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Strong Ties in a Decentralized District: A Case Study of an Improving District

Estrechos lazos en un distrito descentralizado: estudio de caso de un distrito que mejora

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Abstract

Pressures for increased accountability and higher student achievement have pushed districts to assume greater control and centralization of curriculum, instruction, and assessments. While the benefits of coherence and centralization have been noted, there is also increasing awareness of the need to balance professionalism and accountability through more decentralized approaches. Using social network analysis and extensive interviews with principals and central office administrators, this mixed methods study explores how one United States school district's formal structures fostered informal relationships between site and central office administrators that led to a balance between professionalism and accountability—a core condition that supported sustained achievement. This study provides one example of centralization/decentralization, and a balance of professionalism and accountability that was struck between the central office and its schools in a large suburban district serving a high percentage of Hispanics, English learners, and socio-economically disadvantaged students.

Keywords: decentralization, social capital, social network analysis, professionalism, accountability

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Resumen

Las presiones ejercidas para que haya una mayor rendición de cuentas y que los estudiantes alcancen mejores resultados han llevado a los distritos a asumir un mayor nivel de control y centralización de los currículos, la enseñanza y las evaluaciones. Si ya se conocen los beneficios que trae una mayor coherencia y centralización, ahora hay una creciente conciencia sobre la necesidad de equilibrar el profesionalismo y la rendición de cuentas mediante enfoques más descentralizados. A partir de un análisis de redes sociales y extensas entrevistas hechas a rectores y administradores de oficinas centrales, el presente estudio, basado en métodos mixtos, analiza cómo las estructuras formales de un distrito educativo de Estados Unidos fomentó las relaciones informales entre los administradores locales y de oficinas centrales para lograr un equilibrio entre profesionalismo y rendición de cuentas —un factor clave que permitió alcanzar logros sostenidos—. Este estudio presenta un ejemplo de centralización y descentralización y de equilibrio entre profesionalismo y rendición de cuentas logrado entre una oficina central y sus establecimientos en un amplio distrito suburbano caracterizado por un elevado porcentaje de estudiantes hispanos y estudiantes que todavía están aprendiendo inglés o que se encuentran en una situación de desventaja socioeconómica.

Palabras clave: descentralización, capital social, análisis de red social, profesionalismo, rendición de cuentas

> Strong ties related to reform resources (expertise, knowledge, skills) between educators in a subgroup (i.e., grade level, school, district) may be instrumental in developing depth of interaction and trust building necessary for exchanging tacit information and innovation related to improvement. (Daly, 2010, p. 267).

Educational reform has been a constant theme for the past half century in the United States (U.S.) and around the world as schools and districts strive to find new ways to increase student achievement. Inspiring phrases such as, "we are going to turn around every failing school" or "every child in America deserves a world-class education" have been uttered countless times by many leaders. Notwithstanding good intentions and considerable reform efforts, the current reality is that education in the 21st century still poses an alarming crisis in terms of equity in achievement across subgroups, especially African-American, Hispanic, and socio-economically disadvantaged students.

In the U.S. the reauthorization of Title I legislation in January 2000 led to the bipartisan enactment of the now famous and infamous No Child Left Behind (NCLB) Act of 2001. An important shift in policy reflected in this legislation is the increased role of the federal government in pushing standards-based reform, which requires states to use standardized tests to measure progress, set clear achievement targets, and impose sanctions if schools and districts do not meet targets. Another important component of NCLB is holding districts accountable, not just individual schools. This shift in the focus of accountability was based on a growing body of research that found that districts have an effect on school achievement. This research identified characteristics and actions of high performing or improving districts, such as a common vision, coherent and coordinated curriculum, assessment, and professional development (Elmore & Burney, 1997a; Hightower, 2002; Sykes, O'Day, & Ford, 2009).

Through considerable efforts some schools and districts have improved and moved out of Program Improvement (PI) status. However, many others are still struggling. To better understand the role that the district plays in the school reform process and the interaction in that process between the central office and its schools, more studies are warranted. As Honig, Copland, Rainey, Lorton, and Newton (2010) suggest, we know "far more about how central offices fail to participate productively in districtwide teaching and learning improvement than about what they do when they create conditions that might help realize desired results" (p. 5). One promising new area of investigation is to examine relationships within schools and districts as forces that also influence outcomes (Daly & Finnigan, 2010; Johnson & Chrispeels, 2010). Research indicates that communication flows more freely among colleagues through informal relationships as opposed to relationships that are more formally structured (Cross, Borgatti, & Parker, 2002; Deal, Purinton, & Waetjen, 2009). People are sources of important information, and oftentimes, influential individuals, not necessarily in positions of authority, can positively or negatively influence a decision through informal networks (Deal et al., 2009).

Social network analysis (SNA), a relatively new approach in educational research, allows educators to assess informal relations or ties within their organization. SNA provides a tool for exploring who is talking to whom, how information flows through the system, how expertise is shared, and how relationships may be supporting or impeding innovation. The study reported here adds to a limited body of research on district reform by using SNA as a method to investigate central office and school level administrator relationships.

There are many themes that are currently occupying the debates on attaining coherency and sustainability in districtwide reform. For instance, what decisions need to be centralized and what can be left to the discretion of schools? Others have discussed the challenge or tension between professionalism and accountability (Johnson & Chrispeels, 2010). Another theme is how underlying relationships may be supporting or constraining reform efforts. These themes have been marginally addressed by current research. The purpose of this study is to explore how one district's formal structures fostered informal relationships that have led to a balance between accountability and professionalism resulting in sustained high student achievement. The following research questions guided this study:

(a) In what ways do the informal network structures of this district reflect the transmission of resources (knowledge, information, innovation) to support reform?
(b) In what ways have informal and formal district structures, and policies supported professionalism and accountability?

Literature review and conceptual framework

This study explores both formal and informal relationships to better understand how information, new knowledge, and innovation are transferred within and across a district. Four bodies of literature are explored—district reform, accountability and professionalism, social network analysis, and social capital—which form the conceptual and theoretical basis for the study.

District reform

In the United States, a school district or central office is a legal entity that provides fiscal, technical, and instructional support for individual schools that are geographically located within the district boundary (Hightower, 2002). Districts acting as change agents through implementing an initiative or change within the entire system is referred to as districtwide or systemwide reform. In their pioneering study of New York District #2, Elmore and Burney (1997a) generated one of the first lists of qualities of a district engaged in successful reform. They concluded that district reform could serve as a catalyst for increasing student achievement across multiple sites. School districts, especially those serving large urban areas are complex systems involving many actors and thus, many competing agendas may be present (Sykes et al., 2009). What Elmore and Burney and now other scholars have documented is how districts can act in more coherent ways to overcome negative perceptions (Sykes et al., 2009). Because the central office was often ignored or blamed for their schools' inadequacy (Chubb & Moe, 1990; Spillane, 1996), most federal and state reform initiatives related to improving teaching and learning focused solely on individual schools or in some cases at the state level, leaving the district out of the picture (Cuban, 1984; Spillane, 1996). District offices had a reputation for being bureaucratic organizations not connected to teaching and learning (Hightower, 2002, Honig, 2008). However, the importance of school districts has slowly emerged, beginning with a pioneering study describing characteristics of instructionally effective districts in California by Murphy and Hallinger (1988), and continuing in earnest to the present. The policies of NCLB that hold schools and now districts accountable for student achievement has accelerated the interest in district reform.

A growing number of district-focused qualitative studies and a few large-scale quantitative studies (Carlson, Borman, & Robinson, 2011; McLaughlin & Talbert, 2003) have emerged within the past decade, which discuss the benefits (or failures) of large-scale change (Chrispeels & Pollack, 1989; Daly & Finnigan, 2012; Elmore & Burney, 1997b; Hightower, 2002; Honig et al., 2010; Johnson & Chrispeels, 2010; Massell & Goertz, 2002; Murphy & Hallinger, 1988; Snipes, Doolittle, & Herlihy, 2002; Supovitz, 2006; Togneri & Anderson, 2003). Although these studies documented over a dozen accepted factors and conditions defining successful district reform (Johnson, 2008), five are often cited

as the most influential: (a) strong leadership at all levels, (b) systemwide vision and focus on student achievement, (c) district-guided curriculum and aligned assessment, (d) data-driven decisions, and (e) coherent professional development.

District leaders have expressed that systemwide reform efforts cannot be tackled alone, and Togneri and Anderson (2003) stated that central office leaders refined leadership roles by including other actors—such as assistant principals, teacher leaders, central office staff, union leaders, and school board members. Through the distribution of leadership responsibilities, teachers were able to build capacity and support other teachers in their classrooms, as well as principals. However, still missing in the literature is a full understanding of formal and informal relationships and networks among central office personnel, between central office and school leaders, and among school-level leaders and teachers (Daly & Finnigan, 2010; Honig et al., 2010). This study will focus on school and district relationships and the process by which increased collaboration may create a culture of learning and in turn increase student achievement.

Professionalism and accountability in district reform

While the benefits of coherence and centralization have been noted (Supovitz, 2006; Sykes et al., 2009; Thompson, Sykes, & Skrla, 2008; Togneri & Anderson, 2003), new issues also emerged within centralized districts, such as diminished teacher morale, effort, and sense of professionalism (Corcoran, Walker, & White, 1988; Stoll & Stobart, 2005) and the lack of flexibility or limited resources that site leaders needed to do their jobs. In an effort to address these problems, many schools and districts jumped on the bandwagon and implemented site-based management (SBM). SBM allowed districts to decentralize by disbursing more decision-making power to the schools so they could make decisions based on their unique needs (Leithwood & Menzies, 1998). The purpose of SBM was to improve student achievement by making those closest to the delivery of services—teachers and principals—more independent and therefore more responsible for the results of their school's operations (Hill & Bonan, 1991). Participatory decision-making was a key to site-based management and students, parents, teachers and administrators worked together to decide what was best for the school. It was assumed that participatory democracy would lead to greater efficiency, effectiveness, and better outcomes (Clune & White, 1988; David, 1989; Mojkowski & Fleming, 1988). Unfortunately, as Leithwood and Menzies' (1988) review of the literature showed, SBM did not lead to increased achievement in most instances.

Chicago school reform is an example of SBM that focused on school autonomy as opposed to the system as a whole (Hess, 1999). According to Sebring and Bryk (2000), the districts did not provide the necessary supports for schools to be effective and student achievement overall continued to decline even as some schools were being highly successful in implementing improvements. The purpose of SBM was to support professionalism, however, there was not enough guidance from the district for schools to be successful. About six years later the legislation was modified and the central office stepped in and created a systemwide infrastructure with more accountability. Student achievement started to increase. According to Hess (1999), what they learned from the Chicago school reform is that "whether it is strategic management or balanced governance, urban school systems need some combination of bottom-up and top-down governance" (p. 514). The Chicago experience raises the issue of what should be the mix between centralization and decentralization and how power should be distributed in order to obtain optimal student achievement (Slater, 1993). After an extensive analysis of five school districts that implemented site-based management, Hill and Bonan (1991) assert that the role of the district is a key factor for successful implementation of site-based management.

There is increasing awareness of the need to balance centralization and decentralization and professionalism and accountability (Dillon, 2011; Ouchi, 2009). Policies are needed that allow principals and teachers sufficient autonomy to make professional decisions regarding budget, curriculum, or professional development based on the needs of their school. "Research indicates that granting schools additional flexibility can be an effective strategy for encouraging innovation and change in educational practice" (Dillon, 2011, p. 3). At the same time, districts have a significant role in setting direction and ensuring equity of outcomes across schools through accountability expectations and targets.

If principals and teachers have the autonomy to make important decisions at their schools, they need to be held accountable for their actions (Elmore, 2003). The typical approach to accountability in the past

10 years has been more centralized approaches, such as curriculum alignment, benchmark assessments, standardized summative assessments, and instructional walkthroughs (Hightower, 2002; O'Day, 2002; Rowan, 1990; Thompson et al., 2008). Elmore (2003), however, asserts that for schools to successfully respond to external pressures such as high stakes tests, they need to have high internal accountability systems in place. Lacking in the research are descriptions of accountability systems that foster both internal school and districtwide accountability. Also understudied is the balance needed between school level autonomy and professionalism, and central office control.

Dillon (2011) suggests that, "If autonomy is defined in terms of school-level capacity, then the role of the central office shifts, from one of simply loosening the reins to one of providing more support, such that all schools can eventually make their own decisions" (p. 4). One essential support identified from research in the Chicago school system is strong professionals who welcome feedback and focus on continual improvement (Dillon, 2010). When a district builds capacity by providing professional development to teacher leaders and principals, they create buy-in, improve leadership skills, establish trusting relationships, and expand instructional capacity that has the potential to change the system (Johnson & Chrispeels, 2010). Their study also showed that teachers appreciated opportunities for professional learning, working with a coach they trusted, and time to collaborate. Furthermore, a trainer-of-trainer model allowed teacher leaders to be treated as professionals because one of their responsibilities was to share what they learned with their colleagues.

Achieving a balance of professionalism and accountability and trying to figure out what needs to be loosely or tightly coupled (Weick, 1976) to obtain optimal system performance can be a challenge. It is critical to understand how both formal and informal relationships between central office and school leaders, as well as among school leaders, support or impede the flow of knowledge, resources and innovation needed for reform. This study addresses this issue by using social network analysis as well as interviews to explore how formal and informal networks may contribute to a balance between professionalism and accountability that has led to high levels of achievement. By understanding underlying relationships, districts can leverage this knowledge and use it to further improve their reform potential and obtain optimal system performance.

Social capital theory

The concept of social capital is central to network analysis and serves as the theory that undergirds SNA. Bourdieu's definition focuses on social relationships that allow members to gain knowledge or resources, as well as the amount and quality of the resources (Portes, 1998). Similarly, Coleman (1988) states that social capital is an intangible resource that can be obtained through relationships or ties. "Unlike other forms of capital, social capital inheres in the structure of relations between and among actors" (Coleman, 1988, p. 98). Structure of ties, trust, access to expertise and content, and norms of interactions are all important aspects that create social capital (Coburn & Russell, 2008; Daly & Finnigan, 2012). Lin (2001) presents a definition of social capital that captures the common theme found in all these definitions: social capital consists of "The resources embedded in social relations and social structures which can be mobilized when an actor wishes to increase the likelihood of success in purposive action" (p. 24). Thus, people obtain social capital through relationships and by interacting within and between different networks to leverage resources. "Social capital can be operationalized as the resources embedded in social systems, accessed and used by actors for action" (Daly & Finnigan, 2010, p. 116). A major focus of school districts, as the literature on district reform highlighted, has often been on enhancing individual teacher human capital through professional development rather than attending to the social ties in the district and within schools that could be leveraged to enhance mutual learning and sharing of knowledge and expertise (Daly & Finnigan, 2010).

Social capital is a valuable asset for successful networking. Knowledge, experiences, and resources are obtained through relational ties (Penuel, Riel, Krause, & Frank 2009). Individuals serve as informational channels by sharing their ideas and expertise. In a qualitative study by Mullen and Kochan (2000) the evidence indicated that participants' perspectives were broadened because they had been exposed to peers with multiple ideas and different strengths. Additionally, in another case, social network data showed a company's relational ties were weak. As a result, one aspect of intervention was creating opportunities for employees to learn about others' expertise and to strengthen their connections, thus fostering their social capital (Cross et al., 2002).

In education, some studies show that schools with higher levels of social capital are more successful regardless of socioeconomic status (Bryk, Sebring, Allensworth, Stuart, & Easton, 2010; Goddard, 2003; Gonzalez, Stonar, & Jovel, 2003). Goddard's (2003) mixed methods study showed that schools characterized by high levels of social capital were more successful. By measuring social capital in different forms such as networks that connected parents and the community; social trust among students, teachers, and parents; and norms that encourage student academic success, the authors found that socioeconomic status was not correlated with social capital and confirmed that socioeconomically disadvantaged students with more social capital had higher scores on high-stakes math and writing assessments. Similarly, teachers with rich social capital make a positive difference in the classroom regardless of students' socioeconomic status. Monkman, Ronald, and Theramene's (2005) qualitative study shows how a teacher in a low socioeconomic urban school helped increase her students' social and cultural capital by embedding social skills, typically seen in more elite schools, in her classroom.

Principals can also help influence levels of social capital as shown in a qualitative study by Penuel et al. (2009) where they compared two low performing and very diverse schools, each with similar resources. Each school chose to use their resources in different ways. Teachers in one school assumed an internal locus of control and drew on each other's social capital to help facilitate positive change and increase student achievement. In contrast, the other school tried to pull in resources from the outside to help with change efforts, but was not as successful. This study shows the importance of using internal resources and expertise of teachers to help build social capital within a school or district. The literature on social capital at a district level, however, is lacking and this study will add to it by exploring relationships between district administrators and site administrators in a decentralized district.

Social network analysis

"It is the interactions between and among individuals that compose the culture and structure of an organization" (Daly & Finnigan, 2010, p. 6). Organizations have multiple network systems, some are formal and others are more informal. It is easy to depict the more formal hierarchical structures of an organization, whereas the informal structures are oftentimes invisible. In either case, actors can be positively or negatively affected by the flow of information and webs of relationships within social networks depending on where they lie in the formal structure or informal network (Cross & Parker, 2004; Daly 2012). Relationships are critical for the success of an organization (Ahuja, 2000; Coburn & Russell, 2008; Daly, 2010; Moolenaar, Daly, & Sleegers, 2011; Tsai & Ghoshal, 1998). By drawing on social network theory scholars have shown how SNA can be used as a framework for better understanding how the flow of information between formal and informal networks affects organizational life and performance.

The formal structure of almost all school districts in the United States can be easily mapped out as a hierarchy with a governing board and appointed superintendent at the top and students, parents, and the community at the bottom; however, what is less known is the informal structure or the relationships that are taking place among actors at all levels. These informal networks are not easily depicted or captured in a district's organizational chart, yet knowledge of them is essential to understanding organizational relationships and processes of interactions. One way to map out an informal network is to conduct a social network survey (Daly, 2010; Daly & Finnigan, 2010) asking participants about specific work-related *relationships.*

A social network diagram based on a social network survey (Daly & Finnigan, 2010) can give organizations feedback consisting of a broad overview of the more invisible informal relationships to examine communication and knowledge networks. Nodes and ties can be displayed according to the following (Deal et al., 2009): (a) density or how connected the entire network is, (b) in-degree or the amount of times people get information from an individual, (c) out-degree or the amount of times an individual seeks information from other people, and (d) centrality or the people in the center of the network whom people go to for information.

The network diagram or map may also show four key network players: (a) star or a person(s) in the middle with lots of connections, (b) bridges or someone who connects two groups together, (c) bottlenecks, or bridges or stars who hold on to information, and (d) isolates or people who do not have any connections. Analyzing network structures using a social network map could help organizations such as districts assess their informal networks in terms of collaboration and knowledge sharing.

SNA is being increasingly used as a method and a theory to understand and assess informal connections or ties amongst staff in an organization and show which individuals or teams play critical roles in change efforts (Cross et al., 2002; Penuel et al., 2009; Pil & Leana, 2009). A study by Cross, Borgatti and Parker (2002) analyzed an organization's network that showed two separate subgroups working in isolation. Even though opportunities for engagement were created, individuals in each group did not have anything in common to discuss and thus remained separate entities. Management shared the information with these two groups and facilitated a discussion that included intervention strategies. As a result, several changes were made over nine months to help increase collaboration. The result of the interventions showed an increase in sales, and a post-intervention network analysis showed a more cohesive group that was sharing information more effectively. This study is particularly important because it shows how SNA can be used to inform practice.

A concept important to SNA is the idea of centrality in a network (Daly, 2012). Team performance is positively influenced when leaders or lead teams are located more centrally within a network (Balkundi & Harrison, 2006). A centrally located individual directly tied to others by expertise or friendship has an advantage of accessing more information and support (Balkundi & Harrison, 2006) and distributing it to their team members. In a qualitative study, Penuel et al. (2009) analyzed a school's network and revealed:

> The coach at Crosswinds was a bridge between different groups in the school, and her expertise served as a source of genuine normative authority for teachers, a person who motivated them to succeed and provided them with useful and valuable resources they could use to improve their practice. (p. 157).

In other words, a mentor who has a significant amount of social capital or knowledge from others is more likely to benefit the school if she or he is able to occupy a central place in an organization because others perceive him or her to have expertise. Such a central locale enables valuable knowledge and resources to be distributed amongst the entire institution. A contrasting idea by Cross et al. (2002) stated that it is also important to find out who central individuals are via a social network map so they do not hinder an organization's effectiveness by hoarding information or becoming burnt out.

When analyzing networks, structural inadequacies as well as important people or teams can be identified, with the information used to further enhance an organization (Cross et al., 2002). School or district administrators could use network analyses to make internal changes that can positively benefit the entire organization. For example, key people could be strategically placed in positions where more knowledge exchange needs to takes place. Additionally, encouraging collaboration within teams and between individuals and teams will enhance their practice ultimately increasing student achievement. It is through informal discussions that individuals share ideas, learn from others, and establish leadership skills. Cross et al. (2002) stated the following:

> People rely heavily on their network of relationships to find information and solve problems—one of the most consistent findings in the social science literature is that who you know often has a great deal to do with what you came to know. (p. 25).

The power of social networking lies in the knowledge, experience, and expertise of the individuals who make up the network. Focusing on the knowledge within the network is one of the reasons why the concept of social capital goes hand in hand with network analysis.

These studies suggest the need to explore more deeply the formal and informal network structures in districts and schools that facilitate or hinder the flow and exchange of resources. Particularly important to a school or district reform strategy may be the density of the communication and knowledge transfer networks (Daly & Finnigan, 2010; Finnigan & Daly, 2013). The density of a network is another key focus of SNA analysis and can be thought of as a measure of network connectedness or cohesion (Blau, 1977). The greater the proportion of ties between actors, the more dense the network. In a qualitative study by Mullen and Kochan (2000) evidence stated that participants' perspectives were broadened because they had been exposed to peers with multiple ideas and different strengths.

When educators learn about new ideas from someone they trust, they are more willing to try them in their classroom as opposed to using new ideas learned at a conference. The notion of trust in an organization is a valuable asset and if team members trust one another they will not only be more willing to share ideas with their team, but they may also be willing to take more risks and share information with other groups

(Chhuon, Gilkey, Gonzalez, Daly, & Chrispeels, 2008; Daly & Finnigan 2011; Olsen & Chrispeels, 2009). Furthermore, trusting relationships lead to reciprocated relationships where team members grapple with complex issues with each other and try to figure out solutions to problems (Finnigan & Daly, 2010). Higher levels of reciprocity have been associated with increased organizational performance and complex knowledge exchange (Kilduff & Tsai, 2003). Thus, if a district creates structures that allow for more opportunities to collaborate, people may be more likely to establish trusting relationships where they reciprocate ideas or sensitive information and build social capital.

Methods

Through an exploratory case study design, relying predominately on SNA (Scott, 2000; Wasserman & Faust, 1998), and supported by semi-structured interviews and document analysis (Patton, 1990), three leadership networks were examined. This study focused on exploring one unique unit of analysis (Yin, 2003), a selected large urban elementary school district in the southwestern part of the U.S. that has been closing the achievement gap by continuously increasing student achievement over the past decade.

District context and background

Montague Elementary School District (MESD—a pseudonym) was selected for this study because it represents a unique case in which to explore central office/school relationships in a high performing district. This district serves 27,500 K-8 grade students, many who are of Hispanic heritage (65% Hispanic, 41% low socioeconomic status, and 36% English learners). These students represent the type of student most often underperforming on state measures; and yet the district is one of the few in the state that has continued to increase student achievement and meet NCLB criteria (see Table 1).

Table 1
Student achievement data from the study district

	English/Language Arts[a]		Mathematics[a]		Academic Performance Index[b] (API)	
Subgroup	2004	2009	2004	2009	2004	2009
District-wide	37%	62%	44%	68%	722	833
African American	33%	62%	37%	65%	702	815
Hispanic	27%	55%	36%	63%	677	803
White	55%	75%	60%	79%	806	886
SED	22%	48%	30%	59%	649	775
English Learners	20%	47%	31%	60%	n/a	774
Students With Disabilities (SWD)	13%	40%	17%	44%	n/a	684

Note: This table displays data over time from the California Department of Education in 2009. API data for English learners and SWD was not available in 2004.
[a] Percentage of students who scored Proficient or Advanced on the California Standard Test (CST).
[b] The API is a single number, ranging from a low of 200 to a high of 1000, which reflects a school, a district, or a student group's performance level, based on the results of statewide testing. The statewide API target is 800.

Another unusual aspect of this district is the relationship between the district and its schools. Similar districts have pushed for greater centralization and administrative controls, as well as coordination of curriculum, assessment and professional development. In contrast, over a 12-year period this district has implemented and maintained considerable site autonomy. MESD has allowed its schools to implement instructional programs that the staff and community felt would best meet their student needs.

History of study district

A new era for the study district started in the fall of 1993 in which a grassroots community-wide strategic planning process, led by the elected Board of Education and superintendent, engaged hundreds of school/community stakeholders in an intense process for reorganizing the district governance structure. From the 12-month process a new organizational structure emerged in which the board rethought its role and authority for the benefit of students, parents and the community. They implemented site-based decision making in terms of curriculum and program focus. The district also established a new Shared Vision, Shared Values, Strategic Goals and a Student-Based Decision Making framework (Gill, 2001), which is still used today to guide the district and its schools in increasing student achievement.

The new formal organizational structure of student-based decision making placed students at the top instead of the board, thus the traditional "top-down central office" structure was inverted (see Figure 1) to accommodate a more decentralized approach (Gill, 2001). Principals are viewed as CEOs for their sites and are held accountable for increasing student achievement and overall school success. In addition shifting from being managers to instructional leaders, principals are also expected to lead with and through a teacher leadership team.

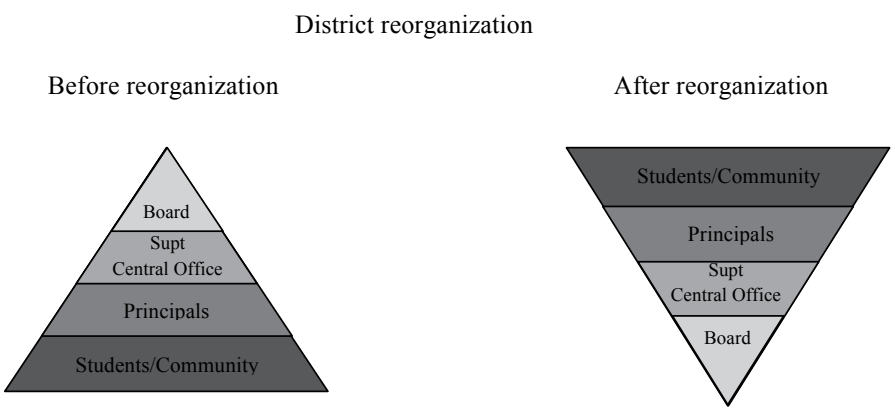

Figure 1. After the district reorganization, the new formal organizational structure of student-based decision making placed students at the top instead of the Board.

This unique model, which still exists to this day, represents "a context of collaboration, communication, and parent and community involvement between the district and principals" focused on student achievement (Gil, 2001, p. 12).

The district supported the new formal organizational structure in three important ways. First, the central office encouraged schools, especially those that were underperforming, to select and implement one of the Comprehensive School Reform models that was being federally supported during the years 1993-2000. There was not to be a one-size-fits-all approach to reform as standards-based reforms have not worked with uniformity (Cuban, 2004). While this approach by districts was not uncommon during this time frame (Datnow, Borman, Stringfield, Overman, & Castellano, 2003), the staying power is unique. Second, the district formed a partnership with the Ball Foundation to provide extensive school leadership team development for teachers and principals to provide the support they needed to be leaders

(Escobedo, 2008). Over a period of 10 years schools were grouped into cohorts and a 3-year cycle of training was made available to them. Third, the district adopted a Student-Based Decision Making framework. The guiding question for all decision making was: "How does this decision improve student learning?" It is against this historical context that the current study set out to explore the relationships among key decision-makers at the central office and site levels using social network analysis tools.

Participants

For this study two groups of participants were selected: central office certificated and classified administrators, and school principals. These two groups represent the leadership team and reflect the district's formal administrative structure.

Survey participants. All central office administrators (48) and all school principals (45) were informed of the study and invited to participate. 88 central and site leaders voluntarily completed the online social network survey, which represents a 95% participation rate. Most of the leadership team members in MESD were White or Hispanic as shown in Table 2. More than half had been in the district for more than 10 years and about half had been administrators for more than 10 years. However, there seemed to be a lot of movement within the system as more than 50% had only been at their current site for less than 4 years.

Table 2
Demographics of district central office and site administrators

	Percentage of respondents
Ethnicity	
White	43
Latino	41
Asian/Pacific Islander	10
African American	6
Years in district	
25+	9
20-24	9
15-19	14
10-14	21
5-9	24
<4	23
Years as an administrator	
25+	5
20-24	12
15-19	12
10-14	18
5-9	38
<4	14
Years at current site (school/central office)	
25+	2
20-24	2
15-19	8
10-14	10
5-9	21
<4	57

Interview participants. Six central office administrators were purposefully selected to be interviewed: the superintendent, one assistant superintendent, and four executive directors. The executive directors serve as heads of departments (e.g., instruction and assessment) and they are responsible for supporting a portion of the 44 schools within the district. These six administrators were selected because they have the most direct relationship with principals in regard to instruction and school improvement. They also were key in providing the district perspective on the central issues of this study (e.g., formal and informal structures that link schools and central office and professionalism and accountability).

Eleven principals were purposefully selected to be interviewed. One demographic question on the social network survey asked principals to identify which cohort (T-Z) they were affiliated with. This question was asked because of the importance of the cohort structure in the district. With this information we were able to identify seven cohorts. Using the SNA survey results, we identified two cohorts that had similar student demographics and the greatest contrast in the survey responses in regard to density, reciprocity and centrality. A comparison of the demographics of this sample of principals showed they were similar to the entire pool of principals in the district.

Instruments and data collection

Social network survey. A social network survey and some demographic questions were designed to assess the informal social networks in MESD. The survey questions were developed from previous network research (Cross & Parker, 2004; Daly & Finnigan, 2010; Finnigan & Daly, 2013). Specifically, formal district and site leaders were asked to quantitatively assess their relationships with each of the site and district administrators on a frequency basis ranging from 0 (no interaction) to 4 (1-2 times per week). For the purpose of this study, the following networks were assessed: collaboration around work topics, assistance with district reform initiative, and innovation and risk-taking in regards to English learners. The collaboration network was specifically chosen because it shows the degree of interaction and collaboration between central office and site leaders. The district reform initiative, and innovation and risk-taking in regard to English learners' networks were considered central to improving achievement within the district. All three networks provided insights into the issues of accountability and professionalism.

The survey was based on a bounded/saturated approach to network data collection to secure a more complete picture of the network and more valid results (Scott, 2000). A bounded network survey provides the respondents with a list of individuals in their organization, and respondents can indicate for each of their colleagues how often they collaborate or seek advice or assistance from them. For purposes of this article, the focus will be on the social network survey with triangulating data drawn from the trust survey and interview data.

Trust. The trust measure was adapted from the 'trust in colleagues' scale from Hoy and Tschannen-Moran (2003). The items were scored on a 6-point scale, ranging from 1 (strongly disagree) to 6 (strongly agree). The scale (Cronbach's $\alpha = 0.86$) was comprised of seven items that were modified to fit the district context (see Table 3). A sample item is, "Administrators are open with each other". The items loaded in the way that we would have expected based on the existing instrument.

Table 3
Trust items, factor loadings, and reliability

Trust ($\alpha = .86$)	
1. Administrators typically support each other.	.80
2. Even in difficult situations, administrators can depend on each other.	.81
3. Administrators trust each other.	.88
4. Administrators are open with each other.	.84
5. Administrators have faith in the integrity of their colleagues.	.79
6. Administrators are suspicious of each other. (recoded)	.52
7. When administrators tell you something you can believe it.	.77

Interviews. Social network maps depicted the communication patterns and the overall structure of the networks in the study district, whereas interview data offered more in-depth information such as the type of information that was flowing through the networks. The interview protocol for principals and central office administrators consisted of 16 questions related to student achievement, collaboration, innovation and risk taking in regard to English learners, the district initiative, as well as district policies and practices that supported or hindered the improvement process. While the SNA networks provided a global perspective of district site relations, the interview data provided the specifics and details needed to illuminate the quality of the relationships.

Data analysis

Social network data analysis. The UCINET software (Borgatti, Everett, & Freeman, 2002) was used to conduct a series of network measures to better understand the relationships among administrators in three key areas: collaboration, district reform initiative, and innovation/risk taking to support English learners (Figures 2-4). Nodes represent the individual actors within the networks, and ties signify the relationships between the actors. The size of the node is also important and indicates the number of people who go to that person for information (i.e., the more people who go to someone, the larger their node). Density is calculated as the number of connections between participants divided by the number of total possible connections in the network. The greater the proportion of ties between actors, the greater the density of the network. Density was scaled between 0, indicating no relationships between administrators, to 1 where all administrators are connected to one another.

Reciprocity between site administrators and district administrators was measured to establish the percentage of reciprocal relationships with the network. Reciprocity was calculated using a scale of 0 to 1, with 0 representing no mutual relationship present between administrators, and 1 representing a network in which all relationships are reciprocated controlling for the size of the network.

For each of the individual participants, their normalized centrality in the social networks was calculated by determining the relative amount of ties a participant received and sent in each of the networks divided by the size of the network. Network centrality measures can be used as an index of an individual's activity within the group. Centrality was calculated using a scale of 0 to 1, with 0 representing an even dispersion of relationships over all administrators in the network, and 1 representing a highly centralized network in which all relationships center around one actor. Highly central participants in a network have increased access to resources and a high potential to create new linkages that may enhance capacity building (Stuart, 1998; Tsai, 2000). Those who are less central may be on the periphery and receive less access to knowledge, and often do not have the opportunities to gain from the resources and information held by those in the more central positions (Burt, 2000).

An External/Internal ratio analysis or E-I index was conducted to assess the relationship between external and internal ties based on a specific actor attribute (i.e., in this case work location, meaning either central office or site) by comparing the numbers of ties within groups and between groups. The scale ranged from -1 for completely internal (intraunit) ties to +1 for completely external (interunit). Externally focused relationships are considered denser over the entire network (interunit) and internally focused relationships consist of a small dense core of relationships within the network (intraunit). Organizations with high E-I indexes (more externally focused) have greater unit cooperation (Nelson, 1989) and have been more successful with large-scale change (Krackhardt & Stern, 1988; McGrath & Krackhardt, 2003), whereas those with lower E-I scores show limitations in how well the organization negotiates external pressures (McGrath & Krackhardt, 2003). Organizations with a low E-I index indicate that communication is more internally focused within one group. For example, principals communicate with principals or district administrators communicate with district administrators. Although communication is not externally focused, if actors are communicating often within their group, they are more likely to establish trusting relationships.

Interview data analysis. Interview data from 11 principals and 6 central office administrators provided a deeper understanding of the characteristics and the structure of the networks in the district and was used to triangulate the quantitative results. All of the interviews were audio-recorded and transcribed by a transcription service. The interview data was analyzed by reading and rereading interview transcripts. We checked and rechecked emerging themes (Miles & Huberman, 1994) and then compared the interview

data with the network data. We drew on interview data to help give meaning and substance to the network maps and searched for triangulating data that confirmed or disconfirmed the network maps. For example, interview data from a central office administrator who stated there was frequent communication with principals and other district administrators confirmed the dense ties on the collaboration map. Similarities and differences between the two cohorts will be addressed in future articles.

Results

Critical to healthy organizations are the ways that knowledge, resources, and innovation move throughout the system. To explore this flow and to understand how informal networks as well as formal structures supported professionalism and accountability, we present the findings from three network maps. These maps were chosen because they reflect key dimensions of school reform work and illustrate tight coupling in some areas and autonomy in others. We draw from the interview data to elaborate on how central and site leaders perceive their relationships. Interview data from both central office administrators and principals uniformly confirmed the network maps. This data overwhelming supported the maps and the results are shown in all three networks.

Collaboration on work-related issues

The first map, Figure 2, represents perceptions of collaboration around work topics at the most frequent level (anywhere between once every two weeks to a couple of times a week). The level of collaboration is important because it represents opportunities for sharing knowledge, resources, and innovation. The map and the measures suggest it is a very dense network with principals collaborating with other principals or central office leaders, as well as central office leaders collaborating with each other. According to the network measures there are relatively frequent connections among district administrators and principals within this district (Density=0.12). This network measure indicates that out of a possible 8,556 ties between individuals that could occur weekly or bi-monthly, these leaders engaged in 1,027 ties (or 12% of possible ties). While it is difficult to fully interpret the meaning of this density figure, D = 0.12 is considered dense because of the limited time in an administrators day for regular collaboration. Perhaps more importantly, the centrality measures indicate that, on average, leaders at the school and central office levels had ties with 17 other leaders (M = 17, sd = 13), suggesting that collaboration was occurring hierarchically (central office-school), laterally (school-school or central office-central office), or both ways.

Three interesting aspects of relationships can be observed in this map. First, the central office administrators are playing a key role in the collaborative process, as illustrated by the large black nodes. As might be expected and found in other studies (Daly & Finnigan, 2010), many central office administrators are collaborating with each other. This is shown by findings from the External-Internal (E-I) index, which ranges from -1 completely internal (meaning within work location) ties to +1 completely external (between work locations) connections. These findings are based on an actor's primary work location (central office or school site). The E-I index for this network was -0.146, suggesting that this network is more internally than externally connected–meaning principals go to principals and central office staff go to central office staff. No doubt the physical proximity to each other in the district office facilitates central office collaboration and the districts' formal cohort structure facilitates principal collaboration.

Second, it is noteworthy that the density of collaboration involved not only central office administrators collaborating with each other, which has been observed before in other studies, but also collaboration among principals and central office leaders, which has been less frequently seen (Daly & Finnigan, 2010). One executive director said, "I would say members of Cabinet and my principals that I work closely with, my 13 principals. I think I'm closer with them than I am the other ones and so I consider them colleagues. I'm learning from them just as much as I hope I'm contributing to them (D31)." The overall reciprocity of the leadership team was 0.3639. When breaking the two groups apart the reciprocity for principals was 0.3108 (14 out of 44 had reciprocal ties) and the reciprocity for central office administrators was 0.4605 (23 out of 49 had reciprocal ties).

Third, there is a dense web of principal connections in this district, as shown by the clusters of grey nodes (i.e., P5). The E-I index for principals was 0.39, signifying that principals are externally connected

and seek to collaborate with both the central office staff and other principals. This finding of principal collaboration is an interesting observation suggesting that schools are not as isolated in this district as other studies have found (Daly & Finnigan, 2010). While principals are not as central to the collaboration network compared to central office, they are actively engaging with each other, as well as with district administrators. This suggests that there are higher levels of social capital between principals and district administrators in this district. This finding is further supported by interview data, as one principal states, "My closest professional colleagues are my cohort group of principals… Those are the ones that were able to really work. We are able to talk with each other about the reality of what we do on a daily basis and what are some possible solutions to problems that we currently are facing (P39)." Several principals agree that they feel comfortable getting advice from other principals as well as the executive directors. Another principal added,

> My executive directors… I feel comfortable talking to all three of them. One of them is the assistant superintendent. We've established that working relationship. It's funny because my executive director and the assistant superintendent were part of my first cohort. They were administrators. So now it's more of that relationship and trust that I was talking about, it's at another level now. There's more understanding, rather than wanting to get to know why you're doing certain things. They trust and believe, they are more like a colleague than a hierarchy. (P29)

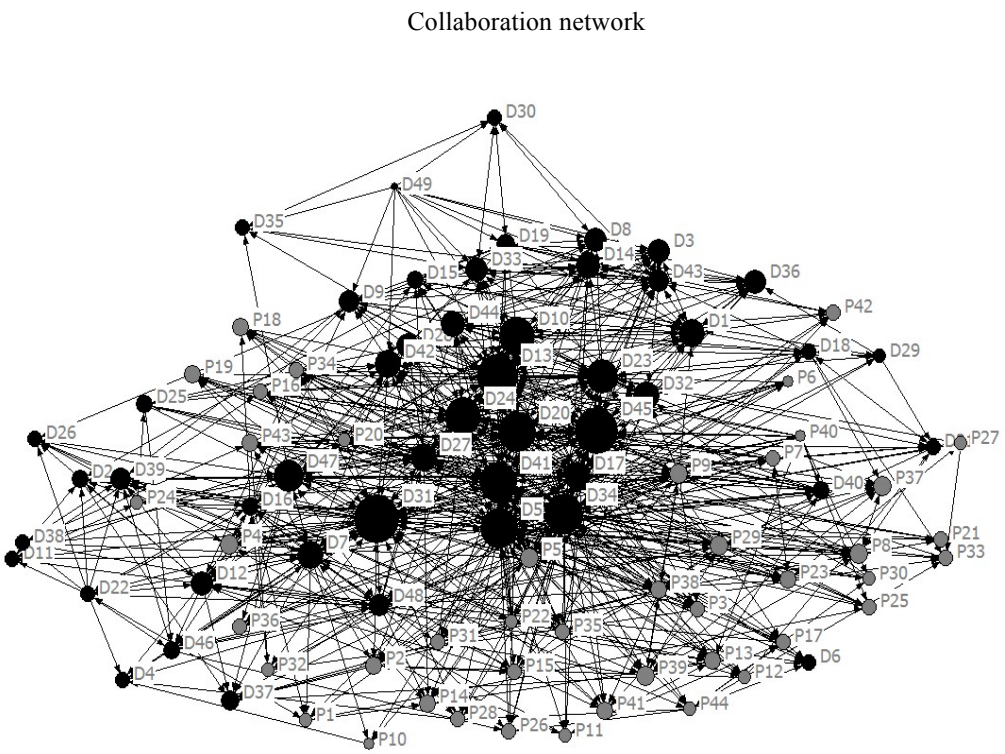

Figure 2. Social network map regarding collaboration between principals and central office administrators. Nodes are sized by in degree and colored by role—black nodes signify central office administrators; grey nodes signify principals.

These findings are also supported by the trust data (see Table 4) as it shows that administrators as a whole "somewhat agree" that there is trust in this district. However, when breaking this number down even further principals ($M = 4.58$, $sd = 0.99$) perceive more trust compared to central office administrators ($M = 4.06$, $sd = 1.43$) ($t = 1.903$, $p < .05$). It is also important to note that central office administrators go to principals to collaborate, as shown by the out-degree outgoing ties of 317.

Table 4
Trust means and reliabilities by district office and site

	Location	N	Mean	Std. Deviation
Trust Average	District Office	41	4.06*	1.43
	Site	38	4.58*	.99

Note: *Statistical difference between district office and principals p<.05

Advice network regarding district reform initiative

In 2006, the district pursued a major districtwide initiative, a research-based instructional model called the Gradual Release of Responsibility (GRR) (Fisher & Frey, 2008). The district hired a consultant to conduct ongoing professional development for principals and leadership teams. However, as will be seen, sites had the autonomy to implement GRR in ways they felt would best support the students at their school.

Figure 3 shows the network regarding the GRR reform initiative and stands in marked contrast to the previous figure. According to the network measurements (Density=0.01), this social network is extremely sparse with few principals turning to other principals or central office leaders for advice regarding the district initiative. All of the nodes in the top left corner of the figure represent individuals in the network who do not seek out anyone for information regarding GRR, nor does anyone seek them out. A possible reason for this lack of communication is that principals in this district have the autonomy to do what is best for their schools as long as they have a plan and are getting results. As one principals states,

> If I could prove what I was doing was working, and I did it through data, then it was supported. I think there was a lot of autonomy given to school site administration. A lot. If you had a plan and you could back that plan up with data and goals and how you were doing and it was evident, it was supported. That's been my experience with it. I remember the superintendent telling me, "Get the results or I'll find somebody who will." OK, I'll do it. I said, "Hey, this is how I'm going to get the results." I laid the map out. Every time he would come through I'd say, "Here's where we are. Look at the growth or look at the non-growth." If it was non-growth, here's where we're going with it. If it was growth, we're going to continue doing this, and we're going to tweak this. I love the autonomy. I love that. (P37)

Ten out of the 11 principals that were interviewed stated they liked having autonomy to make their own decisions at their sites. Another principal shared his view on decentralization in this district,

> I think what the district does that is contributing (to student achievement) is that (it) is site-based. I think it helps that they're very decentralized, and let each school determine what they need to do, based on their needs, based on their community, based on their school culture…so there's not that one-size-fits-all for 44 schools…Do what you have to do... and so you find a way to get the achievement you want. (P8)

When asked about unique things being done in this district that may help explain the positive achievement trend, one principal explains, "I think that the top down approach now will never work here. People are too loose now, but that has been their strength if you have good strong leaders that can do that (P42)."

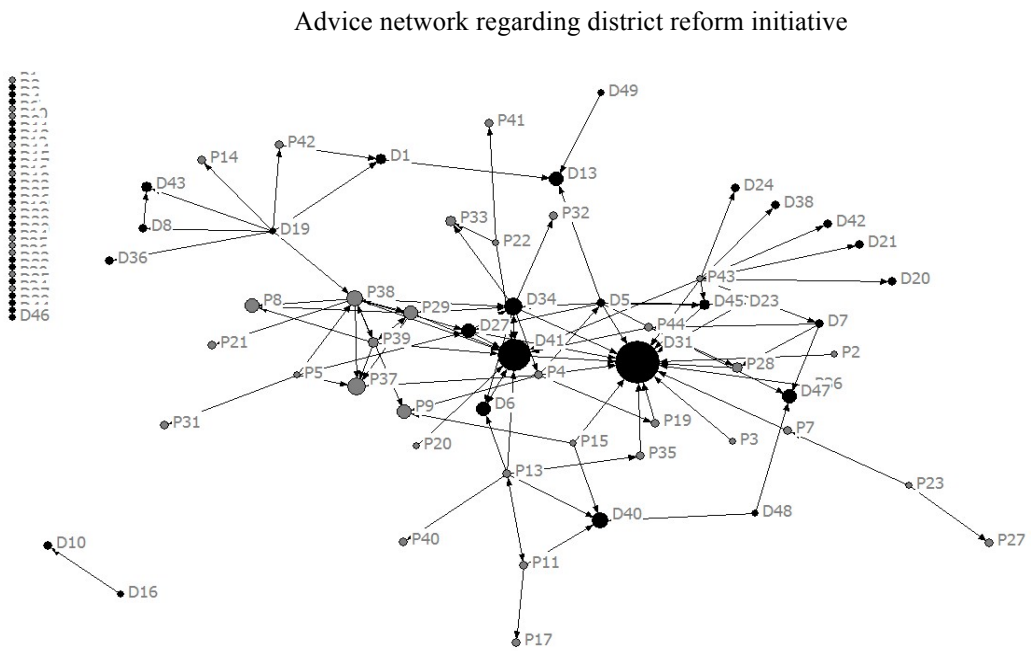

Figure 3. Social network map on advice regarding the district reform initiative (gradual release of responsibility or GRR). Nodes are sized by indegree and colored by role—black nodes signify central office administrators; grey nodes signify principals.

In contrast to the collaboration network, the GRR network measurements indicate that only 1% of all possible information exchange ties are present when considering the most frequent relationships (86 out of a possible 8,556 ties between individuals exist). Furthermore, 37% of the administrators (23 central office staff and 11 principals) were isolates in this network, meaning that they did not seek (nor were sought for) information related to the gradual release of responsibility on a frequent basis. As previously stated, principals have the autonomy to tailor the instruction at their site and as a result, they have the flexibility to implement the district initiative however they believe it will improve academic achievement. This principal explains why he has chosen not to implement GRR at his school by stating,

> We stay very focused on those best practices that we know can make a difference... Even when the district comes up with initiatives that are good, solid, but we don't add those to what we're doing at our site… gradual release of responsibility (GRR) as being one big piece from the district that has not been implemented here… we have our own model and we stayed focused with that. GRR has always been a back burner when it comes to me. (P38)

The centrality measures indicate that, on average, leaders at the school and central office levels had ties primarily with two district leaders (D31 and D41) (SD=3) with a centrality measurement of 15% indicating very little interaction. The centrality measure for GRR is much lower than the collaboration (61%) network. This suggests that the information flow in the network was extremely limited when compared with Figure 2. The overall network tended toward centralization with two district leaders (D31 and D41) in the study district serving central roles in the GRR information network. People are seeking information from the two largest nodes, which happen to be executive directors, who spearheaded the initiative and who appear to be the most knowledgeable.

Interestingly, principals did not play central roles in the system despite the fact that the network was about the exchange of information directly related to the district's GRR initiative. This information network suggests that there are very few reciprocal relationships in terms of people who seek out each other, versus one-way information flows. Only 7% of the relationships in the network were reciprocated. This is much lower than the collaboration (36%) network.

Both hierarchical (central office-school) and lateral (school-school or central office-central office) relationships are rare. Furthermore, this division between central office and school administrators is triangulated by findings from the External-Internal (E-I) index, The E-I index for this network was -.122 suggesting that this network is more internally than externally connected–meaning principals go to principals and central office staff go to central office staff, but they rarely cross groups for information regarding GRR. This is further shown when breaking down the E-I index between central office administrators (-0.13) and principals (-0.11), signifying that both groups are internally connected and communicate more within their own group. However, D31 and D41 play important 'bridging' roles, serving as brokers between different parts of the system. Additionally, in the inner ring of the network map, there is also a cluster of principals that appear to interact with each other and P29 plays a "connector" role seeking out information from both principals and central office leaders. It is also noteworthy in this small network of principals that there is a two-way exchange of information as shown by the two-way arrows, whereas for much of the rest of the network, the flow of information is unidirectional to the key leaders in the central office.

Taking a risk on innovation to support English learners

Figure 4 shows the network regarding innovation around English learners. Similar to figure 2 and in contrast to figure 3 this is a dense network (Density = 0.09 contrasted with D=. 01 for GRR network) signifying that site and district administrators communicate on a regular and frequent basis about "taking a risk on innovative ideas around English Learners." The map reveals a different pattern from the other two in two ways. First, the map shows that principals, as shown by the size of grey nodes and compactness in relationship to the center of the map and to a few large black nodes, are key players in this area of innovation. Second, more central office administrators/classified managers, as might be expected in regard to innovation for English learners, are on the periphery of the map.

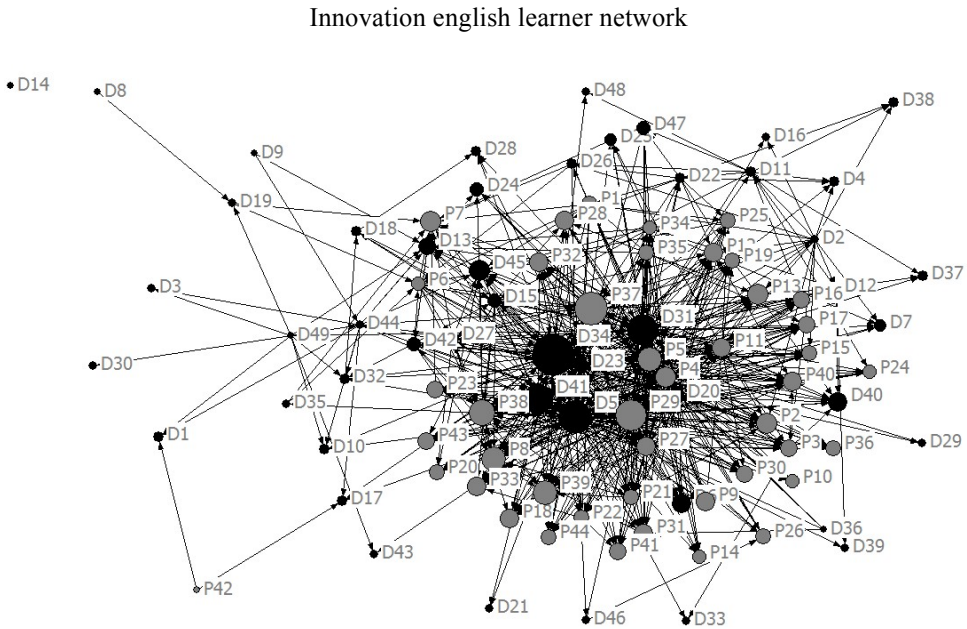

Figure 4. Social network map regarding innovation around English learners. Nodes are sized by indegree and colored by role—black nodes signify central office administrators; grey nodes signify principals.

Similar to previous maps, the large nodes in this map signify that both site and other central office administrators are seeking knowledge from several key central office administrators. However, unlike the other network maps, this network shows several large grey nodes close to black nodes, indicating that other administrators are seeking information from principals as well. As exemplified by the large number of grey nodes (i.e., P4, P5, P8, P29, P37, P38, P39), dominating the figure, leaders connect, on average, with 15 other leaders (SD=16) compared with only two in the GRR network. It is interesting to note that that these principals consistently have the larger nodes across the networks, suggesting that they are important information sources and support for their colleagues. Interview data supports this finding as one executive director discusses practices and actions that have increased achievement for English learners, "The walkthroughs have been very powerful in our district. Our principals work together in these cohort groups and they go and visit each other's schools…" (D34). A principal further supports this point and when asked about practices or supports that contribute to increased achievement for English learners, this principal states:

> I also think that, once again, a focus on student achievement obviously lends itself to looking at data. When principals are able to access data, look at data and say, "OK. Very effective. Very effective. Very effective." Then because you've got relationships with your cohort, you say, "Hey. I got this teacher. Second grade. She rocks. Come check her out." Which, because they've got the data, right, to prove the achievement, then you have the relationships amongst the system. Then you can say, "Hey, come check this teacher out." You come and check the teacher out and go, "Hey. I'd love for my three second grade teachers to come see what she's doing." You have that conversation with those teachers before they go in there and say, "I want you to specifically look at the questioning techniques, or the cooperative group strategies." They get in there and they observe that. That, I think has been a huge reason why English learners have started to do so well in [district]. When you look at the comparison throughout the state, yeah, ELs are doing pretty darn well in [district]. I think that has a big impact when you have those relationships and you have that focus on achievement. (P37)

When another principal is asked about the types of conversations he has with his colleagues around English learners, he states, "We have had more discussions about what goes into ELD in particular with the side-by-side training. It helped facilitate that conversation more about the pieces of ELD and what it looks like. But there hasn't been a lot of discussion about specifically how to help English learners. I just can't think of a context where that's been the focus. It's like they're always in the background because there's such a large portion in this district, and it's always assumed that every conversation includes ELs (P42)." Three other principals concur that they plan everything with their English learners in mind because the majority of their students are English learners. The pattern of principal centrality has not been shown in other district network studies. The centrality measure of 58% is very similar to the collaboration network map of 61%.

Unlike the previous two networks, the E-I index for central office staff (0.06) indicates they have more external connections with both central office staff and principals, whereas the E-I index for principals (-0.07) signifies principals are more internally connected. Finally, this information network has a significantly higher degree of reciprocity (0.16), with 54 network members including 22 district leaders and 32 principals exhibiting reciprocal relationships.

Since English learners are a significant subgroup in this district and under NCLB, principals are held accountable for meeting the increasing targets for this group each year. The findings show they seem to be increasing social capital through informal relationships by seeking better ways to help increase student achievement from each other, as well as from central office administrators perceived to have expertise in this area.

Discussion

Through this single case study, we examined the relationships of central office administrators and principals in a district that has increased student achievement over the past 10 years. We draw upon the broader literature of social capital and social network analysis as a foundation to suggest that underlying social networks enable an understanding of facilitative or constrictive conditions for change. The analysis of data suggests four key findings:

(a) In two of the networks there were dense ties between central office administrators and principals in a district that both district and site leaders in the organization considered decentralized.
(b) The decentralization and school autonomy to make programmatic decisions was confirmed through the district reform initiative network analysis.
(c) Central office administrators in formal positions and the formal cohorts (clusters) of schools facilitated informal network ties that promoted collaboration and the flow of knowledge and resources throughout the system.
(d) Principals played key knowledge and resource roles, formally and informally, in the district especially around innovations to support English learners.

Dense ties in a decentralized district

An interesting and unique aspect of this district is the density shown in the network maps. Even though principals in this district have site autonomy, collaboration is highly valued. This is shown by the collaboration network map that illustrates a dense network showing that central office administrators and principals collaborate very frequently. The same density was found in innovation network regarding EL innovation, especially among principals. The density of networks seems counterintuitive given that district leaders perceive themselves to be decentralized and having considerable autonomy to decide how best to achieve the district goal of improved student learning. Interestingly, the least dense map showing the district initiative, GRR, illustrates well the centralization and autonomy/decentralization paradox: GRR is a district reform initiative, but principals can choose to implement the initiative or not. The interview data shared above confirmed this dualism of autonomy, and cross-system closeness and collaboration.

The dense network structures suggest that large-scale complex change is likely to occur in this district because dense social ties support the development of coordinated solutions to complex problems (Finnigan & Daly, 2012). The dense connections between central office administrators and principals suggest that organizational change is possible in this district without a one-size-fits-all approach. Since schools have autonomy to make decisions at their schools, principals often look to their peers to problem solve and discuss what is working or not working in terms of increasing student achievement. The superintendent and the executive directors further support principal collaboration by acting as brokers and sharing best practices across the district. The significant number of connections in this district as suggested by the high density measures indicates that complex information necessary for increasing student achievement can be easily spread throughout the leadership network.

The district has managed to build strong peer relationships through collaborative structures that have been in place for the past decade. For example, starting in the fall of 2001 the Ball Foundation provided funds for professional development for a cohort of principals and their leadership teams, enabling them to learn and collaborate through an inquiry process (Escobedo, 2008). As schools saw the benefits (i.e., professional development and peer collaboration) of being a part of a cohort, new cohorts of schools formed and eventually, all schools were part of a cohort. In other words, a formal district structure, cohorts, supported the development of informal networks as principals and some teams continued their collaboration beyond the formal cohort professional development days. This formal cohort structure also became a critical vehicle for encouraging and supporting principal and teacher professionalism as school level teams learned how to look at data and make instructional decisions for their schools over the past 10 years (Umekubo, 2012).

In 2006, the district rolled out a new initiative, GRR. The district has continued to provide ongoing professional development for cohorts of principals and their leadership teams around GRR. The results

of the social network analysis of this initiative were a surprise since GRR represented a major districtwide professional development effort. The interview data, however, provided insights into and the evidence for the SNA findings. Since the district focus is student achievement, the district allowed principals and leadership teams the freedom to decide how and when they would implement GRR. A contributor to social capital is "know the rules." In MESD, principals knew they could do what was best for their school as long as they were getting results by increasing student achievement. They also knew that they could not work in isolation and elicited support from their colleagues. Aspects of social capital include high levels of trust and knowing the norms. We argue there are high levels of social capital in this district, which allowed central office leaders to give decision-making autonomy to principals even in regard to a district-wide reform initiative.

The findings regarding GRR, present a picture of a district that is in contrast to the literature on district reform, which stresses the need for greater coherence, centralization, and commonalities in curriculum and assessment practices across the district (Elmore & Burney, 1997a; Hightower, 2002; Massell & Goertz, 2002; Murphy & Hallinger, 1988; Snipes et al. 2002; Togneri & Anderson, 2003). Although this district has a systemwide reform initiative, they chose a different path. The central office provided centralized professional development and support around an instructional model. Each year principals and teachers have gained deeper knowledge of the GRR process, but the district has also given schools the autonomy to pick and choose the implementation path as long as they could prove they were meeting their student performance targets. This allows sites that are succeeding to continue with their own initiatives, and sites that are not succeeding an opportunity to try a different approach with the support of the key central office leaders, as shown in the network map.

As the interview data and the network analysis showed, this district has created a culture of support at the district level. Principals know they can turn to anyone in the district office (which is actually called the Educational Support and Services Center—ESSC) for help when needed. The network maps and interviews also showed that there was an interactive relationship between the formal structures of cohorts of schools, principal meetings and regularly scheduled walkthroughs and informal networks where principals, especially, turned to colleagues for help.

This concept of the power of the interactive relationship of formal and informal structures is further supported by Copeland's (2003) study on the Bay Area School Reform Collective (BASRC), where he states that the work of improving schools must be accomplished collectively. It is through strong network connections and personal relationships where information and new ideas can be diffused, and principals and teachers are able to figure out how to solve complex issues at their sites. These connections also allow for novel and non-redundant information to flow between and among different sites.

In contrast to the study district, Daly & Finnigan's (2010) exploratory case study of a district that was failing showed sparse connections between their central office and site leadership team members. Their findings showed a centralized network structure, as well as weak ties between principals and central office administrators. Their findings suggest that sparse ties may inhibit the transfer of best practices amongst schools within the district.

Formal administrative positions are key to initiating ties

The large black nodes shown in the three network maps signify key central office administrators who represent executive directors (ED) that support principals and their schools directly. They serve as a liaison providing support and brokering services to their assigned cluster of schools. In addition, principals can contact an Executive Director (ED) to work with them in their area of expertise. For example, principals who have questions regarding their ELs would most likely contact the ED of language acquisition who has expertise with second language learners. The indegree for most of the EDs is high, signifying that principals and other central office administrators go to them for important information. The EDs who have a high indegree serve as important resources and principals perceive that they have critical knowledge that they need to be successful at their schools.

The key to social capital is building relationships and the flow of information. This study suggests that decentralization does not mean that the central office is not important, but instead a key component to

school success. Supovitz (2006) states, " If we are to improve the quality of education for out citizenry in the 21st century, the capacity to do this must come from local educational support organizations" [such as districts] (p.6). Chicago discovered that the central office needed to support principals and schools and as a result their system went from total decentralization to eliciting more support from the central office (Bryk et al., 2010). What they learned from the Chicago school reform according to Hess (1999) is "whether it is strategic management or balanced governance, urban school systems need some combination of bottom-up and top-down governance" (p. 514). The Chicago experience raises the issue of what should be the mix between centralization and decentralization and how power and decision-making authority should be distributed in order to obtain optimal student achievement (Slater, 1993). This study confirms the findings from these other scholars that even in a decentralized district there is a critical role for central office administrators. These leaders need to be seen as available and accessible so people can go to them for support.

Principals as key players in the district network

The network maps show that principals are important players in this district, particularly as providers of advice and expertise to their colleagues and as collaborators with their colleagues and with central office leaders. As shown by Figure 4, principals in this district are also critical components of district social capital in regard to English learners. When asking principals to whom they turn for support, many of them mentioned their peers. Bryk et al. (2010) state that an effective district "must blend a coherent theory for improving schools (and establishing new ones) with a relationship-building strategy that expands social resources for individual schools, and builds trust up and down the system as well as out into the larger community." The cohort model in this district has allowed principals the opportunity to create relationships with one another and if they have questions or an issue, they can quickly contact a colleague for support.

Since 1995, long before NCLB accountability measures were adopted, the district's guiding policy has been to increase student achievement and make critical decisions in the best interest of students. In exchange for autonomy and choosing their own reform path, principals are held accountable by the superintendent for annual increases in student achievement at their schools. Furthermore, this district supports professionalization as principals and their leadership teams are perceived as being able to find a path for raising achievement (Thompson et al., 2008). The district has realized the importance of increasing principal and teacher capacity, and has seemed to find a balance between centralized controls and supporting principals and teachers as professionals (Johnson & Chrispeels, 2010).

Principals in this district not only turn to central office administrators, but also turn to other principals for support in increasing student achievement, especially in regard to ELs. Principals are used to supporting each other through the cohort model. The formal structures of this district have played a pivotal role in expanding the social capital among principals because they are brought together to work together. Compared with other districts, perhaps one of the great reasons for this district's success is the level of density of network ties. The implication is that districts need to create avenues for building relationships between central office administrators and principals, as well as among principals.

Conclusions and implications

The primary purpose of this study was to understand how surfacing underlying informal relationships between central office and school level leaders using social network analysis could provide insights into the process of successful district reform. This study is important because the district has pursued a path that differs from those identified in some other studies of district reform: less centralization and more site autonomy. A critical result has been steady growth in student achievement over a 10-year period for its largely Hispanic student population. The evidence shows that trusting relationships among administrators and dense network ties allowed administrators both vertically and horizontally to collaborate and share expertise within clusters of schools and across the whole system in ways that supported school autonomy and decision-making, and at the same time kept all leaders accountable for student outcomes. The early adoption by the school board of a student-center decision-making framework established a clear goal for all leaders: improve student learning and achievement. The path to achieving that goal, however, was to a considerable degree left to the discretion of the school sites as long as they were getting results.

A second conclusion from this study is that although given site autonomy, the central office still provided considerable support through formal structures such as regular principal meetings focused on professional development and problem solving, assigning executive directors to clusters of schools in addition to their other central office duties and grouping schools into cohorts to facilitate professional development and peer support. The central office was renamed (ESSC) and reoriented itself to be a service and support center to the schools as opposed to a compliance enforcer. All district office employees, from maintenance to business to IT, are there to help students achieve. These shifts in central office operating procedures are similar to those identified by Honig et al. (2010) in their pioneering qualitative study of three central offices engaged in the process of transformation and what the authors argue must be done by more districts if they are to improve student learning.

Third, this study shows the power of a simple district policy that put students first. The student-centered decision making framework signaled to schools that there would be tight coupling around increasing student achievement, which was monitored by the superintendent through principal evaluations and walkthroughs. How they were to achieve this goal, however, was to be loosely coupled, allowing schools the freedom to choose programs and resources that worked for them. This study provides one example of the type of centralization/decentralization balance that needs to be struck between the central office and its schools that can lead to high student achievement. It is not a question of autonomous schools versus centralized control (Honig et al., 2010), but rather determining the roles and responsibilities of each. A clear district policy that stresses student achievement as the goal is an excellent place to begin and will move the district from accountability to program fidelity to accountability for learning.

Fourth, the close collaboration between central office and principals and among principals as revealed in the SNA maps and interview data show that administrators at both levels saw their colleagues as important resources for improving teaching and learning. In other words, there is considerable social capital in the district. The cohort model for providing professional development, especially in the first 10 years, seems to have laid the foundation for shared learning and collegial support. Finally, this study illustrates a strong interaction effect between formal structures that bring administrators together to learn and the development of dense and productive informal learning networks. Similar to the centralization/decentralization issue, it is not a question of dichotomy in regard to formal and informal structures and relationships, but rather a question of what types of formal structures promote strong informal collaborative learning relationships, and best support professionalism and ensure accountability for student outcomes.

With the abundance of districts and schools facing sanctions, it is time to rethink different ways of increasing student achievement. As the federal and state accountability systems are changing, educators are expected to learn a new set of standards that are much more rigorous. District administrators, principals, and teachers are going to have to work together to figure out the most effective ways to teach students how to master these standards so they will be college- and career-ready upon graduating from high school. This study provides district administrators, principals, policymakers and researchers a different approach to system-wide reform by analyzing informal relationships.

A lesson learned from this study suggests that formal structures, which allow more opportunities for networking, collaborating, and brokering services across the district, are necessary. The work of improving schools must be accomplished collectively. It is through strong network connections and personal relationships where information and new ideas can be diffused, and district administrators, principals, and teachers are able to support each other as well as figure out how to work together to increase student achievement. These formal structures promote strong informal collaborative learning relationships.

A final insight from examining this high performing district in detail is that schools and students benefit when principals establish trusting relationships and collaborate on a frequent basis. Principals are too often left to work in isolation, wasting valuable district resources. When central offices facilitate principal collaboration, they are able to increase their learning capacity, create intellectual capital, and ultimately increase the learning capacity of the district. When principals are able to build trusting relationships, they are more likely to help one another solve complex problems and tackle new learning. Principals working together have the potential to boost their learning to another level by inquiry, challenging each other, and holding each other accountable. It is through this type of collaborative work where principals will be able to move their schools forward. This study shows one possible model that can help districts be successful on this journey.

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