Ties with potential: nature, antecedents, and consequences of social networks in school teams

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INTRODUCTION

Around the globe, educational researchers, practitioners, and policy-makers are showing interest in the potential of relationships among educators to foster systemic improvement in instructional quality and student achievement. Research suggests that relationships among teachers are important in building strong school communities (Penuel, Riel, Krause, & Frank, 2009), and that strong teacher networks can enhance teacher commitment and give teachers a sense of belonging and efficacy (Grodsky & Gamoran, 2003). Moreover, recent studies indicate that strong social relationships in and among schools play a crucial role in policy implementation and instructional change (Coburn & Russell, 2008; Daly & Finnigan, 2009; Veugelers & Zijlstra, 2002).

The urge to capitalize on teacher relationships is reflected by a growing number of concepts that focus on teacher interaction in support of teachers' professional development and school improvement, such as community of practice, organizational (shared, collaborative) learning, professional (learning) community, and teachers' social networks (Coburn & Stein, 2006; Lee & Smith, 1996; Louis, Marks, & Kruse, 1996; Louis & Marks, 1998; McLaughlin & Talbert, 2001; Newmann, King, & Youngs, 2000; Smylie & Hart, 1999; Wenger, 1998). These concepts share an underlying assumption that teachers’ relationships are important as they provide access to information, knowledge and expertise (Frank, Zhao, & Borman, 2004; Hansen, 1999; Reagans & McEvily, 2003), facilitate joint problem solving (Uzzi, 1997) and shape an environment of trust (Bryk & Schneider, 2002).

Despite the rising popularity of these concepts in educational policy, practice, and research, yet, studies on the nature and structure of social relationships among teachers are scarce. Our understanding of how teachers' relationships achieve the assumed beneficial outcomes is limited. Moreover, current research has not yet provided insights in antecedents that shape social relationships within social networks, as well as mechanisms through which teacher relationships may influence valuable school outcomes. This dissertation addresses these important issues by examining the nature, antecedents, and consequences of social networks in school teams.

Ties with Potential

The fundamental notion underlying this dissertation is that relationships among teachers, as captured by teachers’ social networks, can provide individuals and groups with resources that may be utilized to accomplish individual and organizational goals. This notion represents the main
propoition of social capital theory. Social capital theory, briefly, postulates that social capital is generated through social relationships. The social relationships among teachers can thus be understood as ‘ties with potential’. Drawing on social capital theory, this dissertation describes eight studies that each offer a different perspective on the role that teacher networks may play in achieving their school’s potential.

The main aim of this dissertation is to empirically explore the nature and potential antecedents and consequences of teachers’ social networks. Results of the studies are expected to provide deepened understanding of the pattern of social relationships in elementary school teams and the elements that shape, and result from, these relationships that may eventually influence school outcomes. Increased knowledge on teachers’ social networks may offer valuable insights for a broad audience, including teachers, educational leaders, and policy-makers. In addition to contributing to educational practice and policy, this dissertation aims to add to the development of social network theory as an autonomous area of interdisciplinary research into relationships among individuals, groups, and systems.

Given the relative infancy of research on social networks in education, there are few substantial findings that provide evidence of a comprehensive theoretical framework to examine teachers’ networks. To provide the conceptual background of this dissertation, the next section will start with a review of social capital theory and social network theory. After reviewing the relevant literature, we will describe the eight studies designed to assess the nature, antecedents, and consequences of social networks in school teams.

THEORETICAL FRAMEWORK

Social capital theory
The rise of interest in social capital as a mechanism for understanding sociological and socioeconomic phenomena is one of the most striking developments in social science over the last decade. The popularity of social capital has resulted in a myriad of definitions of social capital, each highlighting other facets and offering a nuanced interpretation of the concept. The fundamental notion of social capital is that social relationships provide access to resources that can be exchanged, borrowed and leveraged to facilitate achieving goals. Commonly cited definitions of social capital (see Table 1) share a focus on some form of social structure, network, or pattern of relationships that plays a role the exchange of resources and the facilitation of collective purposive action.
Social capital belongs to the family of “intangible assets” that can be accrued and leveraged by individuals, groups, or systems, similar to human capital and intellectual capital. While each of the definitions places an emphasis on slightly different elements in social capital, they all focus on the potential of relationships (‘ties’) to exchange resources. Comparable to financial, human or intellectual capital, in which money, manpower, or intellectual resources are the valuable assets, social capital reflects valuable sources that exist in social relationships among linked individuals.

Social capital in education. In the last decade, Dika and Singh (2002) notice a sharp increase of the visibility of social capital in educational research. This research is mainly focused on students’ social capital as a means to explain differences in educational achievement, educational attainment, high school completion and psychosocial factors related to education like aspirations (Stanton-Salazar & Dornbusch, 1995) and expectations of parents (Muller & Ellison, 2001). Indicators of a students’ social capital range from family structure and number of close friends to extracurricular involvement. In an influential study, Coleman and Hoffer (1987) associated significantly lower dropout rates in Catholic schools compared to public education with social capital in the schools’ community and the students’ families. Remarkably, educational research has paid little attention to social capital from other resources than family and close friends of students. The social capital that resides in the school organization is mostly overlooked as a source of beneficial outcomes for schools, teachers, and students. By studying the consequences of teachers’ social networks, this dissertation aims to attend to this largely untouched area of study.

Social capital of organizations. The idea that social capital of the school as an organization may contribute to outcomes at the school, teacher, and student level has been suggested in the literature. Several studies have shown relationships between (aspects of) social capital and organizational functioning. For example, tight and stable networks of communication have proven to contribute to the functioning of organizations (Katzenbach & Smith, 1993a; Lawler, 1992). Organizations with dense informal network structures within and between organizational units generally achieve higher levels of performance than those with sparse connections (Reagans & Zuckerman, 2001). However, those same densely connected networks may also inhibit performance due to the stability of ties which may limit the introduction of novel information (Szulanski, 1996), reduce flexible organizational response, and primarily move redundant information (Hannan & Freeman, 1984; Burt,
Table 1. Leading definitions of social capital

Social capital is ‘the aggregate of the actual or potential resources which are linked to possession of a durable network of more or less institutionalized relationships of mutual acquaintance and recognition’

(Bourdieu, 1986, p. 249)

‘Social capital is defined by its function. It is not a single entity, but a variety of different entities, having two characteristics in common: they all consist of some aspect of a social structure, and they facilitate certain actions of individuals who are within the structure’

(Coleman, 1990, p. 302)

‘Whereas physical capital refers to physical objects and human capital refers to the properties of individuals, social capital refers to connections among individuals – social networks and the norms of reciprocity and trustworthiness that arise from them’

(Putnam, 2000, p. 19)

Social capital comprises ‘the resources embedded in social relations and social structure which can be mobilized when an actor wishes to increase the likelihood of success in purposive action’

(Lin, 2001, p. 24)

Social capital refers to ‘features of social organization - such as networks […], high levels of interpersonal trust and norms of mutual aid and reciprocity - which act as resources for individuals and facilitate collective action’

(Lochner, Kawachi & Kennedy, 1999, p. 260)
1992). Many scholars have identified dense social capital as a critical source of organizational advantage (e.g., Adler & Kwon, 2002; Leana & Van Buren, 1999; Nahapiet & Ghoshal, 1998; Walker, Kogut, & Shah, 1997). Empirical analysis suggests that social capital, in the form of social interaction and trust, can add significantly to a firm’s value creation through innovation (Tsai & Ghoshal, 1998). However, this suggestion has not yet been validated in an educational context. Knowledge on how schools’ social capital may contribute to organizational improvement and, ultimately, student achievement, is scarce, and, given increasing pressure for educational performance, critical.

Social network theory
A valuable starting point for understanding how social capital is generated through the configuration of social ties is social network theory. Social network theory and social capital theory are related streams of theory, as both theories assert that social structure may offer potential for the exchange of resources. Social capital theory is often used as a lens to frame social network studies (e.g., Coburn & Russell, 2008; Daly et al., in press; Penuel et al., 2009) that primarily focus on how the constellation of relationships in social networks may facilitate or constrain the flow of resources through the network in support of gaining access to, and leveraging, social resources (Degenne & Forsé, 1999). While notions about human agency in obtaining social resources were predominantly discussed within social capital literature, social network studies are also starting to incorporate a human agency perspective (Borgatti & Foster, 2003). With social capital as an effective lens to describe the potential of ties for acquiring resources, social network theory can provide insights in the mechanisms that are responsible for social capital outcomes (Burt, 2000).

The most distinguishing feature of social network theory is its two-fold focus on both the individual actors and the social relationships connecting them (Wasserman & Galaskiewicz, 1994). Social network theory regards social structure as a network of relationships that poses constraints and opportunities for the actors in the network (Degenne & Forsé, 1999). According to early social network theorists, many of the important social phenomena can be explained primarily, if not completely, by social structure (Berkowitz, 1982; Burt 1982; Wellman, 1983).

Central to the idea of social structure is the notion of social embeddedness (Granovetter, 1985; Gulati, 1998; Jones, Hesterly, & Borgatti 1997; Uzzi, 1996, 1997). Social embeddedness refers to the hierarchical, or nested, nature of a social structure. In a social network, individuals are embedded within dyadic relationships, and dyadic relationships are embedded
in larger sub-groups of three, four, or more actors that eventually shape a social network. Even a social network itself is embedded in a larger social structure, for instance an organization, a community, or a country. Social embeddedness also implies that changes at a single level (e.g., the dyadic level) will have consequences for a higher-order level (e.g., the whole network) and vice versa. As such, the significance of a dyadic relation extends beyond the two actors (Burt, 2000; Degenne & Forsé, 1999).

At least three assumptions underlie social network theory and the resulting social network research (Degenne & Forsé, 1999). First, actors in a social network are assumed to be interdependent rather than independent (Degenne & Forsé, 1999; Wasserman & Faust, 1997). Second, relationships are regarded as conduits for the exchange or flow of resources such as information, knowledge, and materials (Burt, 1982; Kilduff & Tsai, 2003; Powell, Koput, & Smith-Doerr, 1996). Third, patterns of relationships, captured by social networks, may act as ‘constraints’ and offer opportunities for individual action (Brass & Burkhardt, 1993; Burt, 1982; Gulati, 1995a).

Social network theory takes shape in a variety of mechanisms that may explain the flow of resources in a network. Leading examples of network mechanisms are homophily and the related concept of structural balance (Davis, 1963; Festinger, 1954; Heider, 1958; Sherif, 1958), the strength of weak ties (Granovetter, 1973, 1982), and structural holes (Burt, 1980, 1992, 2000). While each mechanism highlights a distinctive facet of the interplay of individuals and their ‘ties’, together they offer a nuanced understanding of social structure and its implications for individual behavior, opinions, and preferences. We will now briefly review each of the four mechanisms mentioned above, as they exemplify the diversity as well as the common ground underlying social network theory and research.

**Homophily.** Homophily, colloquially described as ‘birds of a feather flock together,’ is a well-established sociological principle that proposes that individuals with similar attributes tend to form ties over time at higher rates than dissimilar individuals (Kossinets & Watts, 2006; McPherson, Smith-Lovin & Cook, 2001). Studies of homophily suggest that resources flowing through a network tend to be localized around a specific attribute such as age, gender, or education level (Ibarra, 1995; Marsden, 1988; McPherson & Smith-Lovin, 1987). Therefore, the more similar individuals are on a specific attribute, including position in a network structure, the more quickly resources will flow among these individuals. The converse is also true in that individuals who are ‘distant’ (different) on a specific attribute are also more ‘distant’ in the network. The principle of homophily shapes individuals’ networks into relatively
homogeneous networks in regard to many intrapersonal and sociodemographic characteristics (McPherson, Smith-Lovin, & Cook, 2001). Network homophily may negatively affect individuals’ social networks by limit individuals’ access to new resources through weak and non-redundant ties (Granovetter, 1973).

**Structural balance.** Research on the emergence of networks over time, mostly outside of education, suggests that relationships and subsequently network structures tend toward structural balance (Heider, 1958). The concept of structural balance rests on the assertion that ties are formed, maintained, or terminated in order to reduce psychological discomfort arising from cognitive dissonance. Individuals are more likely to create new strong direct ties with friends of friends and discontinue weaker relations with friends of enemies and enemies of friends (Wasserman & Faust, 1997). The concept of structural balance has been used in describing intra- and interorganizational structure (Davis, 1963; Larson, 1992) and suggests that cliques will emerge as a consequence of preference for balance of strong positive relationships. These cliques are suggested to stabilize the network despite fluctuations over the entire network (Kossinets & Watts, 2006). However, when relationships are weak or negative, then the pressure towards balance is less powerful or absent, which explaining why weak ties are more likely to serve as bridges that can serve so-called structural holes (Kilduff & Tsai, 2003).

**The strength of weak ties.** Relationships can vary in the strength with which individuals are connected. Ties can be classified as strong or weak depending on the frequency and duration of interactions, as well as the emotional intensity associated with the interaction (Granovetter, 1973). Strong ties, such as friendship relationships, are suggested to be important in times of uncertainty and change (Krackhardt, 1992), and the pattern of friendship ties in an organization may be critical to its ability to deal with crisis situations (Krackhardt & Stern, 1988). Research suggests that being involved in many weak ties can be valuable for seeking information and innovation because of the diversity of connections, whereas dense networks often exist of many redundant relationships with overlapping knowledge and information (Granovetter, 1982, 1985). Moreover, Hansen (1999) found that weak ties between teams were favorable for transferring simple, procedural knowledge, whereas strong ties worked best for the exchange of more complex knowledge.

**Structural holes.** Structural holes are holes in social structure that result from weaker (or absent) connections between individuals or groups in a social structure. Research into structural holes focuses on the importance of individuals that ‘bridge’ or ‘broker’ between individuals or groups that are themselves sparsely or weakly connected. Structural holes can be regarded as
buffers between two groups of people, that each have their own flow of resources (Burt, 2000). Individuals that span structural holes in a network occupy a position that may benefit them in terms of information access and information diversity (Burt, 1992; Thornton, 1999). While moving new resources, these brokers may also filter, distort, or hoard those resources which inhibits overall organizational performance (Baker & Iyer, 1992; Burt, 1992). Also, occupying such a position offers social control over projects that bring together people from both sides of the hole (Burt, 2000). In general, the greater the density, or cohesion, of a network, the fewer structural holes exist in the network. In contrast, sparse networks must, by implication, rely on a few members to act as brokers between disconnected parts of a network. According to Burt (2000), both structural holes and dense networks are important network configurations that affect the distribution of social capital. In sum, the above described concepts are key to describing how social networks move resources in a variety of contexts.

Towards a nomological network of social networks in school teams
The study of social networks in education is receiving increased attention. Studies has been conducted in a range of contexts, including school and teacher networks (Bakkenes, De Brabander & Imants, 1999; Coburn & Russell, 2008; Daly, Moolenaar, Bolivar, & Burke, in press; Lima, 2007, 2009; Moolenaar, Daly, & Sleegers, in press; Moolenaar, Karsten, Sleegers, & Zijlstra, 2009; Penuel, Frank & Krause, 2007b; Penuel & Riel, 2007; Penuel, et al., 2009); leadership networks and departmental structures (Friedkin & Slater, 1994; Lima, 2003, 2004; Spillane, 2006); school-parent networks (Horvat, Weiningher, & Laureau., 2003); between school networks (Lieberman, 2000; Mullen & Kochan, 2000; Veugelers & Zijlstra, 2002); and student networks (Baerveldt et al., 2004; Lubbers et al., 2006). The gap in the contemporary literature discourse on teachers’ social networks is the paucity of large-scale empirical investigation into the nomological network of teachers’ social networks. A nomological network represents a set of concepts of interest, their observable manifestations, and the interrelationships among and between these (Cronbach & Meehl, 1955). They argue that:

“Learning more about” a theoretical construct is a matter of elaborating the nomological network in which it occurs, or of increasing the definiteness of the components. At least in the early history of a construct the network will be limited, and the construct will as yet have few connections.

(Cronbach & Meehl, 1955, p. 290)
As is the case in many developing concepts and theories, the need to increase our understanding of social networks is accompanied by an urgency to develop a nomological network that includes empirical evidence of the concepts of interest surrounding the focal concept, observable manifestations, and the interrelationships among and between these concepts. This urgency is reflected in an often voiced critique on social network research, namely that social network research is focused too much on techniques and statistical models and not enough on the ways in which social network structure relates to ‘any larger substantive part of social life’ (Granovetter, 1979, p. 507-508). This dissertation aims to contribute to an exploration of possible elements of an explanatory nomological network of social networks in school teams. This dissertation is structured around three elements of such a nomological network, namely the nature, antecedents, and consequences of social networks. Figure 2 provides a graphical overview of these three elements and the variables that are chosen as manifestations of these elements in relation to teachers’ social networks.

The nature of social networks
While practical and scholarly interest in educational social networks is growing rapidly, knowledge on the actual nature of teachers’ social networks in practice is still scarce. Therefore, this dissertation starts with an extensive exploration of the nature of teachers’ social networks in the participating Dutch sample schools.

Network content. Social networks can be characterized by the content that is exchanged within the social relationships (Scott, 2000). The study described in Chapter 1 explores the nature of teachers’ social networks by examining how network content shapes social network structure in elementary school teams. This study focuses on a phenomenon called ‘network multiplexity’. Network multiplexity refers to the extent to which a link between two individuals serves more than a single purpose. In short, multiplexity is concerned with the ‘overlap’ or similarity between social networks that transfer different content among the same individuals. In order to understand how teacher networks are shaped by their content, different networks (e.g., friendship, advice, and collaboration networks) are compared and contrasted. By discerning underlying dimensions that may explain the observed similarities among the networks, we work towards a typology of social networks in school teams.
Figure 1. Main elements of this dissertation: antecedents, nature, and consequences of social networks in school teams

- **Antecedents**
  - Principals
    - Transformational Leadership
  - School teams
    - Organizational Citizenship Behavior

- **Nature**
  - Social networks
    - School characteristics
      - (E.g., density, reciprocity, centralization)
    - Dyadic characteristics
      - (E.g., attribute similarity)
    - Individual characteristics
      - (E.g., number of relationships, centrality)

- **Consequences**
  - School teams
    - Trust
  - Students
    - Innovative Climate
    - Cognitive Achievement

Individual and organizational demographics
**School team demographics.** Social network studies suggest that social relationships are at least partly shaped by demographics of individuals and their network (Heyl, 1996; Lazega & Van Duijn, 1997; Veenstra et al., 2007; Zijlstra, Veenstra, & Van Duijn, 2008). This assumption is only scarcely addressed by empirical studies, especially in the context of education (Borgatti & Foster, 2003). The study in Chapter 2 therefore examines the influence of school team demographics on social relationships. In particular, we aim to predict the probability of social relationships from individual and school level demographic characteristics such as teachers’ gender, age, individual experience, school and team size, team composition and team experience, and students’ socio-economic status. This analysis was conducted to discover potential tendencies around, for example, structural balance and homophily.

Antecedents of social networks
An important underlying assumption of social network research is that individuals’ actions and behaviors may affect the shape and size of their social network (Degenne & Forsé, 1999; Leydesdorff, 1991). This assumption, however, has been scarcely addressed by empirical work (Borgatti & Foster, 2003). Insights into the antecedents of social relationships would contribute to the construction of a nomological network. In search of such behavioral antecedents, two studies were conducted. The first study examined teacher behavior as antecedent of teacher relationships, whereas the second study focused on transformational leadership behavior as an antecedent of the principal’s social network position.

**Organizational citizenship behavior.** A form of individual behavior that is often associated with social structure is organizational citizenship behavior (Bolino, Turnley, & Bloodgood, 2002; Bowler & Brass, 2006; Leider, Möbius, Rosenblat, & Do, 2009; Putnam, 2000). In Chapter 3, helping behavior, as a specific form of organizational citizenship behavior, is introduced as a potential antecedent that may shape social relationships among educators. This chapter addresses the question whether the probability of having relationships is dependent on the amount of helping behavior as reported by educators. In addition, the study examined whether helping behavior shaped work related networks and friendship networks in a different way.

**Transformational leadership behavior.** Previous network studies in education suggest that leadership behavior may play a vital role in developing and nurturing schools’ social capital (Friedkin & Slater, 1994, Hallinger & Heck, 1998). Recent educational studies suggest that having access to leaders who possess expertise may significantly affect teachers’ use of innovation (Penuel et
al., 2007a; Penuel et al., 2007b). However, there remains an empirical gap in the leadership literature in regard to the social network position of formal leaders (Daly & Finnigan, 2009). In specific, limited empirical evidence exists on the extent to which leader behavior can shape organizational outcomes through occupying a certain structural position. Therefore, the study described in Chapter 4 examines the extent to which transformational school leadership behavior predicts a principal’s position in his/her school’s social network. Moreover, the study investigates whether ‘occupying the principal position’ can serve as a mechanism that mediates between transformational leadership and schools’ innovative climate. As such, this study offers a distinctive contribution to this dissertation and the study of school teams’ social networks by investigating both an antecedent (leadership behavior) and consequence (a school’s innovative climate) of occupying the principal position in a school team’s social network.

Consequences of social networks
An equally significant underlying assumption of social network research is that social structure may affect individuals’ preferences and actions, as well as organizational outcomes. In the context of social networks among educators, however, few studies have concentrated on collecting empirical evidence to investigate this assumption. Insights in possible consequences of teachers’ social networks would greatly add to the development of a nomological network. In search of consequences of social networks in schools, the studies in this dissertation investigate teacher trust, schools’ innovative climate, shared decision-making, cognitive student achievement, and the implementation of reform.

Teacher trust. Besides social networks, trust is often mentioned as an important facet of organizational social capital (Leana & Van Buren, 1999; Nahapiet & Ghoshal, 1998). While social networks and trust are the cornerstones on which social capital theory has been building, empirical research into the relationship between social networks and trust is surprisingly scarce. Therefore, Chapter 5 is dedicated to linking social networks and trust in the context of professional learning communities. The premise of the study is that social network characteristics of teachers and schools may contribute to trust among elementary school educators. Noteworthy is this study’s hierarchical approach to examining the relationship between trust and social networks at multiple levels of analysis. First, trust of individual school team members is predicted from individual social network characteristics, such as the number of relationships and individual-level reciprocity. Second, this
relationship is tested at the school level, predicting the amount of trust in a school team from characteristics of the team’s social network structure, such as density and reciprocity, above and beyond the effect of individual social network characteristics. As such, the study is, to my knowledge, the first one to investigate the additive effect of different levels of social network characteristics.

Schools’ innovative climate and shared decision-making. Recently, a developing set of educational studies associate social network structures with schools’ capacity to change (Coburn & Russell, 2008; Penuel et al., 2007b; Penuel & Riel, 2007). In literature outside education, the generation of new knowledge and practices is believed to be closely linked to social relationships (‘ties’) within and across systems (Ahuja, 2000; McGrath & Krackhardt, 2003; Tenkasi & Chesmore, 2003; Tsai & Ghoshal, 1998). The study described in Chapter 6 adds to the existing literature by exploring the extent to which a school’s innovative climate can be predicted from its social network structure. Moreover, the study examines the mediating role of shared decision-making in the relationship between teachers’ social networks and schools’ innovative climate. While scholars have suggested that social relationships are valuable in terms of joint problem solving and teacher involvement (Uzzi, 1997; Liden, Wayne & Sparrowe, 2000), evidence on the interplay between social network structure and shared decision-making is lacking. Therefore, this study scrutinizes both schools’ innovative climate and shared decision-making as potential consequences of social networks in schools.

Student achievement and teachers’ collective efficacy. A common outcome measure of social capital research in education is students’ cognitive achievement (Dika & Singh, 2002; Stanton-Salazar & Dornbusch, 1995). While studies have suggested that social capital of school teams and teacher networks have the potential to affect student achievement (Daly et al., in press; Daly & Finnigan, 2009; Penuel et al., 2007b), this suggestion has not yet been subject to empirical investigations. Since empirical evidence on the consequences of teachers’ social networks for student achievement is scarce, the next study in this dissertation is aimed at clarifying this relationship. Literature further suggests that the relationship between teacher networks and student achievement may be indirect, meaning that teacher networks may benefit teacher practice, which in turn will affect student achievement (Goddard, Goddard, & Tschannen-Moran, 2007). As a concept that may play such an intermediate role since it is linked to both teacher collaboration and student achievement (Ashton & Webb, 1986; Goddard, 2002), we introduce teachers’ collective efficacy. The study in Chapter 7 thus examines the effect of schools’
social network structure on school level student achievement, as mediated by teachers’ perceptions of collective efficacy.

Relationships in reform: A mixed-method U.S. example. The goal of the final study in this dissertation is to substantiate findings of the previous studies in a different context and through the use of additional methods. The study described in Chapter 8 offers an in-depth mixed-method investigation of teachers’ social networks in five Californian elementary schools, aimed at uncovering important social network characteristics that may facilitate or impede efforts at system-wide reform. Research on educational reform poses that changes in educational systems are often socially constructed (Datnow, Lasky, Stringfield, & Teddlie, 2006; Hubbard, Mehan, & Stein, 2006). The speed, direction, and depth of a planned change may thus be moderated, influenced, and even determined by the organizational interdependence that is reflected in teachers’ social networks (Krackhardt, 2001; Mohrman, Tenkasi & Mohrman, 2003). To date, there is little empirical understanding of how teachers’ social networks, in which district-wide change efforts take place, support or constrain reform efforts (Coburn & Russell, 2008). The study in this chapter examined the role of teachers’ social networks in the uptake of reform by employing a design that combined both quantitative and qualitative methods. This mixed method design provided the opportunity to gain deepened insights in how teachers’ networks take shape in a dynamic environment involved in systemic change. The triangulation of data, together with the different setting in which the study took place, offers a validation of findings of the earlier studies, and as such a rich extension to this dissertation.

Contribution
This dissertation contributes to educational policy, practice, and research by examining the nature, antecedents, and consequences of teachers’ social networks. In addition to the theoretical and practical relevance of this dissertation, its significance is underlined by the use of both ‘traditional’ statistical methods and specific, advanced techniques for the analysis of social network data. A diverse palette of research methods and an emphasis on a multilevel approach to studying social networks add further to the importance of this dissertation. By building a nomological network around teachers’ social networks in schools, this dissertation offers valuable insights for practitioners, educational leaders, policy makers, researchers, and all those who are interested in ‘ties with potential’ for school improvement.