NO TEACHER IS AN ISLAND: HOW SOCIAL NETWORKS SHAPE TEACHER QUALITY

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ABSTRACT

Since the late 1990s, teacher professional development models have shifted from a focus on individual improvement to collaboration as a means to foster support, information, and resource exchange between teachers. Following this shift, researchers began to use social network research methodology in the early 2000s to reveal the ways in which informal relationships affect teachers' practices. This chapter reviews current literature on teachers' social networks and teacher quality to describe the ways in which social networks mediate teachers' practices. It provides detailed examples from two studies on teachers' social networks and suggests ways that scholars can incorporate the constructs of social capital and social networks into large-scale research on teacher quality.

Keywords: Professional development; social networks; teacher quality

Promoting and Sustaining a Quality Teacher Workforce
International Perspectives on Education and Society, Volume 27, 367–383

ISSN: 1479-3679/doi:10.1108/S1479-367920140000027005

INTRODUCTION

Teacher quality is most commonly conceived of as an individual construct in the majority of education research today; it is described as a skill or knowledge base that an individual has or can develop (Goe, 2007; Kennedy, 2008). Yet, in this chapter, I contend that by defining teacher quality as a contextual construct, shaped by social networks and the environment, researchers and policymakers can develop comprehensive approaches to improving teacher quality that take into account the complexities of teaching and the social, political, and economic contexts of schools. I use a social network theory framework to explain the ways in which teacher quality can be constructed as a contextual and socially distributed concept rather than an individual notion. Although social networks have been found to affect a range of issues related to teacher quality, such as teacher commitment (Hausman & Goldring, 2001; Thomas, 2007), identity (Day, Kington, Stobart, & Sammons, 2006), and mobility (Boyd, Lankford, Loeb, & Wycoff, 2003); here, I focus my discussion on the ways in which social networks mediate teachers' practices.

A recent study on teachers' networking characteristics found that the students of teachers with denser professional networks had higher academic achievement than the students of teachers who collaborated less often with colleagues (Leana & Pil, 2006), demonstrating a relationship between the effectiveness of teacher practices and social networks. This chapter explores the reasons and mechanisms behind the relationship between teacher practices and social networks. I define practices as teachers' instructional methods, curriculum use and planning, and the social interactions that inform their professional knowledge or activities. Using a social network framework, I uncover the ways in which certain types of networks, networking practices, and network contexts can influence the ways in which teachers' practices develop and change. I draw on data from two separate studies on teacher networks to give detailed examples of the social mechanisms that mediate teachers' practices. Specifically, these studies illustrate how networks impact teachers' ability to navigate the micropolitics of school and make professional decisions about their practice.

In addition to demonstrating the role that social networks play in teachers' work, I discuss the ways in which teacher quality has been historically researched and constructed in human and cultural capital terms, excluding social capital and consequently, major aspects of teacher practices. I explain how scholars can use social network research approaches to reveal the ways in which teacher practices are critical components of

teacher quality, reviewing lessons learned from prior research on teacher networks. Ultimately, this chapter serves to suggest ways to incorporate the social network perspective and research applications into our current approaches to researching teacher quality in order to expand our notions of teacher quality and potentially build on or reinterpret policy approaches.

SOCIAL NETWORKS

As approaches to teacher professional development have shifted over the past 20 years from a top-down focus on individual improvement to bottom-up approach involving collaboration and group inquiry (Darling-Hammond & McLaughlin, 1995; Lieberman, 1995; Lieberman & Miller, 1999), researchers have sought new ways to understand how teacher knowledge exists and is exchanged between individuals and within groups (Adams, 2000; Daly, 2010). Social network research has emerged as a method to uncover the informal exchanges that occur through relationships. A social network can be defined as a web of relationships through which information, resources, and support is exchanged. However, the type of information or support that is exchanged also defines networks. For example, in an advice network, individuals are linked through the exchange of advice. Thus, one person can be included in many different types of networks, for many different purposes (e.g., friendship, professional support, kinship, etc.). Further, networks are dynamic; they grow and change as individuals, create, develop, or end relationships (Engestrom, Engestrom, & Vahaaho, 1999; Nardi, Whittaker, & Schwartz, 2002).

At the core of research on social networks are the notions of the relationship and social capital. Scholars of social network research frequently ask, "what types of relationships foster high levels of social capital (the information, resources, and support that exist in social networks)?" for a given context, or "how does social capital function within various types of networks?" For example, Daly and colleagues (Daly & Finnigan, 2011; Daly, Moolinaar, Bolivar, & Burke, 2010) examined how information about a school reform was exchanged through advice networks of teachers and administrators in a school district. Their study uncovered networking patterns that influenced the flow of information, and thus, the outcomes of the school reform. Essentially, social network researchers aim to uncover the ways that relationships mediate access to social capital.

The concepts of human capital and cultural capital are frequently referred to in literature on teacher quality (Baker-Doyle, 2010), both of which center on the individual as the possessor of capital. Yet, social capital is different than other forms of capital in that it exists between people, in their relationships, not within individuals. Thus, it functions very differently than other forms of capital. For example, social capital is the only form of capital that can decrease if it is *not* used. As such, there are a few uncertainties about the nature of social capital that challenge scholars. A primary uncertainty concerns the type of network that fosters the highest level of social capital. Some scholars argue that dense, close-knit networks foster greater trust, and thus, greater social capital (Coleman, 1990; Putnam, 1995). Others suggest that diverse, less dense networks generate higher levels of new information, and thus greater social capital (Burt & Minor, 1983; Granovetter, 1973). Lin (2001) suggests a compromise: that each network type offers different forms of social capital.

Echoing Lin's compromise, my research on teachers' social support networks has identified similar patterns in social capital outcomes (Baker-Doyle, 2011, 2012). In *The Networked Teacher* (2011), I identified two types of teacher support networks – Intentional Professional Networks and Diverse Professional Ally networks – which offer different, yet equally important forms of social capital to teachers. Intentional Professional Networks (IPNs) are characterized as local, close-knit networks of professional colleagues built through active collaboration. These types of networks typically help teachers to socialize, locate resources and materials, and gain a sense of stability, all of which are important aspects of social capital. Diverse Professional Allies (DPA) make up a more distant, diverse network of individuals, often non-traditional support people, such as students, parents, and school aides. However, they can provide an equally valuable form of social capital to teachers; inspiration to innovate and connect their curriculum with students needs and interests. I use these two network concepts, IPNs and DPA, to frame my exploration of the ways in which social networks mediate teachers' practices.

THE SOCIAL NETWORK STUDIES: CONTEXTS AND METHODS

In this chapter, I use examples from two studies on teacher's social networks to describe the ways in which teachers' social networks mediate

their practices. The first study focused on the social networks of first-year teachers in an urban school district in the Northeastern United States (Baker-Doyle, 2012). The second study was part of the Linking Instructors Networks of Knowledge in Science Education (LINKS-Ed) project, and it examined the social networks of teachers as they implemented a new science curriculum (Baker-Doyle, Bender, & Marsch, 2011; Baker-Doyle, 2013). Both studies employed a mixed-method approach to examining the professional support networks of teachers.

The first-year teacher study included a socio-metric survey of 24 first-year teachers and year-long case studies of four of the teachers. The study took place in a large city within a school district that mandated the use of a paced curriculum for major school subjects. The teachers represented a range of grade levels (K-12) and teacher training backgrounds. The four teachers in the case studies included a female Hispanic third-grade teacher, a Caucasian female high school teacher, a Caucasian male middle and high school teacher, and a Caucasian second career middle school teacher. The survey results were used to look for trends in demographic or grade level group and to develop an analytic framework to understand the case study networks. The case study findings helped to explain survey findings and reveal further networking patterns that were not initially reported by participants.

The LINKS-Ed study was conducted in a small city with a high population of English Language Learners. The study focused on the experiences of a cohort of teachers that were trained to teach a new, inquiry-based elementary science curriculum. The curriculum implementation was supported through a partnership with the education department of a local university. Thirteen of the cohort of 24 teachers participated in the study. Similar to the first-year teacher study, participants were asked to complete a survey, and then three were selected to participate in case studies. The LINKS-Ed survey consisted of social network questions and science education competency questions, and the case study participants were selected based on their survey responses to reflect a range of experiences.

Teachers in both studies faced similar obstacles common to urban teaching experiences, such as lack of materials, complicated bureaucracies, high needs students, and a tense high-stakes testing environment. Further, participants in each of the studies were learning to teach with a new curriculum: in the case of the first-year teachers, a paced curriculum based on their school subject, and in the case of the LINKS-Ed teachers, a science curriculum with a new "hands-on" approach that included the use of many new materials.

SOCIAL NETWORKS AND TEACHER PRACTICES

An array of research has revealed that social networks influence teacher decision making and the ability of a teacher to navigate school social and bureaucratic systems (Coburn, 2005; Frank, Zhao, & Borman, 2004; Pennell & Firestone, 1996; Penuel, Riel, Krause, & Frank, 2009). These two factors, decision making and navigation of micropolitics, are central components of teachers' practices. Teacher practices encompass not only instructional activities but also the ways in which teachers seek out and incorporate ideas, resources, and materials into their work (Blanton et al., 2003). As such, social interactions can facilitate how teachers locate materials, resources, and support, and the decisions teachers make about how to use them in their practice.

Here, I discuss the social mechanisms that facilitate teacher practices using the results from the first-year teacher study and the LINKS-ed project as examples and the IPN/DPA framework to explain findings. I also draw from other teachers' social network literature to illustrate several concepts. In these cases, I use the IPN/DPA framework to situate the concepts within the context of the discussion. The literature review will show that conceptualizing teacher practices as individual activities gives only a limited picture of the complex dynamics of teaching, and that by broadening our notion of teacher practice (and, ultimately, teacher quality) to a socially distributed understanding of teachers' work, we make space for a more comprehensive analysis of schools and teaching.

Navigating the Micropolitics of School

Micropolitics are "the strategies and tactics used by individuals and groups in an organization to further their interests" (Hoyle, 1982, as cited in Keltchermans & Ballet, 2002, p. 107). Although micropolitics exist in most groups or organizations, the micropolitics of schools are particularly complex due to the range of actors involved, all of which typically have differing interests or goals, and a hierarchy of control from federal mandates to parental requests. Further, teachers are the central individuals in the school organization that must respond to the (in many instances conflicting) demands of others; they must balance what they think their students need with what administrators, parents, and others ask of them. When teachers are unable to juggle these demands, their access to materials, information, support, and, ultimately, voice, is threatened.

Teachers' social networks affect their ability to navigate the micropolitics of school in order to gain access to materials, resources, and support. Yet, in examining the ways teacher's networks function, it is evident that varying forms of networks assist teachers' navigation of the school system in distinctive ways. For example, research on science teachers' networks has shown that access to materials is a primary concern for teachers; without particular materials, they are simply unable to teach their lessons. Yet, materials are not something that teachers can make themselves. They are often objects or resources that exist outside of school, and can cost a significant amount of money. Science teachers, therefore, must frequently look beyond their own school for resources in order to teach well.

In a study on science teacher leadership, Spillane, Diamond, Walker, Halverson, and Jita (2001) described the importance of external networks for teacher development. Teachers that were able to reach outside of their school spheres for resources or information were more likely to become school leaders because they brought innovation to the school. Similarly, in the LINKS-Ed study, access to materials was of central concern to teachers (Baker-Doyle, 2013). Teachers identified a university partner as an outsider that could work within the system to meet their needs. Moreover, teachers that included this university partner in their support networks had higher overall self-efficacy and competency ratings than teachers that did not (Baker-Doyle, Bender, & Marsch, 2011).

The DPA model explains the teachers' successful use of the outsider as a tool to help navigate the system for resources and funds. DPA networks are weak ties of diverse outsiders that can bring innovation or new ideas. In both study cases, the external networks brought new resources and ideas, unavailable at the school. Although the ties between the individuals were frequently not close, they nevertheless facilitated the exchange of social capital (in this case, innovative materials and ideas).

However, internal networks are, in many cases, even more important in shaping teachers' ability to navigate the micropolitics of their schools. Teachers must use the internal networks that they build to gain favor, support, and learn the unwritten rules of the school in order to meet their needs (Anderson, 2010; Moolenaar, 2010). First-year teachers enter their schools with the smallest support networks and the least amount of power among their professional school community because they enter with little to no social ties or standing. Thus, in studying the establishment of teacher networks in the first year, we can see the development of networks and the subsequent shifts in micropolitical power. Such was the case in the

first-year teacher study, most clearly in the example of Maria, a high school teacher.

Maria gained tremendous power in her school over her first year, ultimately making decisions for the principal and even disciplining him for mistakes or lack of attention to issues. Her atypical power in the school was matched by her unusually high IPN. Compared to the 24 teachers surveyed for the study, Maria had one of the highest numbers of close, in-school professional colleagues. Further, she constantly collaborated with most of these colleagues and took on leadership roles in the school, which served to connect her with nearly every faculty member in the school. She described her experience with school colleagues as familial and empowering, in contrast with another first-year teacher at the same school, Michael, who had a smaller IPN and felt both isolated and disempowered.

Maria's experience represents the function of the IPN, which is to help teachers socialize, negotiate for power in schools, and gain a sense of trust and comfort in their communities. When compared to the DPA, IPN is the polar opposite; it suggests close relationships, internal networks, and the development of trust. Yet, this type of network facilitates the flow and exchange of power, a key aspect of the navigation of micropolitics. Therefore, both DPAs and IPNs mediate teachers' politicking, in dissimilar, but significant ways.

TEACHER DECISION MAKING

Just as the micropolitics of schools are complex and multilayered, so are the types of decisions that teachers must make on a daily basis. In addition to making minute-by-minute instructional decisions, teachers must understand their curriculum from a broader perspective and be able to select the best elements to teach based on the needs of their students and the school or district standards. Further, they must make decisions about the lives of their students from a social perspective, and use their knowledge about students to inform their teaching.

Teachers use their social networks to help them reflect upon, interpret, and develop their curricula and teaching practices (Attebery & Bryk, 2010; Coburn, 2005; Cole & Wienbaum, 2010). Conversely, social networks can change based upon the type of curricula that teachers use (Baker-Doyle & Yoon, 2010; Coburn, Choi, & Mata, 2010). A good example of the

interactive relationship between social networks and curricular decision making is described in the LINKS-Ed study. In this study, teachers were asked to use a new science curriculum that introduced the concept of inquiry and hands-on science. Teachers' decisions about how to implement their curricula were usually guided by collective decision making with colleagues that were also using the program. In one school, when teachers felt they didn't have the right materials for the program, all the teachers decided to teach writing instead of science. In another school, teachers that faced a similar problem decided to modify their curricula materials slightly and use a different module that did not require as many outside materials.

Similarly, Coburn's (2001) research on reading programs showed that social networks mediated teachers' understanding of their curriculum. Further, Moolenaar, Daly, and Sleegers' (2011) research on trust and teacher networks found that teachers in denser networks had more success in developing their curricula collectively due to increased levels of trust. In all of these examples, teachers' IPNs (dense, school-based, and peer-to-peer networks) were important factors in helping teachers to understand and implement their curriculum.

The previous examples focused on primarily peer-to-peer networks in schools and showed the dynamic relationship between such networks and instructional decision making. However, DPA networks involving students, parents, and community members can also have a significant impact on teacher decision making. The first-year study offers two important examples: one, of Susan, who became more innovative in her curriculum development through work with parents and community members, and second, of Steven, whose approach to teaching became more student centered as a result of his outreach to families.

In Susan's case, she collaborated with an outside organization that taught students to sing as in a professional choir. The members of the organization organized concerts for the students and their parents, and helped students to write their own songs for their performances. Through this collaboration, Susan's views of her students changed from primarily a deficit perspective to one in which she valued the range of talents and interests they brought to the classroom. As a result, her teaching changed. She created a new interdisciplinary curriculum that incorporated students' interests, feelings, and needs. The level of higher-order thinking in the classroom increased and the disciplinary issues became almost nonexistent. Beyond this, other teachers in the building that were previously nonsupportive became interested in what Susan was doing became more open to collaboration. Thus, Susan's work with the outside organization and her

students became an impetus to change her views about her students and her teaching, and eventually changed others' views as well.

Steven similarly initiated change through outreach. Steven worked with another teacher to contact all of his students' families as a means to improve classroom management. Through his phone calls and meetings, Steven developed a different perspective of the students, and of the way in which he was teaching. He began to question his method of moving on to keep pace with the curriculum. Instead, he began to feel more obliged to make sure his students understood the subjects before he moved on. Whereas Susan's work led to greater innovation with the curriculum, Steven's outreach led to a greater sense of connection with his students when making instructional decisions.

For Susan and Steven, their DPAs became a source of inspiration to change the way they were thinking about their curriculum. The students, parents, and community members forced Susan and Steven to step outside of the redundant dialog that existed between them and their colleagues. For example, Susan's colleagues would often point out children in her room that they knew had been having trouble in school for years as "lost causes." Wanting to fit in, Susan took up this mantra as well, until it was interrupted by outside forces. Therefore, their stories show not only how networks can work to help teachers make innovative or student-centered decisions, but also the importance of outsiders, especially students and parents, in teachers' decision making.

FROM TEACHER PRACTICES TO TEACHER QUALITY

It is clear from the above studies that social networks have a significant impact on teacher practices, specifically in decision making and their ability to navigate the micropolitical environment for resources and support. Nonetheless, social aspects of teacher practices are often left out of the definition of teacher quality because they are too challenging to consistently measure, or they are instead used as outcome measurements (Rockoff, 2004). Characteristics such as teacher experience, teacher preparation programs and degrees, type of teacher certification, and teachers' own test scores are instead used as a measure of teacher quality. Results have been inconsistent in such studies, especially around effects of teacher preparation on student achievement (Rice, 2003). In addition, in limiting the measure

of teacher quality to human and cultural capital, we restrict findings to individual, labor market perspectives, and thus, constrain our ability to measure the impact of teachers' social capital on teaching (Baker-Doyle, 2010).

Thus far, I have focused primarily on teacher practices as a way to demonstrate the role of social capital in teachers' work. However, social networks have a wider reach than just inside the classroom. Researchers have also found that social networks influence where teachers choose to teach, which can in turn affect teacher quality outcomes (Boyd et al., 2003). For example, Figlio (1997) found that teachers from more selective educational institutions tend to choose to work in districts with higher salaries, which can confound measures of teacher quality if we are looking simply at connections between human capital and student achievement (which is typically better in high salary districts). Looking at Figlio's findings from a social network perspective, we might instead look not only at the individual characteristics, but also who the individuals are connected with (and their characteristics), before and after entering the workplace.

Hence, the concept of teacher quality should certainly include measures of human and cultural capital, such as prior experience and training, but I contend that social capital is an equally significant aspect of teacher quality. Further, social capital is the only measure that expands our views of teaching beyond the static, individually held characteristics of training and student outcomes. It pushes researchers to enter the complex environment of the school and take into account the ways social dynamics can impact outcomes. This perspective helps us to understand that some aspects of teacher quality do not simply exist within the individual teacher, but between teachers and within the school community.

RESEARCH IMPLICATIONS

Thirty years ago, teacher practices were thought of as a "black box," too complex and illogical to make sense of, and therefore left out of most large-scale research, which instead concentrated on the more logical bureaucratic workings of the administration (Bidwell, 2001; Rowan, 1990). Over the years, as teachers gained more control over aspects of their professional development, researchers became more interested in understanding how teachers make decisions and what happens inside the classroom (Ingersoll, 2003). As a result, we learned that there is logic to the decisions that

teachers make and the way classrooms are run, and it's just very complex and socially mediated (Camburn, Rowan, & Taylor, 2003; Rowan, 1990). Thus, this opened the door for research on teachers' practices and ultimately changed a lot of the ways in which we understand and do professional development. Professional development now includes mentoring, collaboration, formal teacher networks, teacher research, and a plethora of activities centered on teacher inquiry and collaboration (Lieberman & Miller, 1999).

Similar to the situation 30 years ago, our constructs of teacher quality are generally limited to measurable individual characteristics because of the looming complexity of the school environment. Yet, to deny the role that a school environment and its social networks play in a teachers' life excludes a major aspect of teacher quality and limits our ability to develop new approaches to improving teacher quality. Social network research can be an important tool in revealing the social mechanisms that shape teacher quality. It offers a structured approach to gathering and analyzing data, and a rich knowledge base by which to understand and contrast findings. As such, a primary implication of this chapter is that the social network perspective should be incorporated into our research and analysis of teacher quality.

Early research on teachers' social networks has provided some lessons about how to construct valid research designs that offer rich data findings. Three key elements should be considered for large-scale research on teacher quality: level of analysis, network boundaries, and methodology. Level of analysis relates to the perspective from which the data is reported. Scholars can examine ego-centric networks, asking individuals to report on their own networks, including the relationships between the people in their networks in order to construct a picture of that particular individual's network. Alternatively, scholars can examine whole networks, in which they ask individuals to report their networks, usually from a set list of people in a bounded community, and construct a picture of the entire community's network from this information. For large-scale research, whole-network data may be more feasible and reliable to gather than ego-centric data (Avila de Lima, 2010).

Another issue that large-scale researchers need to consider is that of the network boundary. An advantage of the social network approach is that the data can reveal networks and exchanges that go beyond or outside of formal hierarchies. Thus, researchers do not need to stay within the boundaries of peer-to-peer or even faculty-staff networks, although, the majority of existing studies do focus on networks inside the school or between

school faculties (e.g., Coburn, 2001; Daly, Moolenaar, Bolivar, & Burke, 2010; Penuel et al., 2009; Spillane, Halverson, & Diamond, 2004). Research that includes students, parents, and community members in addition to teachers and administrators may be a valuable addition to our understanding of in influence of such networks on teacher quality.

Finally, social network research on teachers has primarily been conducted using quantitative methods to date. Such research has yielded important information on networking trends and characteristics. However, there are some challenges to the single-method approach. First, sometimes the data is difficult to explain, as was the case for Spillane, Healy, and Kim (2010) in their research on teacher leadership. When they discovered some inconsistencies in the quantitative data, it was difficult to infer what caused the mismatches. In conclusion, they wrote,

> Whereas basic network measures offer insights into relations between formal and informal sources of leadership and management in school, in order to realize their full potential we will have to combine these measures in various ways (p. 154).

Therefore, the validity of social network can be increased through combining quantitative and qualitative approaches, as well as additional data sources.

Social network research can help to triangulate and explain data, and would add a valuable lens to current approaches to researching teacher quality. Studies of teacher quality that consider all three neo-capital forms, human, cultural, and social capitals can effectively provide valid, multilevel analyses, if constructed in such a way that accounts for the inner complexity of schools and the relationship between schools and communities.

CONCLUSION

In this chapter, I argued that teacher quality should be conceived of as a contextual, socially mediated and distributed concept. I used the lens of social network theory to explain how social networks shape teacher practices, and thus, how social networks are integral parts of teachers' work. I also discussed why teacher practices have been historically excluded in our definition of teacher quality, due to their perceived immensurability. I suggested that social network research might offer a way to effectively study teacher practices as part of teacher quality, and identified several research approaches to consider within the social network perspective.

In shifting our understanding of teacher quality from an individual to a socially mediated construct, we change the dialog around teachers and teaching. In the media and in Washington DC, teachers are individually blamed for school failures. New policies are enacted to punish or reward teachers based on their individual accomplishments – student test scores, even though the validity of using such measures to rate teacher quality has been highly controversial (Braun, 2005; Kupermintz, 2003; McCaffrey, Lockwood, Koretz, & Hamilton, 2003). When we acknowledge how the school environment impacts teacher quality, we cannot justify exclusively blaming individuals. Instead, it forces us to reconceptualize how we can improve teacher quality. For example, if we can work to create contexts where teachers are empowered to be expansive in the way they think about networks and understand how they can be strategic in developing networks, we can shape their capacities as decision makers and practitioners. Building trust, community, and collaboration in a school are all well acknowledged ways to make schools successful, yet we must also consider that these factors are also key aspects of teacher quality. Thus, I contend that a major aspect of improving teacher quality must be to support schools in building positive school cultures centered on collaboration with all members of the community.

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