supervisors not just as the holders of accountability but partners trying to build the capacity of the principal.

At other times, notions of a changing supervisor role also led other departments to make demands on supervisors' time that they had not made previously. Supervisors found themselves invited to many more meetings than they had in the past, even if the topics discussed in the meetings were not entirely relevant to supervisors' work. Lacking role clarity themselves, supervisors at first sacrificed time in schools to attend these meetings under the mistaken assumption that they could not opt out. Two supervisors shared experiences in which role ambiguity forced them to make tradeoffs between their espoused role of principal support and their operating role in the central office:

There were a lot of people who wanted our time, and [were] demanding of our time, yet in the same breath telling us that our focus was to move schools and to build leaders and principals. You can't tell me that that's my primary goal when you're telling me I have to spend my time [at central office]. ... We didn't know we were allowed to say no to all those meeting requests until about January of that first year when they said you don't have to say yes. Nobody told us that we were allowed to say no. All of us were just saying yes to all these things.

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I think once we got into the role, what we found is that we were thought as the catch-all and so if departments had initiatives, then they would try to come to us to say we need this from your people and you have to follow up and it's like well, wait a minute. That's not really what I thought I was supposed to be doing and there's no way that you can be the person that does everything for everybody else's department while you're trying to do your own work. It's like, you know, if this is something that your department is owning, then some of those things are things that you all need to be following through.

Supervisors who had served in the role for more than a year felt that their role had become more differentiated from other central office roles compared to previous years, but still had far to go.

Principals reported dealing with a great deal of role ambiguity between their supervisors and other central office roles. With the advent of a strengthened vertical through-line between multiple departments and the schools, principals expressed confusion over the difference between their supervisor's work and that of the other personnel they worked with directly. Some principals questioned why their supervisor needed to work with them at all in academic areas for which a dedicated department existed, such as socioemotional learning (CEL), special education, and English language learner development. Principals had direct access and were encouraged to go directly to representatives from these offices via their quadrant support teams to gain information, training, or expertise. Their school staff and teachers also worked directly with these offices and others under the umbrella of the Office of Academics. One principal reflected on whether the time she spent with her supervisor had been valuable to her own leadership growth:

When I think about just the time, the communication that we shared, that could've been with almost anybody. ...If I just wanted a walk-through and some feedback, I could've asked my friends [at the central office], "Can you-all come over for an hour? Let's walk my building. Let's sit down and let's do some SWOT analysis or something." I could've asked other people, like other departments. I have friends that work in the socioemotional learning department. "Hey, will you all come out and do a walk-through for me, see what's going on?" I could've done any of that and got the same feedback.

A different principal in a high-performing school echoed a similar sentiment. The principal had worked for many years to create internal teams and processes for providing instructional feedback, and believed their supervisor did not add to this work:

I: Did you find the walk-throughs, the instructional – did you find it helpful to your growth?

P: No. We were already, with our literacy coach, with our data coach, and the team that we have in place, we already are doing those things. So I can see where it would be helpful for someone that may not have those in place. But for us, it was more of a time to just sort of share.

The principals believed that the topics that the supervisor chose to focus on during visits and the ensuing feedback were not well-differentiated from the work they could have done with representatives from other departments or with their own instructional leadership staff. The first principal felt that the feedback they received from their supervisor was generic and did not lead to conversations that were substantively different from those they were already having with other departments or principals. The second principal viewed the supervisor's role as potentially helpful to other principals who did not already have internal systems "in place," but saw that support as redundant for his own needs.

Conversely, some principals benefitted from supervisor role ambiguity, which they viewed as flexibility. New principals with few contacts in the central office often defaulted to reaching out to their supervisors because they did not know who to go. Veteran principals also chose to reach out to supervisors if a designated contact had left their post and the principal did not have another informal contact within the department. Supervisors could choose to connect these principals to personnel in other departments, but sometimes they leveraged their role flexibility to directly assist principals themselves. For example, a supervisor who had received several complaints from principals about slowness in the Human Resources department reported

walking over to the department and directly overseeing the completion of their principals' requests.

Supervisor role ambiguity created redundancies for principals when they received the same non-coordinated services from their supervisor and other personnel. An example of this situation occurred when first year principals were assigned to professional development and coaching with the organizational development department. Although new principals were required to participate in professional development similar to what they experienced with their supervisor in network meetings, supervisors did not collaborate with this department and were unaware of the additional requirements placed on first year principals. Principals in these groups reported that they enjoyed the opportunity to meet the other new principals in their cohort but felt the work they were being asked to do was similar to their work with supervisors and quadrants.

Finally, central office leaders, supervisors, and principals acknowledged that the roles of the supervisor and the area superintendent overlapped because the roles—especially the area superintendent role—were still co-evolving. Area superintendents occupied a new role in the 2017-18 school year that had been created along with the quadrant model. The Office of Schools charged each area superintendent with overseeing and evaluating principal supervisors, leveraging community resources for their quadrants, and coordinating work across the central office to facilitate school support. In practice, area superintendents spent most of their time in meetings with both internal and external district stakeholders. All area superintendents felt that their roles were not well defined and lacked focus as a result. One area superintendent described their hope for more top-down guidance in priorities for the coming year:

I [need] somebody being able to give me more clarity in this role. What is this role? What am I supposed to be really focused on? What is it that you really – regardless of the other 999,000 things that I have to do, what are those five things that you really want me to be focused on and do well?

The Chief of Schools also expected area superintendents to spend some time each week in the schools in their quadrant but provided little direction beyond this expectation. As a result, area superintendents visited schools both with and without supervisors, depending on when they were available. All had spent years in the district and had pre-existing relationships with most of the principals. They reported that, as a function of being in schools and “knowing” the schools, they occasionally stepped in to directly handle school and student-oriented issues with principals. One area superintendent attributed this to their empathy for principals who were unable to resolve issues using the prescribed central office channels:

I will confess to you on tape that, you know, there are days when, you know, those roles get very cloudy, and they get cloudy because it's not because I desire to be in charge of everything, but I remember the feeling of you know, a parent issue that you could not resolve. I remember the feeling of, you know, a transportation issue that you had discussed and worked through or the need for a community partner.

Area superintendents' direct involvement in principal matters could create confusion for principal supervisors regarding the distinction between their responsibilities and those of the area superintendent, given that principals were their “learners” in the through-line. One possible cause of role ambiguity may have been the poor implementation of cross-departmental liaising. Without consistent opportunities to learn about and respond to other departments' work, supervisors and area superintendents may have been vulnerable to mission drift and the emergence of competing priorities that ultimately manifested in their daily work.

Summary: Central Office Support

In order to more rapidly and efficiently meet the needs of its diverse set of schools, the study district divided itself into four geographic quadrants in the 2017-18 school year. The quadrant model greatly influenced supervisors' work. Because each quadrant functioned as a

mini-district, supervisors worked more frequently with other supervisors and central office personnel in their quadrant compared to other quadrants.

In theory, these changes facilitated central office recoupling to the work of schools by reducing the scope of each quadrant's work to be only on the specific needs of a smaller group of schools. The district implemented a quadrant support team model, replacing a formerly rotating roster of personnel assigned to work with each school on an as-needed basis with dedicated representatives from each department who could therefore develop relationships with schools over time. Supervisors and quadrant support team members were to become experts in diagnosing and addressing the needs of their particular group of schools through sustained, collaborative work.

The organization of the central office shaped supervisors' work to a high degree. The quadrant model, largely through its utilization of the quadrant support teams, helped supervisors to more efficiently meet most of their principals' instructional needs. However, the district struggled to integrate work across the quadrants, manage increased cross-department interdependence, and differentiate the role of supervisors, which now specialized in instructional leadership, from other instructionally-focused central office roles. Consequently, supervisors reported tension and frustration as they attempted to carry out their roles and found aspects of their work in conflict with some central office structures and routines.

Findings: Principal Performance Improvement

The third research question asks: to what extent are principal supervisors' practices and perceived effectiveness related to principal performance improvement? To date, no research has established a link between principal supervisor practices or behaviors and principal performance. In the analysis that follows, I regress principal performance measures on measures of supervisor

practices and behaviors to determine whether principals' work with supervisors influences principal performance improvement. I identified two possible channels through which principal supervisors may influence principal performance: First, supervisors may engage in practices and behaviors with principals that are designed to directly develop them as instructional leaders, and second, supervisors may engage in behaviors that indirectly supports principals' work.

I capture supervisors' practices with principals using the same four principal-reported measures examined in earlier analyses: number of meetings at school, duration of meetings at school, percent of time spent on instructional leadership, and frequency of use of coaching practices. Because supervisor practices are so highly correlated with effectiveness, I do not include effectiveness as a predictor. Instead, I include the supportiveness measure. To measure supportive behaviors, I use the supportiveness scale, a subset of 5 items drawn from the effectiveness scale (see Table 7) in which principals rated supervisors' effectiveness in supportive practices such as encouragement, building a trusting relationship, and advocating for principals' needs at the central office. I test for links between each of these supervisor predictors and two measures of principal performance: (1) the principal's overall average observation score, which is the average total of supervisors' evaluation of principals over the four domains of the state administrator evaluation rubric, and (2) teacher ratings of their school leadership, drawn from the Panorama school climate survey. Because both outcome measures are collected once per semester, principals' recent growth can be estimated by controlling for the outcome measure in the prior semester.

As a means of measuring supervisor influence on principal performance, observation scores are an imperfect measure. The potential for rater bias in observation scores is high because supervisors in the study district both coached and evaluated principals. As can be seen in

the estimation results in Table 17, the significant relationships between the supervisor controls (span of control and prior years of experience as a principal) and principal observation score indicate that bias is likely present in supervisors' evaluation of principals. Supervisors with larger spans of control give lower ratings of their principals compared to other supervisors, and supervisors with more years of prior principal experience give higher ratings.

Teachers' school leadership ratings appear to be a more objective measure of principal leadership performance. These measures are associated neither with principal nor supervisor characteristics and appear to be less subject to endogeneity than observation scores. However, because climate survey data only cover Spring 2017 and the 2017-18 school year, the tradeoff in using school leadership ratings as an outcome is that the available number of observations is significantly smaller and thus more prone to imprecision. Additionally, because the analysis requires prior-semester controls for the outcome variable, the estimated results are drawn only from principal reports of their supervisors' practices in the 2017-18 school year.

Table 19 shows results of the estimations. Models 1 and 2 show relationships between predictors and principal observation score. Among supervisor predictors, only principal's reported number of meetings with their supervisor at school are significantly predictive of change in observation score. Interestingly, the relationship is negative—each additional meeting at school is associated with a decrease in observation score by 4 percent of a standard deviation (Model 1). The relationship holds when supervisor fixed effects are added (Model 2). Although the models control for prior semester observation score, they are not causal.

Table 19

Estimated Relationships Between Supervisor Practices and Principal Performance Improvement

VARIABLES	(1) Overall avg. observation score	(2)	(3) Climate survey: School leadership	(4)
Meetings at school	-0.04** (0.01)	-0.05** (0.01)	0.00 (0.01)	0.00 (0.01)
Duration of meetings	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)
Focus on IL	0.00 (0.00)	0.00 (0.00)	0.005* (0.00)	0.00 (0.00)
Coaching practices (scale)	-0.04 (0.05)	-0.02 (0.05)	-0.17* (0.06)	-0.13 (0.08)
Supportiveness (scale)	0.10 (0.08)	0.07 (0.07)	0.12** (0.03)	0.11* (0.05)
P yrs. principal	0.01* (0.00)	0.01* (0.00)	-0.00 (0.01)	0.00 (0.01)
Prior yr. Math achiev.	0.09 (0.04)	0.13* (0.05)	0.02 (0.05)	0.04 (0.05)
SCHOOL TYPE				
Middle school	-0.14 (0.13)	-0.22 (0.16)	-0.20* (0.08)	-0.20 (0.12)
High school	0.16 (0.12)	-0.09 (0.17)	-0.05 (0.07)	-0.23 (0.13)
Other school type	0.43* (0.19)	0.14 (0.29)	-0.14 (0.18)	-0.32 (0.21)
RACE/ETHNICITY				
Black	-0.10 (0.09)	-0.10 (0.11)	-0.01 (0.10)	0.06 (0.10)
Hispanic/Other	-0.41 (0.23)	-0.31 (0.25)	-0.13 (0.14)	-0.17 (0.14)
P is female	0.00 (0.07)	-0.02 (0.07)	0.04 (0.09)	0.02 (0.10)
Years supervised by PS	0.02 (0.04)	0.04 (0.05)	0.07 (0.05)	0.09* (0.03)
PS span of control	-0.08** (0.03)		-0.03 (0.04)	
PS yrs. principal	0.04** (0.01)		0.02 (0.01)	
Constant	-0.22 (0.33)	-0.72*** (0.11)	-0.03 (0.30)	-0.30 (0.16)
Observations	374	374	181	181
R-squared	0.50	0.45	0.77	0.74
Wave FE	Y	Y	Y	Y
Supervisor FE	N	Y	N	Y

Note: Robust standard errors in parentheses. All models control for the prior semester dependent variable. Outcome variables and scales are standardized within semester.

*** p<0.001, ** p<0.01, * p<0.05

The negative coefficient on meetings at school may reflect the district system of tiered support, in which principal supervisors identified high-needs principals and schools in their network and provided them with additional support. Supervisors may have recognized principals whose

performance was on a downward trajectory and responded by visiting more frequently—a conjecture that is supported by the relationship between prior year observation score and number of meetings in the adaptation analysis (Model 2). A similar finding appears at the district level for frequency of coaching practices. A significant negative relationship between supervisors' frequency of coaching practices and teacher ratings of school leadership can be observed, such that a 1 SD increase in frequency of coaching practices is associated with a decrease of 0.17 SD in school leadership (Model 3). This result *may* indicate that supervisors respond to some downward trend in school leadership quality by engaging more frequently in coaching practices designed to help the principal improve; however, because this relationship cannot be observed within supervisor networks, it may also indicate that principals whose leadership climate is on a downward trajectory have supervisors who engage more frequently in coaching than other supervisors. It cannot be inferred from the data whether these supervisors increase their use of coaching in response to their principals' leadership or whether principals with poorer school leadership are more likely to be assigned to supervisors who engage in high-quality coaching practices more frequently.

Turning to teacher ratings of the quality of school leadership on the climate survey, neither number of meetings nor average duration of meetings are predictors improvement in school leadership. At the district level, the percentage of time supervisors spend with principals on instructional leadership is weakly predictive of school leadership improvement—every additional 10 percent of time devoted to instructional leadership is associated with a 5 percent SD increase in school leadership quality. It is difficult to make sense of this finding in light of the negative coefficient on coaching practices in the same model. Taken together, they may

indicate that the content of a coaching session may matter more for principal improvement than the particular practices a supervisor chooses to employ.

The most consistent findings from the models using teacher ratings of school leadership quality appear in the supervisor Supportiveness scale. Principals who rate their supervisors as more highly effective in supportive behaviors make greater gains in their quality of school leadership. Specifically, a 1 SD increase in supportiveness is associated with a 0.12 SD increase in school leadership quality (Model 3). This relationship is consistent when supervisor fixed effects are added to the model (Model 4), meaning that principals who rate their supervisor as more effective in supportive behaviors see greater gains in teacher ratings of their school leadership compared to other principals who are overseen by the same supervisor. A perhaps related finding shows that, within the same supervisor network, principal improvement in school leadership quality is positively related to the number of years they have worked with their supervisor in the role. Principals who have worked with their supervisor in the role for multiple years may work together more effectively than a principal and supervisor who have worked with their supervisor for a short time.

These results align with the qualitative data from principals that show that they strongly valued their supervisors' supportiveness, empowerment, and relationship-building, as discussed in the previous analysis of principals' perceptions of supervisor effectiveness. At the same time, the qualitative results extend this finding by providing evidence that supervisors' focus on broadly supporting principals in their role, beyond direct leadership coaching, may be an effective strategy for improving principal performance. Indeed, area superintendents reported that one of their major emphases for the supervisor role in the 2017-18 school year was for supervisors to build supportive, trusting relationships with principals. Several supervisors and

area superintendents emphasized that a supportive stance was an important pre-requisite for principal support, particularly evaluation. A supervisor noted, “No work will get done if they don’t trust you coming in.” Another area superintendent indicated that they directed their supervisors to first build relationships with principals because they believed these relationships helped supervisors to merge coaching and evaluation and stay attuned to each principal’s individual strengths. Supervisors who were effective at engaging in these supportive behaviors may have influenced their principals’ school leadership in measurable ways.

Exploring the Lack of Effects for Practice Measures

Hypothesis 3 is only partially supported by the data. While supervisor supportiveness (a subset of the effectiveness measure) is positively linked to improvement in school leadership quality, none of the principal supervisor practices appear to influence principal performance improvement. Here I offer two potential explanations, drawn from the qualitative data, that may explain the lack of consistent effects of supervisor practices on principal performance improvement.

Compliance-driven coaching. Some principals explained that, while they received regular coaching and feedback from their supervisors, this coaching lacked specificity and relevance to their work. For them, while the district had revised the role in theory, the work was still rooted in a mindset of compliance. These principals believed that their supervisors lacked the skills to provide them with effective coaching and/or went through the motions of coaching in order to “check boxes” rather than to develop them. One principal described coaching sessions with their supervisor which involved classroom walkthroughs followed by low-level, vague instructional advice. The principal indicated that this work was instructional leadership-focused in nature, but that it was not targeted toward the principal’s needs as a leader:

I feel like the advice she was giving centered around instructional strategies, but not necessarily what I was doing. For example, she was giving ideas about data chats and what needed to be included and maybe some methods to do with the teachers, but it was more looking to the future, [saying] “You need to be doing this.” So it's not necessarily taking my instructional strategy currently and talking about how it's been effective or anything like that. It's more future based.

Other principals echoed this statement by emphasizing that, while the focus of the work had shifted to instructional leadership, supervisors still sometimes focused on telling their principals how to manage the school instructional program rather than reflecting on the principal's practice in a meaningful way. A different principal shared that instructional leadership work with their supervisor often equated to learning to execute new district instructional initiatives rather than broaching the principal's own leadership:

I don't need somebody to remind me how to do my job. I know how to do my job. I need somebody to inspire me, to model best practice and not [say], “Here's the district program *du jour*, and so we're getting trained in that.” And then by the time it trickles down to me, we've moved on to something else. They're just compliance people, and that's not what I need.

Not all principals shared these views, and some expressed deep appreciation for the new coaching perspective that their supervisor had brought to their work over the course of 2017-18. Nevertheless, the width of experience principals reported when discussing instructional leadership work with their supervisors may have weakened its influence on principal performance improvement.

Principal self-preservation. I identified an additional factor related to some principals' response to the espoused theory of increased support from their principal supervisor or the district central office, which I term *principal self-preservation*. Thirteen of the 24 principal participants (54%) sought to maintain minimal—or at the very least, to avoid increasing—interactions with central office personnel, including their supervisors. Principals provided a number of justifications for seeking minimal contact with the central office which can be

categorized as: low trust in the central office organization, chaos avoidance, and conflict with the principal's professional self-image.

Low trust in the central office organization. Not all principals felt adequately supported by the central office but felt uncomfortable asking for different support because of low trust in central office personnel, including their principal supervisors. Principals saw these personnel as ceaselessly evaluative and punitive when principals reached out for help, as the following principal voiced:

We don't call our bosses because we don't want to be judged. We don't want to be evaluated. We don't want to be second-guessed. We don't want to let our guard down. We don't want to be vulnerable. You call another principal for that.

Several principals (and central office personnel) pointed out that there was no systematic way for principals to safely and anonymously provide feedback to the central office on how it could better support them. These principals felt that the central office was unwilling to listen to their concerns or to make appropriate adjustments. One principal noted that providing feedback to the central office would only be useful if "action happens to begin to repair trust."

Additionally, when the new superintendent entered the district in 2016, he installed several staff at high levels from his previous administration in another district. Because principals valued and preferred to work with central office personnel who possessed district-specific knowledge, they devalued the knowledge or expertise that these outside personnel brought. This devaluation bred distrust and avoidance of the outsider personnel in the central office, including three of the 12 principal supervisors in 2017-18.

Conflict with the principal's professional self-image. Veteran principals who were used to a hands-off central office came to view a lack of interaction with the central office as a sign that they were doing their jobs well. When interactions with the central office increased in 2017-

18, these principals could feel that they were being surveilled instead of supported because they were not accustomed to increased contact. Newer principals also expressed that, while they were happy to receive support from the central office and their supervisors at the beginning of the year, they were eager to prove their competence as principals by demonstrating self-sufficiency. Several new principals noted that they received fewer supports from their supervisors and other central office staff at the end of the year, which they attributed to their increased mastery of the job, as the following principal did:

I: And why do you think that the visits – the frequency decreased a little bit?

P: I think confidence in my work, and then it just became the end of the year. You get testing going on, you got graduation. And I think it's a development of trust, I would think. It's sort of like me with a new teacher. I may be there more present than I am with an experienced teacher, but then once I realize, hey, they got this, I can just check in and not hover so much. So I think that that's probably why some of it maybe kind of drifted.

Principals who believed they were doing well came to expect fewer interactions with their supervisors as well as other central office personnel, and to expect that they would be the ones to initiate future interactions rather than be on the receiving end. These principals framed infrequent contact with their supervisor or a lack of prescribed agenda for “change” as a compliment, as summarized by one principal:

I'm sure that there are other schools my supervisor may have visited longer and more often, because those schools had more priorities or more issues. ... I mean, with me, it was about growing versus changing, and some of the others, it might have been more about changing because they were unsuccessful.

Chaos avoidance. Veteran principals had learned to distance themselves from the central office and their supervisors in times of volatility and chaos. These principals believed that avoidance of central office personnel improved their resilience to such issues as turnover, superintendent change, scandal, and political in-fighting. A principal who was nearing retirement

explained, “I’ve been here six years, and I’ve had multiple leaders above me. And sometimes you get tired of bringing [supervisors] up to speed and then moving on.”

Despite expressing different reasons for minimizing interactions with district personnel, principals had the same purpose: to preserve their independence and sense of autonomy within the district organization. Principals were more willing to accept supervisor support if it did not threaten their autonomy. As discussed in the previous findings section, principals placed greatest value on the empowering aspects of their work with their supervisor. They praised supervisors who treated them in an egalitarian manner and who were willing to give them space when they needed it. One principal applauded their supervisor’s ability to know when they did *not* need help:

I really appreciated that my supervisor came out and supported when I needed them and was very good at answering questions and giving me information and backing me up when I needed, but at the same time, realized that there were some things that I didn’t need support in and didn’t hover when I didn’t need it.

Other principals expressed similar appreciation for supervisors who were quick to respond when the principal reached out, but otherwise did not intrude.

Supervisors and central office leaders expressed an awareness of principals’ desire for autonomy, and subsequently shaped much of their work as a response to this desire. Supervisors found it challenging to balance the more intense program of principal supervision with the need to validate principals’ autonomy and independence. They attempted to prioritize trust-building with principals by communicating their work as a tool to enhance principals’ autonomy and expertise rather than to undermine it. At the same time, supervisors recognized that it was difficult to reach principals who did not want to be reached, as a supervisor explained:

I’m still understanding [my principals] and they’re still understanding me. I was with one principal and that individual said they’ve had at least five to eight supervisors in the last ten years and... wow. How do you overcome that? How do you build trust and how does

that principal really know what they need in someone that's supporting and coaching them?

Summary: Principal Performance Improvement

Two main patterns emerge from the quantitative data: (1) Principals who report receiving more frequent visits from their supervisors at school experience greater declines in their observation scores, even compared to their colleagues with the same supervisor, and; (2) Principals who rate their supervisors as more effective in supportive aspects of the role make gains in teacher ratings of the quality of their school leadership, even compared to colleagues with the same supervisor.

The fact that observation scores are composed of supervisor ratings likely explains the first finding. As reported in the findings on supervisor practices earlier in this chapter, supervisors purposefully meet more frequently with principals whom they believed to be experiencing difficulties with their leadership. Controlling for a principal's prior semester observation score captures growth or decline but does not account for prior trends; principals who experience steeper declines in observation scores relative to their peers may have been on similarly steep downward trajectories in previous semesters. Supervisors would likely be aware of these trends, and their increased visits to the principal in the present semester could be a response to their prior information about the principal. It is worth noting that, despite offering principals increased help in the form of more frequent meetings, increased contact is not associated with *improvement* in supervisor's rating of the principal. None of the supervisor practices or behaviors are linked to improvement, despite the relatively good alignment between the constructs captured by the principal observation rubric and the focus of supervisors' work with principals.

Principal perception of their supervisor's supportiveness in aspects of the role such as building trust, advocating for their needs, and connecting them to central office is not associated with changes in observation score, but it is positively associated with increases in teachers' ratings of school leadership quality. This relationship holds even when the comparisons are limited to be with other principals with the same supervisor, suggesting that the supervisor-principal relationship, rather than the individual practices of the supervisor, may influence principal performance improvement. The consistent references by principals and supervisors to the importance of affective skills, personality, trust, and relational support to supervisor coaching support this finding. At the same time, because these results are not causal, it is possible that the relationship is occurring in reverse: Supervisors may be responding to principals whose leadership quality is on an upward trajectory by being more supportive, rather than punitive or directive. Alternatively, principals on an upward leadership trajectory may rate their supervisors as more supportive compared to other principals.

CHAPTER VII

DISCUSSION AND CONCLUSION

This chapter begins with a discussion of the findings of the study in concert with one another. It then moves into conclusions first by reviewing the study and its hypotheses and then outlining substantive implications. I close by describing the limitations and contribution of the study.

Discussion of Findings

At the outset of this study, I hypothesized that the supervisor role revisions within the study district had two purposes: to align the instructional core of the schools with evolving state and district policy and to catalyze a shift in the central office toward a more school and learning-centered orientation. The results of the study suggest that supervisors worked to recouple the work of principals and their schools to state and district expectations, but that changes in their role did not by themselves indicate broader changes within the central office.

The district revised the supervisor role with the goal of aligning school instruction with state expectations. These expectations included demonstrating student proficiency on state-devised standardized tests as well as meeting state standards for how teachers and school leaders should carry out their work. While district leaders developed few formal expectations for *how* supervisors should work with principals to improve the instructional programs of their schools, they consistently framed the goals of supervisors' work first around helping principals improve school achievement.

The most noticeable change in the supervisor role was supervisors' increased focus on issues of instruction in their work with principals, thus supporting the hypothesis that supervisors would specialize in instructional leadership and coaching. This finding is consistent with what others have found in studying principal supervisor role change (Goldring et al., 2018). Principals and supervisors described this as a shift from previous incarnations of the supervisor role, in which supervisors placed more of their focus on assisting principals in non-instructional management of the school. However, supervisors did not consistently specialize in instructional leadership throughout the year in their work with principals, reducing their focus in spring to accommodate seasonal activities such as testing and budgeting. It is difficult to say whether seasonal patterns in supervisor focus may be adaptive or whether they are an obstacle that supervisors must overcome in order to more effectively supervise principals. Honig (2012) identified waning supervisor support and differentiation (adaptation of practice) throughout the academic year as a limitation to principal development. It is unclear how supervisors might sustain specialization in instructional leadership in the face of central office crises and turmoil, such as the budget shortfall that occurred in Spring 2018.

Overall, supervisors exhibited few consistent practices in their work with principals. Supervisors reported intentionally varying their practices to adapt them to principal needs—a process that may explain inconsistency within and across supervisors. However, in this study I was unable to link the majority of variation in supervisor practices with principal characteristics, which means that variation cannot be attributed to supervisors' intentional responses to observable principal characteristics. These findings did not support the hypothesis that supervisors would become consistent in their practices and only partially support the hypothesis that supervisors would adapt their practices in response to principal characteristics. An

explanation for the lack of measurable changes in practice may be that principal supervisors' behaviors with principals are complex, iterative, and not easily captured by surveys. Prior work on principal supervisor effectiveness suggests that highly effective supervisors base their support and coaching on an evolving assessment of each principal's instructional leadership capacity and expertise rather than external indicators such as test scores and years of experience, which do not provide a complete picture of principal capacity (Honig & Rainey, 2014).

Another contributor to high variation in practice—and to limited implementation of supervisor role change in general—may be the high turnover of principal supervisors in the district. Only five of the original twelve supervisors in the 2016-17 school year returned for the 2017-18 school year, meaning seven supervisors were new to the role that year. Organizational teams such as the principal supervisor team, in which problem-solving is decentralized, are particularly vulnerable to personnel turnover, as team members rely on each other's own institutional memory to accomplish their work rather than a chain of command (Carley, 1992). High turnover within the principal supervisor team, and the subsequent hiring of supervisors who had never before served in the role, reduced the team's collective information about how to enact the role. This information loss could have been mitigated by training, specifically the type of training designed to induct supervisors into the new role. While all supervisors received the same ongoing trainings throughout the year, new supervisors lacked formalized introductory training or mentoring in many aspects of the role and often described the job as one in which they learned by doing—often very late into the school year.

District leaders and supervisors did not view the supervisor role as a catalyst for system-wide change. Rather, they framed the role change as one part of a larger shift within the central office toward increasing its responsiveness to school needs. This larger shift was vaguely defined

and not grounded in a cohesive strategy for change, but rather assumed to be taking place through the implementation of systems and structures that were borrowed from several external providers. Structures such as the through-line, quadrant support teams, and cross-departmental meetings were all theorized to support the central office's (and by extension, supervisors') work, but not clearly integrated or related to each other. Because they were not linked to a larger theory or strategy for what it meant to be a learning-centered central office, few of the structures and systems implemented within the central office went beyond surface-level changes in language and terminology. Furthermore, because the district was attempting to change multiple components of the central office at one time—beyond specifically supporting supervisors—its ability to support supervisors in the new role was often directly related to whether each separate structure or system was successfully implemented.

It is beyond the scope of this study to prescribe optimal levels of central office integration, interdependence, or role differentiation required for “successful” central office change. Management theorists often stress that each organizational structure comes with its own considerations and tradeoffs, highly contextual to the size, structure, and goals of an organization (Carley, 1992). For instance, the study district attempted to integrate supervisors' work and that of other central office personnel by implementing a strong vertical chain of command—the “through-line”—through which policies and rules could be communicated. Yet, this form of integrating structure is most effective in organizations in which work is relatively certain, stable, and routine; the more uncertain the work, the more other modes of integration are required (Pinto et al., 1993). Supervisors, steeped in complex knowledge work, may have required greater decision-making discretion and routine flexibility than the through-line allowed. At the same

time, it is probable that supervisors may have required stronger tools and systems for integrating and calibrating their work as a team, particularly given the high turnover among the position.

Another example of this tension can be seen in supervisors' response to their increased interdependence with other departments in supporting principals and schools. While interdependence increased efficiency, it may also lock supervisors and their colleagues into inalterable routines that reduce their ability to "learn by doing," improving, and innovating (Sorenson, 2003). Increased cross-department interdependence with other central office departments also created role conflict between supervisors and the other instructionally-focused central office personnel. Supervisors increasingly relied on these personnel to define the content of their instructional work with principals. Coupled with an already ambiguous role, this conflict created redundancies in the support that principals received from the central office, sometimes even resulting in reduced confidence in their supervisor's authority and expertise.

I did not find clear relationships between supervisor practices and principal performance improvement. There are several explanations for a lack of findings that can be surmised from the quantitative data, such as poor measures of principal performance or supervisor practices, too few observations, or not enough time passing between the implementation of the supervisor role change and the measurement of principal performance. Rather than discounting the value of the supervisor to principal development, the study results may simply point to a greater complexity of supervisor work with principals than can be explored with the data.

Indeed, interview data suggest that supervisors' practices with principals are necessary but insufficient components of what principals and supervisors judged to be "successful" principal supervision. In the qualitative portion of the findings on principal performance improvement, I advanced two additional explanations for the lack of apparent relationships

between supervisor practices and principal performance improvement. The first possible explanation is that supervisors may engage in *compliance driven coaching*, in which they enact practices that are definitionally “instructional leadership coaching” or coaching-like but are not appropriate for the principal’s needs. Effective coaching is a challenging process, requiring great skill on the part of the coach. Research on effective coaching suggests that it must be coupled with actionable feedback and deep reflection, mutual inquiry and goal-setting, and reciprocity between coach and coachee (Cannon & Witherspoon, 2005; Edwards-Groves, 2014; Goff, Guthrie, Goldring, & Bickman, 2014; Gregory, Beck, & Carr, 2011). Because of the sustained, high cognitive demand that coaching requires of both supervisor and principal, it is possible that a principal and supervisor may engage in various coaching practices and behaviors that are associated with coaching without fully participating in the full process of coaching, feedback, and learning for improvement. Such coaching-like or “pseudo” behaviors have been observed elsewhere: Le Fevre, Robinson, and Sinnema (2014) identify the process of pseudo-inquiry in schools, in which principals and teachers engage in inquiry that is not driven by a desire to learn from closed-minded stances. Supervisors and principals may similarly engage in “pseudo” coaching practices and behaviors out of the need to meet expectations of the new role rather than to promote principal reflection and development of their leadership.

The concept of pseudo work in place of actual coaching also appears in the teacher collaboration literature as “contrived collegiality” (Hargreaves & Dawe, 1990), referring to coaching that is mandatory and administratively imposed rather than based on trust and sharing. The authors consider authentic coaching, which must be based on a culture of slow-growing collegiality, to be fundamentally at odds with the bureaucratic focus on outcomes, evaluation, and rapid improvement. It is interesting to compare the Hargreaves and Dawe’s (1990)

distinction between contrived and collegial coaching with the findings of this study that suggest that principal improvement is associated with principal ratings of supervisor supportiveness but not their reports of individual supervisor practices. In interviews, district leaders and supervisors also placed high value on supervisors' ability to build supportive relationships with their supervisors, in the vein of the developmental supervision described by Glickman (1985), but they did not view these relationships as antithetical to evaluation or bureaucracy. Instead, district leaders believed that supportiveness was a necessary precursor to the more outcomes-based work supervisors were expected to do with principals. It is possible that this study observed only the first part of a longer path in which supervisors—most of whom were in their first year of working with their principals—were still in the midst of building relationships with their principals before they could provide them with meaningful coaching.

The other explanation for the lack of relationship between supervisor practices and principal performance improvement is that of *principal self-preservation*, in which principals disengage from supervisor support out of a need to preserve autonomy and resilience. Principals were not outwardly defensive in their descriptions of their supervisors' support. Some expressed a yearning for more intense, deeper guidance but had learned to feel skeptical or mistrustful of the central office. This pattern has been observed in other studies of principal coaching in which principals respond to feedback that they find dissonant by dismissing it (Goff et al., 2014). The concept of principal self-preservation also echoes Rosenholtz's (1989) well-known work on teacher workplaces, in which she describes teachers' tendencies toward self-defensiveness if they perceive collaborative work as threatening to their professional self-esteem.

Principal self-preservation could occur in tandem with compliance driven-coaching and may even be a contributor to it. For example, in Le Fevre and colleagues' (2014) study of inquiry

in schools, two of the distinguishing features of pseudo-inquiry were the extent to which the person making the inquiry sought to maintain control of the conversation in order to solve the problem as quickly as possible and the extent to which they sought to avoid producing negative emotions. Out of the desire to protect their autonomy and professional image, principals may engage in non-disclosure of their true feelings, limiting their input into their supervisor's coaching and essentially reinforcing compliance-driven behaviors.

A final comment on principals' response to supervisor coaching concerns the role of principals in the overall recoupling of schools to the central office. In the present study, principals no longer bore sole responsibility for recoupling the work of their schools to the central office; instead, principals shared this responsibility with supervisors. Principals in the study district exhibited a professional identity that was more aligned with the work of the technical core than with district administration; they viewed themselves as instructional leaders whose work faced teachers, not the central office. This shift in the identity of principals in the study district parallels a larger shift in education systems from school administration to school leadership, a shift that can create a dilemma of identity for principals if the central office continues to treat them primarily as administrators (Dimmock, 1999). Indeed, in the study district, many of the former roles occupied by principals in school improvement literature appear to have passed to supervisors. Principals did not seem to consider themselves intermediaries between the central office and the school, as principal supervisors and other central office personnel increasingly fulfilled the role of intermediary, providing them with information and training, connecting them to resources, and advocating for their needs at the central office. At times, supervisors even worked directly with teachers alongside the principal. Principals bristled

when they were treated by the central office or their supervisors as compliant administrators rather than given the support and discretion to make decisions in the interest of their school.

The shift in principal positionality within the district organization may explain why some principals responded to their supervisors' recoupling efforts in ways that were strikingly similar to the teacher responses described by Hallett (2010) and Diamond (2012). Some viewed efforts to recouple their work to district policy as a threat to their cultivated autonomy and professional image. Others simply viewed these efforts as the newest fad in a constantly-changing educational environment, one they had survived and would continue to survive by minimizing their engagement. New principals, who reported the most value in their supervisors' work, did not view this work as a threat because they depended almost entirely on supervisors and the central office for guidance on the rules and norms of being a principal; in other words, their work was already entirely coupled with the central office.

Nevertheless, changes made to the supervisor role in the study district were poised to benefit principals. The study district responded to accountability pressures by collecting increasing amounts of school data and sending more specialized personnel from various departments into the schools. It revised the supervisor role to specialize in instructional leadership in recognition of the importance of effective principal leadership to teaching and learning. Consequently, principal supervisors were no longer a "shadow army" within the district, broadly reporting the state of the schools to the central office. Instead, they were one of many sets of specialized eyes and ears from the central office with whom principals regularly interacted. This new relationship between supervisors, principals, and the central office was still developing as of Spring 2018 but had the potential to provide principals with multi-source

feedback from multiple personnel within the central office, increase their access to the expertise of central office specialists, and allow them more rapid access to resources and information.

Conclusion

Review of the Study

In this study, I added to the emerging research base on principal supervisors by examining how a school district implemented a revised role for principal supervisors. Central office transformation to support teaching and learning has become a prominent topic in school improvement research, yet many studies of central office changes, including supervisor role change, take place under conditions that may be difficult for other school districts to replicate without large grant funding or third party guidance. The goal of this study was to explore how principal supervisor role change unfolded in an urban district that had independently chosen to revise the role. It comprises three main research questions:

1. What practices define principal supervisors' new role, and how have these changed over time?
2. How does the central office support principal supervisors in the new role?
3. To what extent are principal supervisors' practices and behaviors related to principal performance improvement?

This study uses both quantitative and qualitative data collected over 2016-17 and 2017-18 to construct an understanding of principal supervision within the study district. The particular combination of primary surveys, secondary state data, and interview data is unique in studies of principal supervision. By constructing principal supervision from multiple vantage points, my aim was to develop an integrated understanding of not only what supervisors do with principals

and other central office personnel but also how and where supervisor leadership fits into the district goal of improving principal instructional leadership, a well-established driver of improvement to teaching and learning (Heck, 1992; Leithwood et al., 2004).

Principal supervisor role change can be viewed as a district response to trends and policies in the educational environment. This study is framed around the neo-institutionalist theory of recoupling, “the process of creating tight couplings where loose couplings were once in place” (Hallett, 2010, p. 10). Recoupling can be viewed as a response to the previously dominant theory of loose coupling, which schools systems have traditionally favored. Loose coupling has advantages, such as allowing organizations to add or change work in one unit without affecting the others, thereby protecting them. It also has disadvantages, such as slow responsiveness and lack of coordination between units (Meyer & Rowan, 1977; Weick, 1976). In the present environment of top-down accountability, recoupling formerly loosely coupled systems within school districts has become increasingly common in order to align instruction with new policies and expectations (Diamond, 2012). District central office administration has become increasingly focused on centralizing and organizing the instructional core of schools. Principal supervisor role change represents one of the most recent iterations of this focus.

Given the findings of this study regarding supervisor practices, central office support for supervisors’ work, and principal performance outcomes, I conclude that principal supervisors have partially facilitated the recoupling of schools to the central office. In particular, principal supervisors have assumed a position previously occupied by principals in which they are intermediaries between the central office and schools. Supervisors were more visible and accessible to principals compared to previous incarnations of the supervisor role. Supervisors engaged in coaching and evaluation of principal leadership, helped principals navigate the

central office, connected them to resources, and provided them with information and support on district policies. All of these activities were intended to tighten the link between district policies and the instructional core. Principals reported clear understanding of the goals of their supervisors' work and their supervisors' expectations for their job, suggesting that supervisors were successful in the top-down portion of recoupling. However, principals did not experience their supervisor's support as part of a larger central office shift toward supporting their work, suggesting that supervisor role change was not able to recouple the central office with the needs of schools by making it "learning-centered" (Johnson & Chrispeels, 2010). While reorientation of the central office toward a learning-centered orientation includes revision of the principal supervisor role, it likely requires changes far beyond supervisor role change—a finding that is consistent with large studies of central office transformation (Knapp et al., 2010; Marsh et al., 2005).

From the basic framework of recoupling, the study incorporated theories of effective work processes and organizational support from the organizational and management literature. These theories produced the specific hypotheses investigated within the study. Table 20 summarizes each hypothesis and describes whether it is supported, not supported, or partially supported by the data.

Table 20
Summary of Hypotheses

Hypothesis	Supported	Partially supported	Not supported
Supervisor Practices			
Hypothesis 1a: Supervisor routine practices will become more standardized across principal supervisors over time.			✓
Hypothesis 1b: Principal supervisor focus on instructional leadership will increase over time.		✓	
Hypothesis 1c: Supervisors vary their practices according to principal years of experience, performance, and/or school-level value-added.		✓	
Hypothesis 1d: Principal supervisor practices are positively related to principal ratings of supervisor effectiveness.	✓		
Principal Performance Improvement			
Hypothesis 3: Principal supervisor practices and behaviors are positively related to principal performance improvement.		✓	

Among hypotheses of supervisor practice, average principal reports of supervisor practices varied greatly between supervisor network, and it is unclear whether variation in supervisor practices decreased over time. These findings do not support the hypothesis that supervisor practices became more standardized over time. The hypothesis that supervisors would become more specialized in instructional leadership and coaching was supported; supervisors' focus on instructional leadership with their principals increased an average of 6 percentage points per semester.

Next, the hypothesis that supervisors would adapt their practices according to principal characteristics was only partially supported by the data. Some patterns did emerge—for example, principals with more school-specific years of experience reported greater focus on instructional leadership compared to principals with fewer years of school-specific experience. However, these relationships were inconsistent across estimation models and inconsistent. More work is

needed to determine how supervisors vary their practices in response to principal characteristics and needs.

Finally, the findings within survey data supported the hypothesis that principal supervisor practices were positively related to principal perceptions of effectiveness, even when models were estimated with leave-one-out measures of supervisor practice. Supervisors frequency of high-quality coaching practices, such as the use of pre-determined agendas and modeling of feedback with principals, was directly related to principal rating of supervisor effectiveness. Contact in the form of frequent meetings at school was also related to effectiveness ratings, while percentage of time spent focusing on instructional leadership together was not. These findings suggest that principals judged effectiveness more on the intensity of one-on-one interactions with their supervisors rather than the content of their work together.

The principal performance hypotheses were also inconsistently supported. Of the five supervisor variables examined, only one appeared to be consistently related to principal performance improvement. Specifically, principal reports of their supervisor's supportiveness were positively related to improvements in teacher ratings of principals' school leadership quality.

Implications

Three major substantive implications arise from the study.

The principal supervisor role is context-dependent. There is little that is universal to the principal supervisor role. Despite the advent of national standards to define the new role, principal supervision in practice depends greatly on state and particularly district-level contexts. These contexts may include: the needs of students and school staff, the state of the local educator labor market, the strength of educator unions, the size and geography of the district, the size and

structure of its schools, availability of financial resources, strength of institutional memory, level of employee turnover, and history of the school district and the community it serves, and the district's position within the state policy environment. Principal supervisors in the study district, as central office personnel, inevitably responded to these factors in their work with principals.

Given the prominence of state and district context in supervisors' daily work, districts wishing to revise the principal supervisor role might preemptively take this context into account when defining and supporting a new principal supervisor role. Prior research demonstrates that state and district context greatly influence whether educational reforms become institutionalized (Datnow, 2005). If a district creates a supervisor role that is agnostic to its context, it risks creating either an espoused theory of principal supervision that supervisors will be unable to apply in their daily work or an underspecified role that provides little guidance on the realities of the job. For example, in the study district, the district expected supervisors to engage primarily in instructional leadership work and coaching inquiry cycles with principals, despite the fact that many secondary and first-year principals required assistance in non-instructional issues. In adapting to their principals' needs, supervisors were forced to abandon the espoused theory of supervisor-as-instructional-leadership-coach. Another example of the acontextual nature of the supervisor role within the study district was the lack of latitude within the espoused role for supervisors to address teacher turnover and parent complaints, despite the fact that both were known to be highly frequent occurrences in the district that supervisors had historically dealt with. Both of these scenarios created friction for supervisors as they negotiated the dissonance between district expectations and the daily demands they and their principals faced.

At the same time, because the role is not universally well defined, it can only flow from clear district expectations and benchmarks for what supervisors should know and be able to do

with principals. These expectations in turn should be explicitly embedded within the district's vision for teaching and learning. While the study district provided some guidance for how supervisors should spend their time and how they ought to organize their coaching work with principals, it did not provide explicit guidance for how principals should engage in deep coaching and support for their principals. This flexibility provided supervisors with high autonomy in how they chose to carry out their work, but it also led to discrepancies across supervisors in the quality of support principals received as well as confusion among supervisors and principals about how their work supported school improvement. This variation in practice extended even to supervisors' conduct of principal evaluations, which is meant to be standardized across the state.

In revising their expectations for the supervisor role, successful districts have explicitly outlined the skills and orientations they desired supervisors to possess and provided training that was explicitly linked to supporting principals' development of those skills. For instance, Honig (2012) has identified key supervisor practices and orientations with principals that deepen principal instructional leadership, such as the use of modeling and tools, and taking a teaching perspective. The Model Principal Supervisor Standards (CCSSO, 2015) similarly outline the specific actions and dispositions that lead to effective principal support beyond practices. However, these standards and best practices are aspirational, and likely only a starting point for change. Their universal, acontextual nature may prove challenging for districts to translate into expectations for everyday practice. Consequently, districts may prefer to define standards for practices that are easily described and written into a job description—such as the number of visits a supervisor should make to each school. Without context and relevance, neither high-level standards nor basic benchmarks for the principal supervisor role can adequately guide the

principal supervisor role. Instead, districts must take the time to find a middle ground in which expectations for principal supervisor work are clear, achievable, and based on the district's own deep understanding of its local needs.

The central office shaped supervisors' work. As central office administrators, supervisors are inextricably linked to the central office. Increased focus at all levels of the central office on supporting instruction means that school support has become an increasingly team-oriented, interdependent enterprise. The new principal supervisor role depends on other central office roles and departments in a number of ways: to assume responsibilities that were formerly part of supervisors' job description, to create the instructional strategy for schools, and to coordinate other support and resources for schools. Districts can implement integrating systems and structures that help to coordinate and streamline the work of supervisors and other departments while also clearly defining the specific expectations and contributions of each department and role. When these features are absent, opaque, or inconsistent, as they were in the study district, principal supervisors' ability to carry out the new role is hampered.

Principals' responses to the revised principal supervisor role were not uniform. Principals in the study district varied in their interpretation of their work with their supervisors and their perception of the benefits or drawbacks of the new role. These differences sometimes appeared between noticeable principal demographics, such as veteran or novice, but not always. Despite increasing centralization of the district's expectations for the principal role, principals exhibited a wide range of professional experiences and perspectives that shaped their responses to their work with their supervisor. This variation in principal response complicated the work of supervisors and principals.

Given the size of the district and the diversity of principals and schools within it, varying principal responses to supervision are to be expected. In response, districts may choose to modify the supervisor role to accommodate this variation rather than ignore it. Effective supervisors possess deep skills that allow them to constantly assess and adjust their support according to their evolving understanding of principal capacity (Honig & Rainey, 2014). Districts might therefore select individuals for the role with demonstrated effectiveness in these skills and offer trainings targeted toward helping existing current supervisors monitor and adjust their work in response to principal capacity. As districts strengthen their implementation of a more instructionally-focused principal supervisor role, they will continue to find ways to balance expectations for high-quality support with the knowledge that principal capacity and needs are wide-ranging.

Limitations

Several limitations are present within this study. First, although survey and interview data are available, these data are not obtained through observation and therefore subject to reporting error. Surveys attempt to minimize error by limiting recall to the last three months, or about one semester. Error could be induced in multiple other ways, particularly response bias that arises during respondent misinterpretation of an item or failure to respond accurately to an item due to social desirability or some other factor. Interviews were also subject to bias, as they ask participants to describe events that took place up to a year prior to the interview.

Additionally, the length of the study may also be too short to capture more slow-growing change within the district. Given the scope of the district's changes to both the central office and the new principal supervisor role, two years may be an insufficient length of time for district-

level changes to structures and role expectations to begin to produce measurable results in the form of supervisor practices and principal performance. Study participants reported that even after two years, supervisors' role and work was still evolving within the district. Central office role change initiatives tend to unfold over a longer period of time; for example, the Wallace Principal Supervisor Initiative took place over four years (Goldring et al., 2018).

Several limitations are related to performance data. First, teacher surveys asked the respondent to generalize answers to "school leadership," rather than the principal only. If a teacher's responses were influenced by any member of the school's leadership team who is not the principal, the measure may not accurately capture teacher perception of principal performance. However, a counter to this may be that the performance of other school leaders may also reflect the principal's leadership due to the importance of principal delegation and distribution of leadership in managing the school leadership team. Another limitation for climate surveys may be that not all teachers within a given school provided a response, which may have introduced errors of nonresponse when survey responses were aggregated to the school level.

One large limitation to the use of principal observation score data is that principal supervisors themselves are the one who evaluate principals. This measure is endogenous, if supervisors were influenced in their ratings of principal performance by factors related to their supervision of the principal. For example, a supervisor may have increased her rating of a principal because she spent a great deal of time visiting and working with the principal rather than her judgment of the principal's improvement. None of the estimations of the relationship between supervisor practices and supervisor ratings of principal performance should be viewed as causal.

Finally, these findings represent changes occurring within a single case study district. Not all findings may be generalizable to other districts. While they may be significant, the extent to which the district and community context influence the implementation of principal supervision within the district are beyond the scope of this study. Additionally, turnover among central office personnel and principals is high in this district, which limits any attempts to explain how principal supervision and school support has proceeded over a period of time greater than the two years of the study.

Contribution

Effective principal instructional leadership is a crucial factor in improving schools and promoting student success, but little research has been able to determine how principal supervisors enact their role with principals, and how this work influences principals as instructional leaders. This study represents a first step at establishing a link between the newly codified supervisor role and how this role is implemented within an organization as complex as the school district. Particularly novel is the study's attempt to link specific supervisor practices and behaviors to principal performance improvement. To my knowledge, this has not been attempted by previous studies of principal supervision. It also contributes methodologically to the field by studying principal supervision from a multi-source perspective that includes survey, administrative, and interview data.

The study contributes theoretically to studies of recoupling by examining how recoupling is enacted at the micro level between actors in the district central office and schools. In doing so, it positions recoupling as a two-way phenomenon, comprising both the top-down process of aligning the instructional core with state and district policy as well as the bottom-up shift of the

policies and work of the central office to support improved teaching and learning. Many studies have commented on the potential of the central office to advance school improvement by becoming more aware of and responsive to school needs (Daly & Finnigan, 2012; Johnson & Chrispeels, 2010; Knapp et al., 2010; Mania-Singer, 2017). In the present study, principal supervisors were clearly positioned to promote top-down recoupling, and they were also potential levers for the recoupling of central office policy and practices with schools in order to meet their needs. In sum, principal supervisors were potential agents of two-way recoupling.

Although I found principal supervisor role change to be an insufficient catalyst for two-way recoupling in the study district, this inefficacy may be due to inadequate district conditions for change rather than a flawed premise of how role change operates. The theory of variable coupling implies that effective districts engage in both tight and loose couplings at the same time or over time, and that these patterns of couplings allow the district to better respond to changing political, social, or economic contexts (Rorrer, Skrla, & Scheurich, 2008). Thus, the ability of principal supervisors—and other roles throughout the central office—to help manifest two-way recoupling may depend on the whole set of couplings that exist in the district at any given time, and how these couplings operate as a whole to allow districts to change and adapt. Future theoretical work should continue to explore how organizational conditions and couplings—both internal and external—facilitate the ability of central office actors such as principal supervisors to recouple the central office to schools. It should also help to define the limits of recoupling theory in the complex, nested environment of the central office.

APPENDIX

Table A1

Retained Factors from Oblique Promax Rotation of Supervisor Effectiveness Items

Factor	Variance	Proportion
Factor1	8.33076	0.8083
Factor2	6.90864	0.6703

Note: Rotated factors are correlated.

Table A2

Factor Loadings of Rotated Factors from Principal-Reported Supervisor Effectiveness

Variable	Factor1	Factor2	Uniqueness
Holding me accountable for taking specific steps or actions	0.6921		0.383
Helping me set goals for my development	0.7403		0.1807
Providing me with actionable feedback	0.6784		0.2186
Advocating for my needs as a principal with district leaders		0.6652	0.2388
Protecting my time from trivial issues	0.3943	0.5146	0.3546
Connecting me with other central office personnel when needed	0.3668	0.5321	0.3658
Helping me improve my teachers' instruction	0.7691		0.2226
Helping me improve the quality of feedback I give to teachers	0.7613		0.2504
Helping me use and understand my school's data	0.7606		0.1965
Creating a professional learning community among the principals I supervise	0.4785	0.4185	0.3738
Encouraging me		0.8223	0.2005
Developing a trusting relationship with me		0.7890	0.1866
Developing me to meet the needs of diverse learners	0.7213		0.2326
Helping me implement challenging curricula and assessments	0.7011		0.2889

Note: Rotation method was oblique promax. Loadings below 0.35 are left blank. Bolded items are those that were used to form the Supervisor Supportiveness scale.

Table A3

Pair-Wise Correlations Between Measures of Supervisor Practice.

	Number of meetings at school	Duration of meetings at school	Focus on instructional leadership	Coaching practices (scale)	Effectiv. rating (scale)	Supportiv. rating (scale)
Number of meetings at school	1					
Duration of meetings at school	0.070	1				
Focus on instr. leadership	0.139	0.180	1			
Coaching practices (scale)	0.271	0.169	0.288	1		
Effectiveness rating (scale)	0.241	0.150	0.302	0.731	1	
Supportiveness rating (scale)	0.159	0.167	0.230	0.656	0.936	1

Table A4

Estimated Relationships Between Principal-Reported Supervisor Practices and Principal Characteristics (Includes Climate Measure)

VARIABLES	(1) Meetings at school	(2)	(3) Pct. Time on IL	(4)	(5) Duration of meetings	(6)	(7) Freq. of Coaching Practices (scale)	(8)
P years school	0.06 (0.06)	0.06 (0.06)	0.92 (0.47)	0.98 (0.55)	3.57 (2.55)	3.67 (2.62)	0.06* (0.02)	0.05 (0.03)
Prior observation score	-1.16* (0.45)	-1.24* (0.44)	-2.07 (2.66)	-1.67 (2.96)	-8.06 (9.81)	-11.35 (9.22)	-0.13 (0.14)	-0.14 (0.15)
Overall school climate score	0.36 (0.38)	0.39 (0.42)	5.91* (2.17)	3.69 (2.34)	11.84 (8.87)	9.83 (11.62)	0.10 (0.07)	0.15 (0.07)
Prior yr. Math achiev.	0.62 (0.29)	0.47 (0.36)	-0.00 (3.14)	0.65 (3.96)	1.75 (8.55)	3.34 (13.11)	0.24 (0.11)	0.17 (0.11)
RACE/ETHNICITY								
Black	-0.09 (0.41)	-0.08 (0.55)	6.97 (3.26)	5.22 (3.30)	15.72 (15.34)	12.78 (15.66)	-0.36* (0.14)	-0.35* (0.14)
Hispanic/Other	0.02 (2.45)	0.20 (2.64)	19.03** (5.65)	10.97 (6.75)	-7.66 (14.10)	-21.35 (20.60)	-0.31 (0.39)	-0.31 (0.46)
P is female	0.41 (0.51)	0.28 (0.46)	-0.70 (5.26)	1.40 (5.38)	9.70 (14.95)	9.13 (14.29)	0.06 (0.20)	0.04 (0.19)
SCHOOL TYPE								
Middle school	1.12 (0.90)	1.55 (0.99)	-7.64 (3.73)	-4.02 (5.53)	-8.80 (12.92)	-5.75 (18.38)	0.24 (0.15)	0.35 (0.26)
High school	0.78 (0.79)	1.53 (1.29)	-13.82* (6.27)	-14.41 (7.31)	-4.24 (20.36)	-6.71 (32.42)	-0.11 (0.32)	0.51 (0.53)
Other school type	1.17 (2.18)	1.90 (2.65)	-20.79* (8.35)	-18.25 (11.57)	-3.86 (51.94)	0.63 (69.71)	-0.55 (0.56)	0.13 (0.72)
Years supervised by PS	-0.24 (0.18)	-0.20 (0.11)	-4.76** (1.27)	-7.06** (1.64)	4.19 (7.33)	2.83 (8.80)	-0.17 (0.09)	-0.16 (0.08)
PS yrs. principal	0.14 (0.09)		-2.22*** (0.49)		4.41 (2.60)		0.02 (0.03)	
PS span of control	-0.60* (0.21)		-0.14 (1.73)		-2.93 (4.98)		-0.15 (0.07)	
Constant	11.14** (2.64)	4.64*** (0.67)	75.24** (20.89)	63.52*** (5.29)	64.30 (61.42)	55.23* (19.40)	1.69* (0.76)	-0.10 (0.20)
Observations	192	192	192	192	180	180	192	192
R-squared	0.22	0.21	0.19	0.14	0.12	0.11	0.20	0.13
Wave FE	Y	Y	Y	Y	Y	Y	Y	Y
Supervisor FE	N	Y	N	Y	N	Y	N	Y

Note: Robust standard errors in parentheses. Prior observation score and frequency of coaching practices measures are standardized within semester, prior math achievement is standardized within year. Models without supervisor FE cluster errors at the supervisor level. "P" = Principal; "PS" = Principal Supervisor.

*** p<0.001, ** p<0.01, * p<0.05

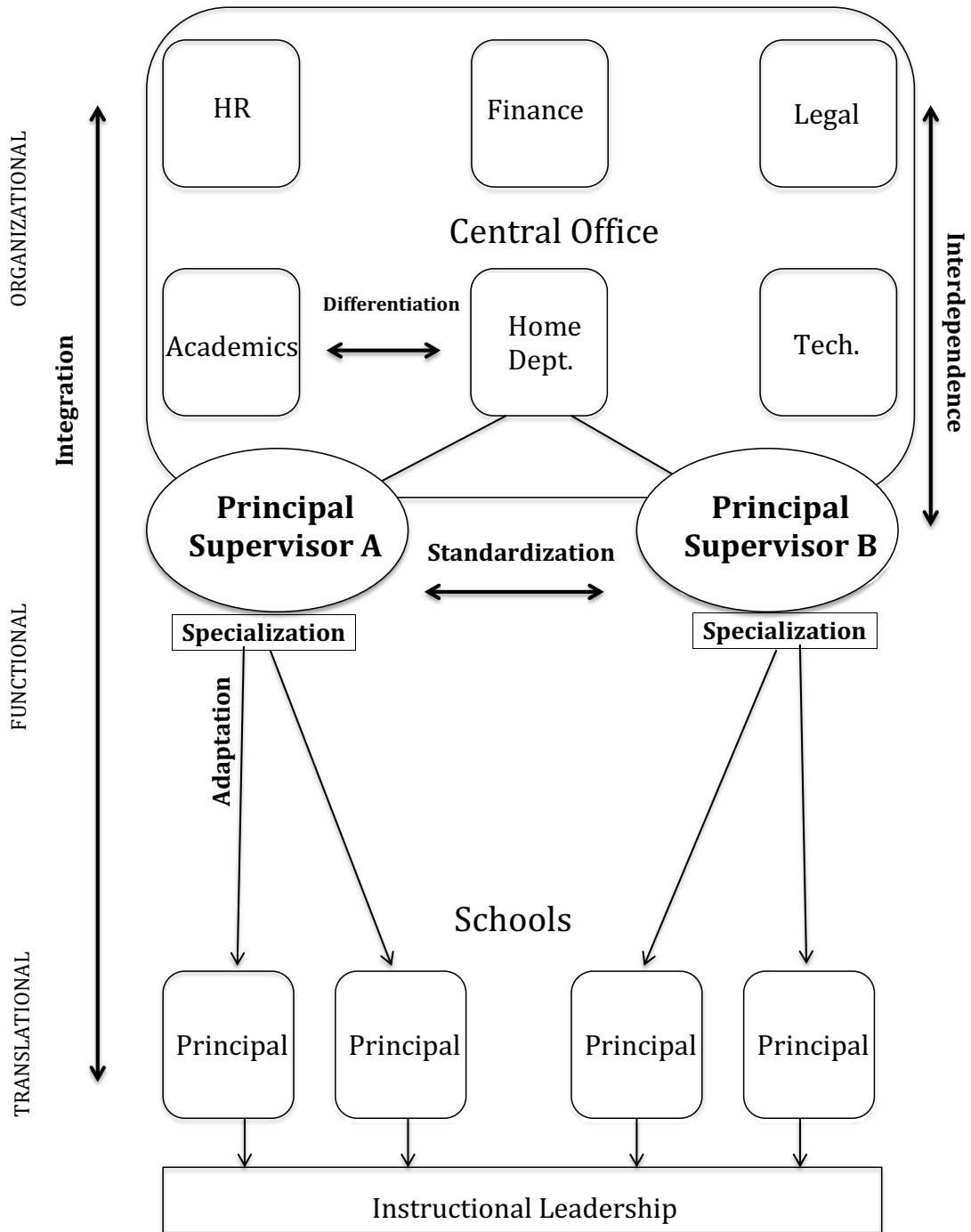


Figure A1. Conceptual Model of Components of Supervisor Effectiveness

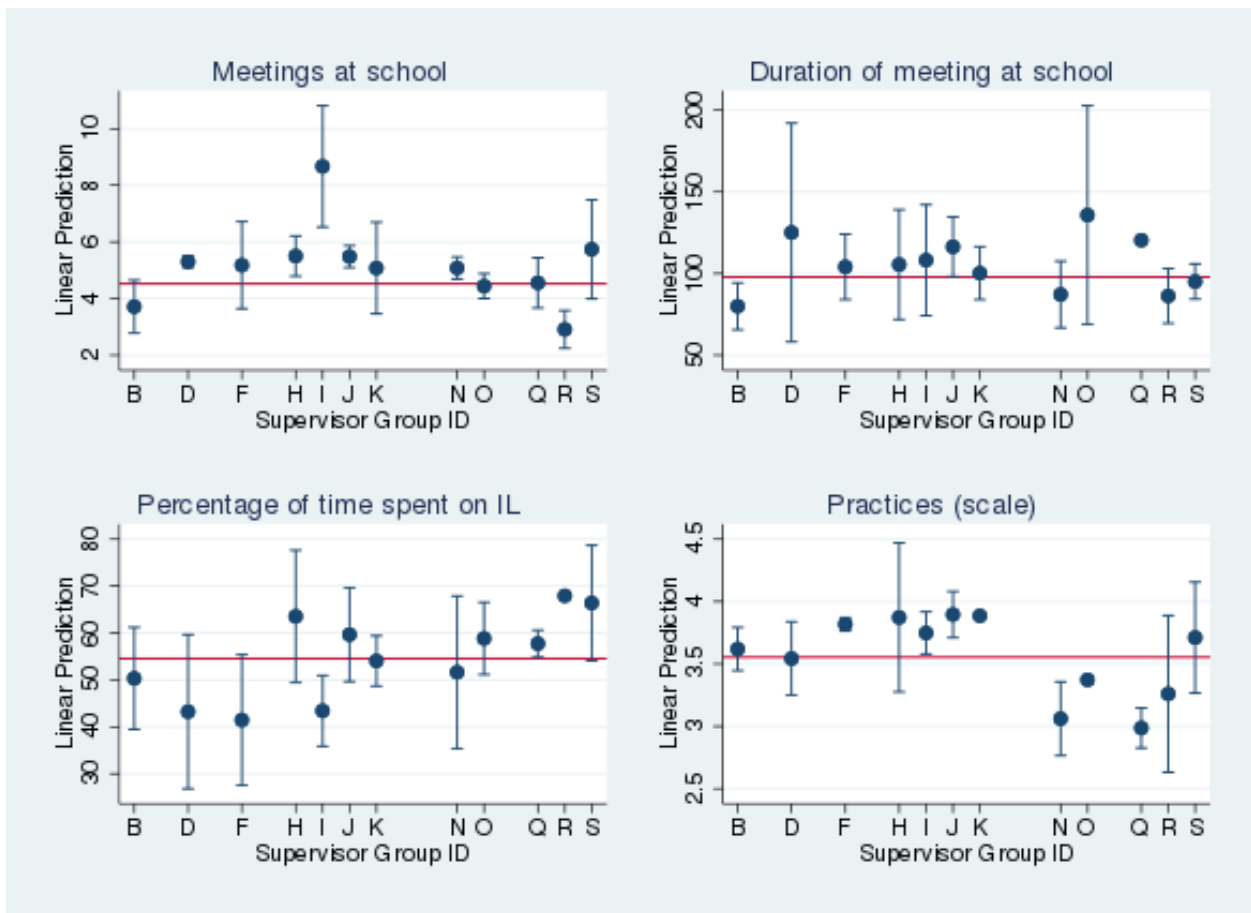


Figure A2. Margins Differences in Principal-reported Supervisor Practices 2017-18, by Supervisor

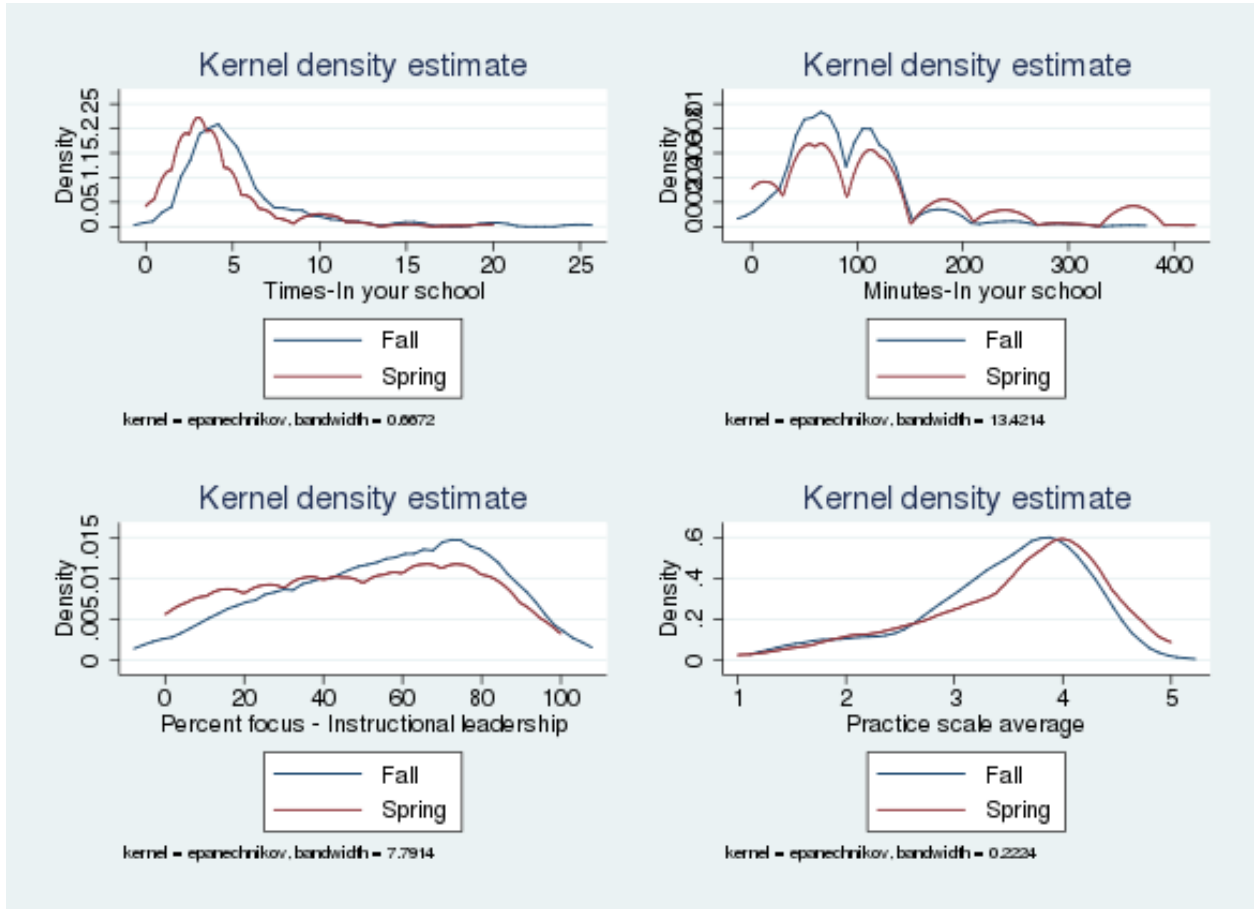


Figure A3. Kernel Density Plots of Principal-reported Supervisor Practices, Fall and Spring

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