

Investigating the Role of Instructional Rounds in the Development of Social Networks and District-Wide Improvement

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In this article, we explore how organizational routines involving instructional rounds—collective, structured observations and reflections on classroom practice—might contribute to the development of social networks among administrators and support a common, district-wide focus on instruction. Building on work on communities of practice, we consider some of the mechanisms through which rounds might contribute to the development of the relationships, common language, and shared understanding integral to building social capital. Our analysis focuses on the evolution of social networks among administrators in three districts. While this initial analysis does not find a consistent association between engagement in rounds and the development of social networks that have the characteristics of communities of practice, it points to several key factors that need to be taken into account in order to use rounds strategically to support the development of connections among administrators who may not normally come into contact with one another.

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In recent years, educational reform efforts often highlight the importance of instructional leadership. While there are numerous approaches to instructional leadership (e.g., Brazer & Bauer, 2013; Hallinger, 2003), in general, instructional leaders shift attention from a traditional focus on administrative tasks and managing schools (Cuban, 1988) to a focus on instruction and the instructional core—the relationship between students, teachers, and content (Coldren & Spillane, 2007; Elmore, 2002, 2007). As such, these efforts are central to overcoming the “loose coupling” between policy and classroom practice that has been identified as a key impediment to large-scale improvement in student learning (Meyer & Rowan, 1977; Weick, 1976).

The development of what Cohen and Moffitt (2010) have called an “infrastructure” for teaching and learning serves as one promising way to support the efforts of educational leaders to shift their focus from administration to instruction and to have a positive impact on classroom practice throughout their organizations. That infrastructure includes organizational routines that help education leaders to influence and coordinate conversations and work on instruction and the efforts to improve it (Spillane, Parise, & Sherer, 2011). For example, routines like regular meetings that use protocols to look at student work can help school and district staff to develop and deepen their knowledge about instructional practice across classrooms.

Organizational routines are patterns of interdependent activities and actions, recognizable to organization members, and involving two or more staff members (Feldman & Pentland, 2003; Spillane et al., 2011). On the one hand, organizations may adopt routines in order to conform to expectations, demonstrate their legitimacy, and preserve the status quo (Cyert & March, 1963; Meyer & Rowan, 1977; Nelson & Winter, 1982). On the other hand, organizational routines serve as a key means for coordinating activities and reducing conflict (Feldman & Pentland, 2003; Levitt & March, 1988; March, 1991); they can help to organize and focus interactions among staff (March & Simon, 1958; Nelson & Winter, 1982), and they can help to promote organizational change (Feldman & Pentland, 2003; Sherer & Spillane, 2011).

This article explores the ways in which one organizational routine—instructional rounds—may contribute to the coordination of activity and the development of a common focus on instruction by fostering the development of social networks among all district administrators. Instructional rounds generally involve relatively brief observations in a sample of classrooms within a school by groups that may include teachers, administrators, or both (City, Elmore, Fiarman, & Teitel, 2009; Fink & Resnick, 2001; Marzano, 2011).

Although routines like instructional rounds can be used for different purposes, rounds are hypothesized to support the development of a focus on instruction by establishing (a) a common language and a common understanding of high-quality teaching, (b) a collaborative learning culture rather than a culture of compliance, and (c) a more coherent approach to improving instruction (City et al., 2009). To date, some research supports these possibilities, suggesting, for example, that participants often show high satisfaction with the process and that rounds-related practices can contribute to the development of a shared understanding of high-quality practice (Coburn, Honig, & Stein, 2009; Roberts, 2012; Tanney, Hergert, & Hirschler, 2010).

Research also indicates limitations that can hamper the power of rounds and related initiatives. For example, rounds-like initiatives are unlikely to be effective and may be counterproductive unless many key conditions are already in place: The purpose needs to be clear, observations need to be carried out in a climate of trust, and everyone involved needs to understand how the observations connect to other improvement efforts (David, 2007). In short, despite the popularity of rounds, the evidence base on the effects of rounds is limited, and the precise mechanisms through which rounds could contribute to the development of a common focus on instruction and ultimately to the improvement of classroom practice has not been fully explored.

In order to fill the gap, we focus particularly on the ways in which rounds create opportunities for administrators in diverse roles and different parts of the organization to work together in tasks such as observing and reflecting on classroom practice, taking notes, and producing feedback, presentations, and reports. This mutual engagement can disrupt traditional patterns of interaction and foster the development of social networks that span traditional hierarchical divisions by enabling administrators to interact with peers with whom they do not work every day (Roberts, 2012). In addition, the development of social networks that connect all administrators can facilitate the sharing of information, ideas, and expertise and can help participants to recognize that they are all engaged in a common practice: supporting the improvement of teaching and learning. In the process, rounds could contribute to the kind of shared understanding and shared purpose that characterizes communities of practice (Lave & Wenger, 1991; Wenger, 1999).

Consistent with work on communities of practice and professional learning communities (DuFour, 2004; Eaker & Keating, 2008; Halverson, 2003; Louis, Kruse, & Bryk, 1995), rather than seeing the development of these social networks as an end in themselves, more robust networks could create a foundation for further collaborative work, including other efforts to improve classroom practice. In this article, we explore these hypotheses by focusing on three districts that have used instructional rounds to help foster a common focus on instruction among administrators. To pursue this examination, we use social network analysis to document the extent to which

each district is developing networks among all administrators that have some of the characteristics of communities of practice and that could support district-wide improvements in instruction.

The Role of Social Networks in Building the Capacity to Improve Instruction District-Wide

This study builds on recent research that suggests that building the capacity for improving instruction for all students depends on the development of technical, human, and social capital (Hatch, 2013b). Technical capital refers to investments in tangible resources such as tools, equipment, technologies, and structures; human capital reflects investments in the development of the skills, knowledge, and dispositions of the people involved; and social capital refers to investments in social relationships that provide access to tools, information, knowledge, and other resources (Bourdieu, 1986; Cohen & Ball, 1999; Coleman, 1988; Daly & Finnigan, 2011; Hatch, 2013a; Newmann, King, & Youngs, 2000; O'Day, Goertz, & Floden, 1995; Putnam, 2001; Spillane, Hallett, & Diamond, 2003; Spillane & Thompson, 1997). Social capital, in particular, has been associated with the development of resources like trust and collective expertise that are crucial for school improvement (Bryk & Schneider, 2002; Daly & Finnigan, 2011; Louis, Kruse, & Marks, 1996; Spillane & Kim, 2012).

The development of relationships and social networks creates a critical foundation for improving instruction because they are the conduits through which other types of capital flow, including materials, tools, information, and knowledge (Daly, 2012). Furthermore, developing social networks and sharing materials and knowledge in turn help to develop common understandings, foster collective expertise, and coordinate work. These social connections also create opportunities for common experiences and collective sense-making (Coburn, 2001) that are central to the development of communities of practice. As Lave and Wenger (1991) define them, communities of practice consist of groups of people who engage in collective learning through shared work. Participation in a community of practice not only supports learning of particular skills but also creates opportunities to take on the roles and identities that are characteristic of that community. As Lave and Wenger (1991) explain:

Learning is recognized as a social phenomenon constituted in the experienced, lived-in world, through legitimate peripheral participation in ongoing social practice; the process of changing knowledgeable skill is subsumed in processes of changing identity in and through membership in a community of practitioners. (p. 64)

In addition to fostering the development of skills and identity, the constant negotiation of meanings in everyday interactions encourages individuals to

make changes so that their “way of doing things” is more consistent with other members of the group (Keating, 2005, p. 108).

While terms like *communities of practice* and *professional learning communities* are often used interchangeably (Stoll, Bolam, McMahon, Wallace, & Thomas, 2006), the emphasis on *practice* in Lave and Wenger's (1991) conception is particularly relevant for the purposes and goals of rounds. From Lave and Wenger's perspective, social connections, shared understanding, and common identity grow out of engagement in a common set of tasks and activities. This common engagement provides a basis for mutually beneficial relationships in which individuals can freely share their experience. While these common activities can bring together those in similar roles and facilitate communication and sharing of knowledge among them, they also produce recognizable divisions between those in different roles that can hamper social connections and the development of common identity. These divisions can be exacerbated by the kinds of “one-way” or top-down relationships that often characterize interactions between those in different roles in the formal hierarchy of an organization. However, as Wenger (1999) and Brown and Duguid (2001) point out, individuals engage in many different kinds of work and participate in multiple communities of practice simultaneously; correspondingly, fostering the development of communities of practice that cut across formal roles and divisions provides one avenue for enhancing organizational learning and improving organizational performance.

Applying this conception to the work of administrators suggests that since those in formal roles (e.g., instructional supervisors, principals, and central office administrators) are usually engaged in different types of tasks, they should have a tendency to form distinct groups and communities of practice. However, rounds have the potential to build connections and common identity across administrators who are in different roles by engaging them in a common set of tasks and activities centered on instruction: visiting classrooms, observing teachers and students at work, and reflecting on those observations. Conceivably, as administrators who normally perform different roles mutually engage in the common work of observing and reflecting on instruction, they can make social connections and develop a shared repertoire of practices. Through mutual engagement, the administrators may also develop a common language around instruction, a shared understanding of the purpose of engaging in rounds, and a common sense of what they should be looking for and seeing across classrooms. As new administrators join the district, participation in rounds may also enable those newcomers to learn what it means to be a member of the district and engage in the work of an administrator.

At the same time, it is important to note that simply developing social connections and more extensive networks does not necessarily lead to more coordinated or productive activity or to the development of the kind

of productive community of practice that Lave and Wenger describe (Spillane, Kim, & Frank, 2012). For example, social connections may also reflect conflict that interferes with organizational change efforts, and networks can also spread and support resistance to planned changes (Brown & Duguid, 2001; Kahn, Cross, & Parker, 2003).

In other words, the development of social connections among all administrators within a district should be considered a necessary but not sufficient condition for the development of a community of practice that fosters the development of the common focus on instruction and coordination of work needed to support district-wide improvements in student learning.

Social Network Analysis for Documenting District-Wide Connections

In order to develop a more robust conception of how instructional rounds could contribute to the development of a community of practice and a district-wide focus on instruction, this study uses social network analysis to map the evolution of social connections among all administrators in three districts engaged in rounds. Social network analysis frames, maps, and quantifies the relations between people by focusing on the ties between people within a network (Maroulis & Gomez, 2008). It also provides one avenue for documenting and exploring how relationships develop and how those relationships facilitate the flow of knowledge and resources throughout organizations (Daly, 2012; Nahapiet & Ghoshal, 1998).

The social network is the pattern of ties between members of an organization and reflects the “social structure” underlying access to different types of resources. Characteristics of the network help to explain the extent to which and how quickly and easily these resources can be shared among individuals and groups and what the consequences might be. While many aspects of social networks have been explored, the density, reciprocity, fragmentation, and centralization of networks are particularly relevant for exploring the extent to which the networks in a district are developing the characteristics of the kinds of community of practice that could support a common focus on instruction and district-wide improvements in student learning. Density and fragmentation provide measures of the extent to which all administrators are members of a common network and could be participants in a community of practice. Thus, the level of density describes the frequency of ties within a network. Networks with low levels of density have relatively few ties among individuals and groups, which can constrain the sharing of relevant information and other resources throughout an organization. In contrast, a higher density of ties among individuals in organizations has been associated with benefits like the development of the kind of trust central to the development of a community of practice (Moolenaar & Slegers, 2010). In addition, higher density in social networks among

administrators has also been associated with benefits like higher levels of achievement (Finnigan & Daly, 2010; Reagans & Zuckerman, 2001) and successful implementation of organizational changes (Mohrman, Tenkasi, & Mohrman, 2003; Tenkasi & Chesmore, 2003).

The level of fragmentation shows the extent to which individuals and groups in a network are connected to and/or isolated from one another. A network that has low levels of fragmentation shows that many individuals and groups within an organization have access to the same information and ideas as their colleagues; in contrast, high levels of fragmentation suggest individuals and groups may be isolated from one another in ways that interfere not only with the sharing of information and ideas but also with the coordination of their work and the development of the common identity central to communities of practice.

The level of reciprocity of a network indicates the extent to which the ties between individuals are two-way rather than one-way. Thus, high levels of reciprocity are indicative of the kinds of two-way conversations and shared leadership reflected in the nonhierarchical relationships of a community of practice, but low levels of reciprocity indicate more of the unidirectional communications that characterize relationships among those in different roles in a formal organizational hierarchy.

Examining measures of individual “centrality” provides another way to assess the extent to which a social network is characterized by “top-down” hierarchical relationships rather than the collegial relationships associated with a community of practice. An individual’s centrality is particularly important as central actors have positional advantages and can be deemed prominent or influential in a structural sense (Hanneman & Riddle, 2005; Sparrowe, Liden, Wayne, & Kraimer, 2001). Those who occupy central positions in terms of in-degree centrality (or who have the most people that report interacting with them) may be more likely to get more access to information and resources than those on the periphery of a network. Those who occupy central positions in terms of out-degree centrality (or who report interacting with the most people) might also be more influential and able to make others aware of their views. Networks in which a small number of individuals are central indicate that power and influence are not shared as equally as one would expect in a community of practice of professional peers. Furthermore, the social network literature indicates that such “centralized” networks structures—such as core-periphery structures characterized by a dense cohesive central core of actors with a less connected periphery (Borgatti & Everett, 2000; Daly & Finnigan, 2010; Wasserman & Faust, 1994)—are more suited to the transfer of routine information, not the complex knowledge-sharing characteristic of a community of practice (Cummings & Cross, 2003; Daly & Finnigan, 2010; Kilduff & Tsai, 2003).

Building on this framework, for this study, we hypothesized that the social networks of administrators in districts engaged in instructional rounds

would have networks that exhibit some of the characteristics of communities of practice—high levels of density and reciprocity and low levels of fragmentation and centralization. We also anticipated that if rounds contribute to the development of social networks with these characteristics, then over time, density and reciprocity might increase and fragmentation and centralization might continue to decrease and that there might be an association between the changes in the social networks and changes in the nature, extent, and understanding of the rounds in which they were engaged.

Methods

This study seeks to develop a more robust conception of how instructional rounds could contribute to a district-wide focus on instruction and the improvement of classroom practice across schools in a district. To accomplish this goal, the study focuses on two key questions:

Research Question 1: To what extent do networks focused on teaching and learning in districts engaged in instructional rounds exhibit the characteristics of communities of practice?

Research Question 2: What is the relationship between the evolution of the networks focused on teaching and learning and the changes in the nature, extent, and understanding of rounds?

It would have been ideal to compare the administrator networks in these districts to those in districts that were not engaged in instructional rounds, but conducting surveys in additional districts was beyond the scope of this project. Therefore, we focus primarily on characteristics of each district's teaching and learning network, but we also provide descriptive data on several other district networks that might be less directly influenced by instructional rounds. Looking at the evolution of networks focused on teaching and learning also allows us to explore the relationship between any changes in the density, reciprocity, fragmentation, and centralization of the networks and any changes in administrators' participation in and understanding of rounds. In this section, we provide background on the districts that are the focus of the study. We follow with a description of data collection methods and the social network analyses that we conducted.

District Background

The three districts for this study were selected from 11 districts that had been a part of a superintendents' group in a Northeastern state that was formed in 2008–2009. In this group, 10 to 16 superintendents meet on a monthly basis each academic year to try to help one another focus their organizations on improving teaching and learning in order to create excellent and equitable outcomes for all their students.¹ Almost every other

month, one of the superintendents from the group hosts a meeting in one of their schools, and the superintendents participate together in instructional rounds. The group uses rounds to develop relationships among superintendents, build their skills in observing instruction, foster common understandings of teaching and learning, and help the superintendents to act as instructional leaders focused on teaching and learning. In intervening months, the group engages in a variety of different activities designed to support superintendents in developing their understanding of instruction, identifying issues of equity in their districts that need to be addressed, and developing and refining strategies to work systemically on issues of instruction and equity.

The group's approach to rounds was adapted from City et al. (2009), and the basic structure includes the identification of a "problem of practice"—questions or issues related to instructional practice identified by the host school—that serves as the focus of observations. The observations consist of 10- to 20-minute visits by small groups to a series of classrooms (generally four to six classes with some overlap among the classes visited by different groups). Following the observations, the small groups meet to share their observations, identify patterns, reflect on the implications for the host school and the district, and then provide feedback to the host school. While City et al. describe how rounds can be used to support the development of and reflection on a theory of action, work on a common theory of action was not an explicit part of the rounds routine in the superintendents' group. Although it was not required, many of the superintendents have launched instructional rounds among administrators in their own districts.

The three districts included in this study were selected because they had all been a part of the superintendents' group since the beginning, and all were engaged in instructional rounds when the study began in 2010–2011. While rounds in each district varied in some details, their general purposes and procedures mirrored those used by the superintendents group. The three superintendents used rounds to help administrators focus on instruction and support their development as instructional leaders, and rounds involved the identification of a problem of practice, related group observations of classrooms, and structured reflections with feedback to the "host" school.

All of the districts in the superintendents' group are small to mid-sized exurban or suburban districts. We concentrated on districts of a somewhat similar size and each with only one or two high schools because these districts could engage all central office administrators and principals and assistant principals in instructional rounds together. Districts of a larger size in our sample conducted rounds in "clusters" of schools, with participation largely limited to administrators within clusters. We also selected these three districts to reflect a range of demographics in terms of students' racial background, average performance on students' test scores, and family income. We label each of the districts by the median income of their communities. The

middle-income district has a median income of about \$70,000 (roughly the median for the state) and almost equal percentages of White, Black, Hispanic, and Asian students, with about 20% of students receiving free and reduced price lunch. The higher income district has a median income between \$80,000 and \$100,000; 50% of students are White, 40% Black, 5% Hispanic, and 5% Asian; and about 5% receive free and reduced price lunch. The highest income district has a median income over \$100,000; 50% of the students are Asian, 40% White, 5% Black, and 5% Hispanic; and very few of the students receive free and reduced price lunch.

Data Collection

To address the research questions and hypotheses about the role that rounds might play in the development of social networks, we conducted social network surveys in the three focus districts during the 2010–2011 and 2011–2012 school years. Consistent with research that shows the importance of connections among those in formal leadership positions within districts (Hightower, Knapp, Marsh, & McLaughlin, 2002; Honig, 2006; Togneri & Anderson, 2003), the survey in each district centered on relationships between and among each district's central office and site-based administrators. The survey used a bounded-saturated approach (Lin, 1999; Scott, 2000) that includes all the members of each district's central office staff (superintendent, assistant superintendents, directors, supervisors, business administrators) as well as the principals and assistant principals in each school site. By including all those who had formal administrative positions in the districts, we sought to get as complete a view as possible of the districts' administrator networks and, potentially, more valid results (Finnigan & Daly, 2010). This approach is also consistent with a distributed leadership perspective that suggests that leadership for instruction extends beyond principals and includes others in formally designated leadership positions such as instructional coaches (Spillane & Kim, 2012). In these districts, "instructional supervisors" occupy such positions, and they were included in the survey. Although some of these individuals work at a single school, they report to a central office administrator (usually the assistant superintendent for curriculum) and therefore are considered "central office administrators." At the same time, others who are not in formally designated administrative leadership roles (e.g., part-time coaches, mentors, and classroom teachers) can play a valuable role in instructional leadership, and a full mapping of the districts' social networks focused on instruction would also include all instructional staff. Nonetheless, mapping the social relationships among all administrators is particularly relevant for examining the extent to which teachers in different schools might be getting access to the same information and ideas and using the same terms and language as their colleagues across the district.

Administrators were asked to complete the survey online (using Survey Monkey) during each summer after the completion of the 2010–2011 and 2011–2012 school years (referred to throughout as Year 1 and Year 2). The surveys included a small set of multiple-choice questions about the administrators' participation in and understanding of instructional rounds as well as general questions about the climate and levels of trust in the districts. In order to map the social networks in the district, the survey asked each respondent to describe the frequency with which they talked to each of the other administrators in the district about teaching and learning, about issues of equity, about district strategy, about the Common Core, about teacher evaluation, and in order to "get the scoop" on the district. Consistent with related studies of district administrators (e.g., Daly & Finnigan, 2010, 2011), for each network question, the survey asked respondents to describe their frequency of interaction on a 4-point scale (every two months or so, one or two times a month, once a week, or several times a week). The survey questions were generated from the literature on district reform processes and adapted from those used in related social network surveys.² For validation, the questions on frequency of interaction were piloted and refined with practicing administrators (Daly & Finnigan, 2010). All of the district survey response rates were over 80%.

To better understand the purposes, procedures, and perceived outcomes of the rounds process in each district, we drew on a variety of data that we have been collecting since 2008–2009 as part of the documentation of the superintendents' group. These data included annual interviews with each of the superintendents about their work in their districts and about their work with instructional rounds in particular. Beginning in 2010–2011, we collected additional data in each of the focus districts, including interviews with three to five administrators each year. Interviewees in each district were selected based on their roles as leaders in the instructional rounds work and equity-related initiatives (another focus of the group). These interviews included at least one principal, one assistant superintendent, and one other central office member (e.g., curriculum supervisors). The interviews focused on the structure and evolution of the instructional rounds work, the key strategies each district was pursuing to improve instruction and address issues of equity, and the extent and nature of opportunities for interaction among district administrators. To analyze the data from the interviews, we first selected sections in which administrators talked about rounds. We then used the concepts from our research questions (e.g., purpose, participation, interactions, understanding) as frames for analysis (Marshall & Rossman, 1995) to code and organize the data. Data collection and analysis was iterative and ongoing (Miles & Huberman, 1984), and questions raised about the purpose, nature, or perceptions of the rounds process were addressed in subsequent interviews.

This study provides an unusual opportunity to look at the social networks in three districts in two consecutive years, but the unique aspects of the study also limit generalizability. Notably, the districts can be characterized as relatively stable, and all the districts had the same superintendent in both years of the study (all of whom, coincidentally, took their positions in 2007–2008). In addition, all three of these superintendents were part of a unique group engaged in their own version of instructional rounds. Despite limited generalizability, these districts provide fertile grounds for building hypotheses about the factors that influence the development of social networks and the role that routines like rounds might play in that development. These unusual conditions also enabled us to develop strong relationships with the superintendents and their district colleagues during meetings and district visits. As a result, we can look at data across multiple sources and conversations over a period that began in 2008 and has continued beyond the two years of the study. As a check on the interpretations and analyses of the data collected, initial findings have been presented at group meetings. An earlier version of this article was also shared with the case study superintendents and other members of the group.

Social Network Measures

For our analysis, we used survey responses to calculate the percentage of administrators involved in rounds in both years in the three districts. To capture understanding of rounds, we produced a composite measure that drew from administrators' responses to questions about the problems of practice that are central to the rounds visits.³ The understanding of problem of practice factor includes survey items that reflect the extent to which the administrators agreed that (a) their district has a problem of practice, (b) they have a clear understanding of the district problem of practice, and (c) they have a clear understanding of the problems of practice being used in schools in the district. The problem of practice understanding composite measure was z-scored in the analysis ($M = 0$, $SD = 1$) so that we could discuss our results in terms of effect size (SD) units and make substantive interpretations beyond statistical significance.

We also used UCINET (Borgatti, Everett, & Freeman, 2002) to calculate overall network measures,⁴ including *density*, the ratio of existing ties to possible ties; *reciprocity*, the percentage of all present ties that are reciprocated (in which both respondents report talking to one another); and overall network *fragmentation*, the proportion of pairs of nodes that are not connected among all the possible pairs of nodes that could be connected (Burk, Steglich, & Snijders, 2007; Snijders, Steglich, & van de Bunt, 2010). We also produced individual-level network measures that describe administrator centrality in the network. While there are various measures that can capture actor-level network centrality (Borgatti, Jones, & Everett, 1998), in our article

we focus on degree centrality. *In-degree centrality* refers to the number of incoming ties an actor has and thus can be interpreted as a measure of *prominence* in the network, while *out-degree centrality* reflects the number of people that the individuals reported that they talked to and thus can be interpreted as a measure of *influence* in the network (Hanneman & Riddle, 2005). We also produced measures of overall network *degree centralization*, which captures the amount of centralization in a network expressed as the percentage of a perfectly centralized network of the same size (Hanneman & Riddle, 2005). We use in-degree centralization and out-degree centralization to determine to what extent access to knowledge and the ability to wield influence are concentrated in fewer central administrators or whether access and influence are dispersed more evenly across more administrators, perhaps indicating a more distributed sharing of knowledge.

Social Network Analysis

We conducted chi-square and *t* tests in STATA to determine whether there were differences in involvement in rounds and understanding of district problem of practice across the two years. We then produced a series of network maps in Netdraw to visually represent the networks in the three districts. We also conducted core-periphery analysis in UCINET as another determinant of network centralization. A core-periphery (CP) network structure is one that has a dense cohesive central core of actors with a less connected periphery (Borgatti & Everett, 2000; Daly & Finnigan, 2010; Wasserman & Faust, 1994). In UCINET, core-periphery analysis reports the correlation between a given network and a theoretically perfect CP model. It also produces a “coreness” score for each actor and indicates which actors are in the core of a given network. In our analysis, we track the core actors in each of the networks and use the size of the core as an indicator of network centralization. Finally, we also conducted a series of statistical tests in RSna to determine whether the differences in the density, reciprocity, or fragmentation in the district networks over the two years were statistically significant.

Results

The results provide some support for the idea that engaging in organizational routines like instructional rounds can support the development of networks that have the attributes of communities of practice, with high levels of density and reciprocity and low levels of fragmentation and centralization. At the same time, while administrators who engaged in rounds had a better understanding of their district problem of practice (effect size [ES] = .41, $p < .05$) (see Table 1), there is no clear relationship between their participation and understanding and the changes in the teaching and learning networks over time. In the following, we describe the characteristics of each district's networks. Then, we describe the changes in the nature of the rounds in each

Table 1
Involvement in and Understanding of Instructional
Rounds Across All Three Districts

	Middle-Income District		Higher Income District		Highest Income District	
	Year 1 (<i>n</i> = 36)	Year 2 (<i>n</i> = 39)	Year 1 (<i>n</i> = 31)	Year 2 (<i>n</i> = 31)	Year 1 (<i>n</i> = 44)	Year 2 (<i>n</i> = 45)
Percentage of administrators involved in rounds ^a	75	93	100	79	57	89
Mean (<i>SD</i>) understanding of problem of practice ^b	-0.33 (1.13)	0.43* (0.96)	-0.17 (1.05)	-0.48 (0.80)	-0.16 (0.80)	0.71*** (0.78)

Note. We ran a random-effects regression in STATA to explore whether there was an overall relationship participation in rounds and understanding of problem of practice. After accounting for our repeated outcome measure and controlling for district-specific effects, we find that administrators who participated in rounds had a higher understanding of problem of practice (effect size [ES] = .41, $p < .05$).

^aPercentage of administrators who replied no to the following survey question: "I have not been involved in instructional rounds in my district."

^bMeasure is a composite created through factor analysis with varimax rotation that includes survey items that reflect the extent to which the administrators agreed that (a) their district has a problem of practice, (b) they have a clear understanding of district problem of practice, and (c) they have a clear understanding of the problems of practice being used in schools in the district. The factor has been standardized by z-scoring ($M = 0$, $SD = 1$).

* $p < .05$. *** $p < .001$ (indicated on the higher of the two numbers or percentages for the *t* test Year 1 and Year 2 comparisons).

district and explore the relationships between changes in rounds and the evolution of the instructional networks.

The Characteristics of the Teaching and Learning Networks in Three Districts

In order to develop a community of practice, administrators in a district need to be connected. While such connections cannot guarantee that a community of practice will develop, they create opportunities for the development of the common language, collective understanding, and common identity characteristic of communities of practice that can help ensure that work on instruction is consistent, coherent, and coordinated. Notably, the network maps show extensive district-wide connections with no isolates in the teaching and learning networks in any of the districts in either Year 1 or Year 2 (see Figure 1). All the administrators in all three districts who

responded to the survey reported that they were not only talking to at least one other administrator about issues of teaching and learning once or twice a month, they were also connected to every other administrator through the teaching and learning network.

To establish a connection between involvement in rounds and the development of the teaching and learning networks, it would have been ideal to have a baseline showing how developed the teaching and learning networks were in these districts before the members of these districts began using rounds. However, since all the districts were involved in rounds the year the study began, in order to get a sense of how often a district's networks might connect all administrators, we compared the characteristics of the teaching and learning networks with those of the other networks we surveyed. Some of those networks might be expected to promote even wider connections than the teaching and learning networks. For example, the district's strategy network reflected each administrator's response to the question "to whom do you talk to about the district's strategy?" While instruction was an important component of each district's explicitly and publicly stated strategy for improvement, there were other components, including those related to district budgets and other resources. Nonetheless, the teaching and learning networks in each district consistently had the highest levels of density and reciprocity and lowest fragmentation of all of the networks, including the district strategy networks, in every district across both years of the project. In particular, there are almost twice as many reciprocal ties among the administrators in the teaching and learning networks as in the district strategy networks in each district in Year 1. In addition, the district strategy networks were two to three times more fragmented than the teaching and learning networks.

Changes in Social Networks and Changes in Rounds

The relationship between changes in the teaching and learning networks and the changes in the nature and extent of participation in rounds and the understanding of problems of practice provides a more direct look at the possible impact of rounds. However, these results are mixed. In the following sections, we explore these contradictory findings by first describing changes in the rounds work in each district over two years and then looking at the associations between changes in the participation in rounds and in understanding of problems and practice and the changes in the characteristics of the teaching and learning networks in each district.

Changes in Rounds in the Middle-Income District

In the middle-income district, principals and sometimes other central office administrators or supervisors have engaged in informal walkthroughs, largely on their own, for some time. However, the district only began to

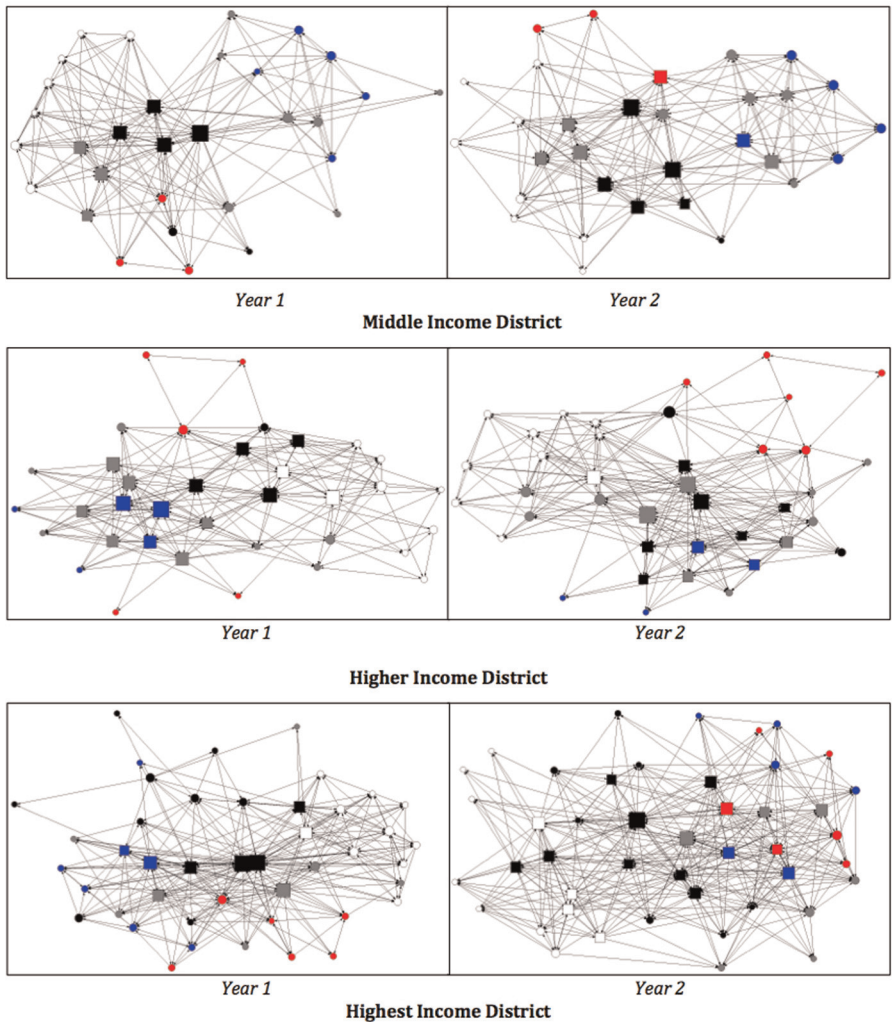


Figure 1. Teaching and learning networks in three districts, Year 1 and Year 2

Note. Nodes are sized by number of outgoing ties and colored by level and position: black = central office; gray = supervisor; blue = high school; red = middle; white = elementary. Squares are administrators in the network core; circles are administrators in the periphery.

explore the use of collective, structured observations in an instructional rounds process in 2009–2010, the year before we began the surveys. While the superintendent chose not to begin doing rounds that year because

of ongoing negotiations with the teachers' union, he introduced the topic through shared reading of *Instructional Rounds in Education* (City et al., 2009) and held conversations between central office administrators and representatives from the teachers' union to build trust and address concerns that rounds would be used as an evaluative tool. After the negotiations with the teachers' union concluded successfully, the district launched instructional rounds in 2010–2011 (the first year of this study). As he explained, he felt that engaging in rounds together would help the administrators to get “grounded in a common language” and make the shift from being managers to instructional leaders. Six rounds visits were conducted each year, one in each of the district's six schools. Central office members, principals, and K–8 supervisors participated regularly, and participation by assistant principals and subject supervisors was encouraged but not required. In both years, the host principal identified a focus problem of practice for the visit. In the first year, the problems of practice focused on student engagement in the secondary schools and literacy in the elementary schools. Rounds continued in 2011–2012 with a district-wide focus on using nonjudgmental language. Survey results indicate that a sizable proportion of administrators participated in rounds each year—with 75% of administrators participating in Year 1 and over 90% participating in Year 2. The district also saw a moderate increase in average administrator understanding of problem of practice from Year 1 to Year 2 ($ES = .76, p < .01$) (see Table 1).

Changes in Rounds in the Higher Income District

While the middle-income district began the collective, structured observations central to the rounds visit the same year we began the survey, the higher income district was engaged in what they called “focused school visits” for three years before this study began. Those visits were part of the monthly meetings for all administrators in the district (roughly eight meetings each year). Each meeting was held in a different school, with some discussion of general district issues and then time for the “focused school visits.” Initially, in those visits small groups of administrators observed classrooms but did not follow a protocol, nor did they have a structured discussion and feedback session following the visit. Instead, two to three administrators observed teachers, had conversations where, as the superintendent explained, anything was “fair game to discuss,” and then gave feedback to the principal. However, after joining the superintendents' group in 2008–2009, the superintendent felt that the conversations and feedback in the visits were judgmental and, as he put it, “lacked rigor” without a clear connection to evidence from the observations. In response, he built on the instructional rounds he participated in as part of the superintendents' group to strengthen his district's visitation process. He spent several meetings with district administrators in 2009–2010 (the year before the survey)

to focus the visits on “some of those first-order concerns of instructional rounds, like collecting specific and nonjudgmental evidence in the classroom” to help administrators stay grounded and develop a common language around instruction. As one principal explained, this new rounds-like process has

really taken faculty meetings into a different direction, because in faculty meetings in the past we talked about state mandates for example and we talked about problems in [a particular school]. . . . We don't have those conversations anymore. It's all about instruction.

At the end of the 2010–2011 school year, after using this new rounds-like process on a monthly basis for two years and having engaged in the focused school visits for several years before that, the superintendent explained that the administrators reported to him that they felt the visits were “getting stale.” In response, in 2011–2012 (the second year of our survey) the administrators decided to stop doing rounds and to use their time together to form professional learning communities (PLCs) based on topics of their choosing, such as technology and cultural competence. However, participation in rounds did not end completely. One of the PLCs was formed explicitly for those interested in continuing rounds, and several of the other PLCs occasionally engaged in a school visit. Reflecting these developments, in Year 1, 100% of administrators reported participating in rounds, but that percentage dropped to 79% in Year 2, and there was no statistical difference in administrator understanding of problem of practice between Year 1 and Year 2 ($p > .05$).

Changes in Rounds in the Highest Income District

In the highest income district, the superintendent began a limited version of rounds in 2009–2010, the year before we began the survey (Roegman, Hatch, Hill, & Kniewel, 2015). As she explained, “We looked at it [rounds] as developing a community of learners among the administrators focused on the instructional core. We were not taking time as a group of administrators to focus on the instructional core.” In order to launch the work, that year, the district engaged in a rounds initiative with a neighboring district whose superintendent was also a member of the superintendents' group. In this initiative, some administrators in each district attended several rounds-related professional development sessions. These sessions included readings and two half-day workshops on the rounds process. This cross-district work culminated in two rounds visits in which participating members of each district visited a school in the neighboring district.

The experience addressed some initial concerns expressed by representatives of the highest income district's teachers' union about the role of rounds in evaluation, and the project also received a positive response

from the participants. With these developments, the superintendent decided to launch rounds the following year, 2010–2011. The superintendent organized one rounds visit in each elementary school (six visits total). In the subsequent year, 2011–2012, the district expanded the rounds initiative, and each school hosted two rounds visits throughout the year (20 visits total). In both years, the host principal, with support from central office administrators, developed a focus area for the visit around such topics as accountable talk and student engagement. In contrast to the other districts, however, participation in rounds in the highest income district was only required of the administrators from the “host” building. Participation by all other administrators was encouraged but not required. While the district did not keep track of how often administrators attended rounds, holding rounds twice in each school in Year 2 meant that every school-based administrator was required to attend at least two rounds. Further complicating matters, the assistant superintendent who was responsible for launching and leading the rounds work in Year 1 left the higher income district at the end of that year to take a superintendency in a neighboring district, and his position was not filled until midway through Year 2. Nonetheless, in Year 1, 57% of administrators in the highest income district reported participating in rounds, and perhaps reflecting the expansion of opportunities for administrators to participate in rounds, in Year 2, that percentage jumped to 89%. Along with this increased involvement in rounds, the highest income district also had a very substantial increase in average understanding of district problem of practice ($ES = .87, p < .001$).

Changes in Network Density, Reciprocity, and Fragmentation

A tight connection between the use of instructional rounds and the development of networks focused on teaching and learning suggests that density and reciprocity should increase and fragmentation should decrease when participation in and understanding rounds increases. However, the results were only consistent with this hypothesis in the middle-income district. In the middle-income district, participation in rounds and understanding of problem of practice increased after Year 1, and the instructional networks became more reciprocal and less fragmented over the two years (see Table 2). In Year 2, there was also a significant increase in reciprocity, as 10% more of the ties in the network were reciprocal as compared to Year 1 ($p < .05$). In addition, in Year 2, only 16% of the pairs of administrators who could be connected with a frequent tie were not connected, a decrease in fragmentation from 22.5% of administrators pairs in Year 1 ($p < .05$).

In contrast, in the higher income district, the decrease in participation in rounds and in understanding of problem of practice was not accompanied by predicted decreases in density, reciprocity, and fragmentation. In both Year 1 and Year 2, the overall density and reciprocity of the instructional

Table 2
Teaching and Learning Networks Measures in Year 1 and 2 in Three Districts

	Middle-Income District		Higher Income District		Highest Income District	
	Year 1 (<i>n</i> = 31)	Year 2 (<i>n</i> = 31)	Year 1 (<i>n</i> = 36)	Year 2 (<i>n</i> = 39)	Year 1 (<i>n</i> = 44)	Year 2 (<i>n</i> = 45)
Density ^a	0.267	0.297	0.200	0.205	0.188	0.226
Reciprocity ^b	0.425	0.525*	0.333	0.369	0.267	0.315
Fragmentation ^c	0.225*	0.160	0.222*	0.179	0.182	0.267*
In-degree centralization (%) ^d	24.1	17.5	20.6	19.5	28.3	28.0
Out-degree centralization (%) ^d	74.8	46.7	39.3	47.7	65.6	62.0

Note. All Year 1 and Year 2 comparisons were performed in RSna, which uses permutation tests in hypothesis testing with network data. No statistical tests were performed for in-degree and out-degree centralization measures.

^aOverall density is the ratio of existing ties to possible ties.

^bOverall reciprocity is the percentage of all present ties that are reciprocated.

^cOverall fragmentation is the proportion of not connected pairs of nodes to the possible pairs of nodes that could be connected.

^dNetwork centralization measures are Freeman Graph Centralization measures, which compare the degree of centralization in a network as a percentage of that of a perfectly centralized of the same size.

* $p < .05$ (indicated on the higher of the two numbers for Year 1 and Year 2 comparisons).

network stayed roughly the same. Density remained at 20%, while the reciprocity of frequent ties increased slightly from 33.3% in Year 1 to almost 37% in Year 2, but the change was not statistically significant ($p > .05$) (see Table 2). In addition, while one might expect fragmentation to increase when involvement in rounds decreases, there was actually a slight drop in fragmentation—approximately 22% of pairs of administrators that could be connected with a frequent tie were not in Year 1, and in Year 2, 18% were ($p < .05$).

Results in the highest income district also contradicted expectations. Despite the largest and most significant increase in participation in rounds and in the understanding of problem of practice, there were no statistically significant changes in density or reciprocity ($p > .05$). Moreover, the instructional network fragmentation increased substantially from 19.5% in Year 1 to 23.3% in Year 2 ($p < .001$).

Changes in Centralization

Although the changes in the density, reciprocity, and fragmentation and the changes in the participation in rounds and the understanding of

problems of practice did not show a consistent association, changes in centralization were more predictable. Both the middle-income and highest income districts had increases in participation and understanding and also had predicted decreases in centralization, suggesting that access to knowledge and the ability to influence others was becoming less concentrated. In the middle-income district, the level of out-degree centralization was quite high in Year 1 (75%), indicating that a relatively small core group of administrators were initiating conversations about teaching and learning. Between Year 1 and Year 2, however, the out-degree centralization dropped quite substantially to 47% (see Table 2), showing that there was a much larger group initiating conversations. The district in-degree centralization showed a similar decrease over the two years (from 24% to 18%), indicating that access to resources and knowledge also became less concentrated in the network. This decrease in centralization is also reflected in the growth of the middle income district's network core, displayed in the instructional network maps (see Figure 1). In Year 1, only 23% administrators in the network are in the core, but in Year 2, 36% of the administrators are in the core. In the highest income district, there was also substantial growth in the number of central or core members in the network. In Year 1, only 20% of the district's administrators were in the core, but in Year 2, 42% of the administrators were in the core (see Figure 2). Nonetheless, there was only a slight decrease in out-degree centralization, from 66% in Year 1 to 62% in Year 2, and the in-degree centralization remained at 28% in both Year 1 and Year 2.

In the higher income district, the decrease in participation and understanding was also accompanied by a predicted increase in centralization. Out-degree centralization increased from 39% in Year 1 to 48% in Year 2 (see Table 2). Furthermore, in Year 1, 42% of administrators in the network are in the core, but the percentage dropped to 33% in Year 2 (see Figure 1).

Discussion

This study explored the role that organizational routines like the collective, structured classroom observations central to instructional rounds might play in the development of administrator social networks. We hypothesized that participation in rounds might contribute to the development of dense, reciprocal, decentralized networks—networks that have the attributes of communities of practice. These kinds of networks establish connections across roles and schools and could support the development of the common language and shared understanding integral to building social capital.

In general, the teaching and learning networks in each of these districts show that all responding administrators in both years of the study are frequently communicating with at least one other administrator about issues of teaching and learning, and crucially, there are no isolates in those networks and no groups that are cut off from others. Although many of the

connections between individuals are one-way, a number of connections are reciprocal, and none of the teaching and learning networks in the three districts in our study were highly correlated with a core-periphery structure indicative of a centralized network.⁵ Consistent with the idea that rounds might contribute to the development of networks in which connections are more evenly distributed, centralization decreased in the two districts with increases in participation in rounds. Centralization also increased in the one district that curtailed its rounds' work. However, our results were not always consistent with the idea that rounds might contribute to networks that become more dense, more reciprocal, and less fragmented. Only the middle-income district experienced an increase in participation and understanding of rounds along with an increase in reciprocity and a decrease in fragmentation.

It would have been ideal to have data on the social networks in these districts before rounds commenced or to have comparable data from districts that were not engaged in rounds. Nonetheless, these initial results both provide a baseline for such comparisons in the future and serve as a first step in developing a much more nuanced understanding of the possibilities and challenges for implementing popular initiatives like instructional rounds and what it takes to develop social networks and support improvements in instruction district-wide. In particular, these results highlight a number of factors that those seeking to implement routines like instructional rounds and develop communities of practice should keep in mind.

First, the formal roles of these administrators, along with the office locations and the job responsibilities that go along with them, may constrain the impact of routines like rounds on the development of social networks. Thus, office locations and specific job requirements create opportunities for administrators to have regular informal and formal contact with some of their peers and limit their ability to interact with others. In all three of the districts we studied, assistant principals and principals were all located in separate school buildings and spent most, if not all, of their workday in those buildings. While principals regularly attended meetings outside of their buildings with other principals and some members of the central office, assistant principals rarely participated in those cross-district meetings. Central office administrators like assistant superintendents and superintendents had their offices in buildings that were separate from their district schools (though in two cases in close proximity to a district high school). As a consequence, superintendents and assistant superintendents were only likely to run into building administrators on occasional visits to those schools and in some meetings. Supervisors, however, were sometimes housed in the central office and sometimes housed in a school and were expected to be visiting different buildings as well as meeting with the assistant superintendents of curriculum or content area directors on a regular basis. As a consequence, supervisors had more informal opportunities to talk to both building-level

and central office administrators. Notably, however, the supervisors interviewed in each district explained that most of their work and their meetings were with teachers or one another and their central office superior, usually the assistant superintendent for curriculum; they reported having relatively few formal meetings with building-level administrators.

The school level with which individuals are associated also may serve as another constraint on the development of the networks. This is particularly apparent in the network maps. Those maps show some clustering of those who work at the elementary level, those who work at the middle school level, and those who work at the high school level; supervisors and other central office members are also more likely to be centrally located among those clusters. For supervisors, these interactions were further mediated by the division of responsibilities by level and discipline and by the location of their offices. In these districts, K–8 supervisors were generally housed in elementary or middle schools. High school supervisors in the middle income and the higher income district were housed in their districts' high school, but in the highest income district, supervisors did not have permanent offices in any of the schools and routinely spent time in different buildings. Supervisors for special education were sometimes housed with their colleagues at the elementary/middle or high school level, but in the highest income district, the K–8 and 9–12 supervisors for special education had offices in a separate building.

While a detailed analysis of the housing and meeting arrangements of all of the administrators in each district is beyond the scope of this study, these findings complement those of other studies that show that aspects of the formal organizational structure may have more of an impact on the formation of social ties than the characteristics of individual members (Small, 2009; Spillane et al., 2012). For example, principals do not necessarily occupy a central role in the instructional networks in elementary schools, and other formally designated roles (e.g., assistant principals, mentor, and coaches) and grade level assignment were strongly associated with the formation of social ties (Spillane & Kim, 2012).

Second, these results provide a reminder of the importance of the possible interactions between the organizational routines employed in rounds and the routines implemented as part of other initiatives. For example, PLCs—like those implemented in the second year in the higher income district—could promote some of the same kinds of connections and conversations about instruction among district administrators. In addition, if rounds are effective in building dense, reciprocal, decentralized social networks, then subsequent initiatives that provide other opportunities for administrators to meet might be able to sustain administrator interactions even if the district, like the higher income district, stops doing rounds. Of course, the implementation of other initiatives and routines could also interfere with opportunities for administrators to interact with one another in general and around instruction in particular. In order to explore these kinds of

interactions and their possible impact on administrator social networks, subsequent data collection and analyses in these three districts are also documenting the development of administrator social networks focused on the implementation of new teacher evaluation procedures and of the implementation of curriculum related to the Common Core.

Third, turnover in key positions also needs to be taken into account. Turnover has been shown to have an impact on the structure of social networks in schools and other organizations (Shah, 1998), though it is important to note that the nature of the turnover may matter more than the extent. In particular, aspects of turnover that need to be taken into account include who leaves and who joins, what position they occupy in the formal organization, what positions they have in the organization's informal social networks, and what kinds of experience, knowledge, and attitudes they bring to their work. In the highest income district, for example, the departure of the assistant superintendent in charge of the rounds initiative at the end of the first year might at least partially explain that district's mixed results.

Fourth, these results also point to potentially important interactions among the organizational routines, turnover, and factors like changes in formal leadership roles and the changing characteristics of the social networks themselves. For example, if engaging in rounds does contribute to some decentralization in social networks, those networks might also become more fragmented, at least initially. Thus, given the increase in the number of core members of the highest income district's instructional network from 9 to 19, coupled with the loss of a key central office administrator, some increase in fragmentation might be expected.

Taken together, these findings suggest that instructional networks in districts with conventional school structures may have a tendency to split into different clusters or pathways. For example, information might flow along a "curriculum and instruction path" from assistant superintendents focused on curriculum to supervisors to teachers in different subjects and in different schools; at the same time, information might flow along a "school management path" from the superintendent and assistant superintendents to principals and assistant principals to teachers in different schools. Without express efforts to link the work of supervisors and principals and assistant principals, teachers may well get different information and different messages about instruction from different sources that would undermine the efforts in these districts to create a common instructional focus. Under these conditions, one might expect to see instructional networks that are much more fragmented than those observed in these districts.

In the future, we hope to be able to map out the levels of interaction that might be expected among different groups of administrators in districts that spend little time engaged in organizational routines like rounds. In such districts, one might expect to see higher levels of interaction and greater levels of reciprocity among building leaders and among those central office

administrators who are housed in the same locations. Correspondingly, one might expect to see lower levels of interaction among K–8 supervisors and high school administrators, among high school supervisors and K–8 administrators, and among assistant principals and other district administrators. Under these conditions, only routines that provide repeated opportunities to bring together those who do not normally interact would be expected to have much impact on the social networks. In other words, rounds might have the most impact in developing a district-wide social network when individuals have consistent and sustained opportunities to interact with others outside the formal “geography” of their roles. Notably, the regular participation in rounds by administrators across schools and levels in the middle-income district may have created more opportunities for administrators to connect with those with whom they would not normally come in contact. In contrast, administrators in the highest income district, particularly in the second year, had more opportunities to participate in rounds, but they could choose which rounds to attend. As a consequence, there was no guarantee that they would interact with colleagues with whom they did not already come into contact. While data on which administrator attended which rounds were not available, these results suggest that the precise make-up of the observation and discussion groups in rounds might be another variable to take into account in future studies.

Conclusion and Implications

These results show how much work remains to be done to fill in the details in what, for the most part, have been broad assumptions about the benefits of rounds and the role that organizational routines involving collective, structured observations might play in building social networks and ultimately, contributing to improvements in instruction district-wide. In order to help fill in those details, these findings point to several factors that might help explain the mixed results and that should be explored in future studies. In particular, the results suggest that the formal job responsibilities and related assignment to specific schools, levels, and content areas may mediate administrators’ opportunities to connect with their colleagues on issues of teaching and learning. Those responsibilities also have implications for their office locations, and together their responsibilities and their office locations may affect which colleagues they are likely to run into as well as who they are likely to talk to in both informal and formal meetings. In turn, district geography—the number and spread of schools and district offices—may further limit or enhance their opportunities to interact with their colleagues. Particularly given the relatively limited number of instructional rounds in which these districts engaged, routines like rounds may be more likely to have an impact on building connections among those who do not normally have an opportunity to talk together about issues of teaching and learning.

Furthermore, timing—specifically how rounds fit into the timeline of other district-wide initiatives and other organizational routines—may affect the extent to which rounds help to establish new connections and strengthen existing ones. Rounds may be more likely to have an impact in districts like the middle-income district that are placing a new focus on bringing administrators from different schools, levels, and areas of responsibility together. However, rounds may have less of an effect on the social networks in districts like the higher income district where collective observations have been underway for some time or where other initiatives are already bringing administrators together. In other words, there may not be a one-to-one correspondence between the number of rounds and the benefits. There may be a point of diminishing returns after which, as the administrators in the higher income districts suggested, engaging in regular rounds may not have the same payoff and continuing them may contribute to frustrations or other problems, particularly if rounds take time away from other valued activities. Regardless of timing, however, turnover, like that experienced in the highest income district, may weaken the effects of rounds initiatives, although turnover could contribute to even more fragmentation in a district's social networks if there are not rounds-like initiatives in place.

The specific purposes and routines that rounds involve also require further examination. The superintendents in these districts implemented rounds with broad, general purposes that paralleled those of the superintendents' group in which they participated: building relationships, establishing a shared focus on instruction, and helping administrators shift from a managerial to an instructional mindset. Rounds and related routines developed with such broad purposes may not necessarily facilitate the flow of technical knowledge about instruction that might be relevant for specific groups of students at different grade and performance levels and in different subjects. Thus, the affordances (Gibson, 1977) of different versions of rounds and different kinds of routines may have significant implications for the development of social capital. For example, the social network literature indicates that "optimal" network structure may depend on the network aims (Ahuja, 2000). Dense network structures have been shown to facilitate complex knowledge sharing (Reagans & McEvily, 2003; Uzzi, 1997), but they can also slow down the efficient transfer of information (Hansen, 1999) and may not be ideal for fostering innovation (Dhanaraj & Parkhe, 2006). Moreover, centralized networks may hinder work on complex tasks, but centralized networks may be more suited for the routine transfer of information (Cummings & Cross, 2003; Daly & Finnigan, 2010; Kilduff & Tsai, 2003; Sparrowe et al., 2001). Building on these possibilities, future studies should investigate the different purposes and the precise character of rounds initiatives. Rounds that center on a particular problem of practice and the development of a shared theory of action to address an instructional goal, for example, may help to build stronger connections than the rounds carried out in these districts.

While these factors and conditions should be taken into account in future efforts to implement rounds, this initial study has several limitations that need to be kept in mind. First, the findings are limited by the fact no information was available on the social networks in these districts before rounds was implemented. In addition, generalization is limited by the relatively small size of the districts in this study. With the potential impact of factors like the number of administrators in a district, the number of school buildings, and the geographic distribution of administrators throughout the district, much higher levels of fragmentation than those observed here might be expected in larger districts. Due to practical considerations, this study was also limited to administrator social networks. However, teacher networks and other formal and informal leaders can also play an important role in improvement efforts (Coburn, Russell, Kaufman, & Stein, 2012; Spillane & Kim, 2012). Consequently, future studies that consider the relationships among all district staff may be particularly productive.

While these limitations need to be kept in mind, the findings suggest that the current approach to rounds as a broad, general strategy to build a community of practice across a district needs to be replaced by a view of rounds as one among several different routines that can be used strategically to influence and manage formal and informal networks. In short, social networks are themselves a resource that administrators can use to support the development of social capital. Just like other resources, however, social connections are limited. Individuals cannot spend all of their time talking with everyone else. Education leaders need to balance their investments of time, energy, and money in different organizational routines and different networks in order to accomplish different purposes. To find that balance, education leaders need to deal with the predictable constraints that the “regularities” and “grammar” of schooling” (Sarason, 1996; Tyack & Cuban, 1995) place on the development of social connections and the formation of social networks. In turn, using routines like rounds to enable key leaders to serve as hubs and brokers between and among different kinds of networks may prove particularly powerful. From this perspective, the work of instructional leaders needs to shift from trying to promote a focus on instruction in general to thoughtfully orchestrating connections among the many formal and informal networks related to teaching and learning in their districts.

Notes

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¹A former superintendent heads the design team that runs the group. The design team includes several consultants and two of the authors of this article, who serve as evaluators.

²Adaptations were included using language specific to each of the districts.

³The composite measure was one of four distinct factors created that captured understandings of various facets of district initiatives, all with eigenvalues greater than 1, which together explained 76% of the variance of items used in the factor analysis. The resulting problem of practice understanding factor had strong reliability in both Year 1 ($\alpha = .851$) and Year 2 ($\alpha = .809$) and had factor loadings that ranged from .32 to .49 in both years.

⁴Consistent with other approaches to social network analysis, we dichotomized the data to include only the most frequent communication ties between actors (Carley & Krackhardt, 1996; Daly & Finnigan, 2010). For a tie to be considered “frequent,” survey participants had to report that communication took place at least once or twice a month (Daly, 2012).

⁵The core-periphery correlations in Year 1 and 2 are .51 and .44 for the middle-income district, .42 and .41 for the higher income district, and .41 and .38 for the highest income district.

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