Exploring the Impact of Social Networks on Teachers' Participation in Job-Embedded Professional Development

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ABSTRACT OF THE DISSERTATION

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In reviewing the literature on effective teacher development, there is a clear shift in focus. Instead of the traditional inservice workshops, professional development activities that are job-embedded and treat teachers as active, reflective participants have shown to be more effective in meeting teachers' needs and transforming their instructional beliefs and practices. However, few teachers participate in job-embedded professional development that meets all of those measures (Wei, Darling-Hammond, Andree, Richardson, & Orphanos, 2009). In fact, over 90% of the teachers surveyed reported that most of the PD in which they had participated consisted of short-term conferences and/or workshops (Wei et al., 2009).

This study used a long-term voluntary professional development program in one school to investigate how dimensions of teachers' social networks influenced their participation in professional development. Because of its tradition with job embedded professional development, the school provided the ideal setting to investigate these dimensions. Over the years, the number of teachers participating had grown and those who choose to participate changed from year to year.

Based on the survey results, when making decisions about participation in professional development, Collegiality, Time Constraints, and Personal Issues were found to be factors that differentiate participating teachers from non-participating teachers at the school. Using the Social Network data, teachers who decided to participate in the teacher study group were found

to have higher levels of connectedness and collegiality than teachers who chose not to participate. And regardless of their decision to participate, teachers interviewed reported the importance of collegial opportunities to share experiences for their own professional development.

With an understanding of social networks of their teachers, administrators can support the structures that foster relationships which build collegiality in their buildings. Higher levels of collegiality have shown to influence participation in professional development, instructional practices and beliefs (Dzubay, 2001; Bidwell & Yasumoto, 1999).

I dedicate this to my family who challenge me to be the best I can be

Melanie, Mark, and Grace

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I thank my family for their inspiration, encouragement and patience during these years. To my wife, Melanie, I thank you for all your support. Your love and dedication to our children made this work easier. To my children, Mark and Grace, I thank you for giving me the reasons for working hard and always doing my best. To my parents, I thank you for helping me understand at an early age how important an education is. To the rest of my family, I thank you for your love and support.

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CHAPTER I

INTRODUCTION

Professional development first became a major part of teacher development after the Depression Era (Clarke & Hollingsworth, 2002). *No Child Left Behind* legislation has clearly defined professional development activities as high quality, sustained, intensive, and classroom focused in order to have a positive and lasting impact on classroom instruction and the teacher's performance in the classroom (NCLB, 2001). Guskey (1986) also defines professional development as "a systematic attempt to bring about change – change in the classroom practices of teachers, change in their beliefs and attitudes, and change in the learning outcomes of students" (p. 5). Effective professional development will then ensure teachers' continued growth in the ability to teach children, shaping their beliefs and attitudes about learning, and effecting positive student outcomes (Guskey, 2002).

Chambers, Lam, and Mahitivanichcha (2008) found that the traditional types of professional development, those that are structured, take place outside of the classroom, and are not incorporated into the daily activities of teachers, are often ineffective for affording teachers new tools to implement practices that improve student learning. Because of the ineffectiveness of these traditional professional development efforts, the focus of research and programs have shifted from treating teachers as passive participants and the objects of change to teachers as "active learners shaping their professional growth through reflective participation in professional development programs and in practice" (Clarke & Hollingsworth, 2002, p. 948). Chambers et al. (2008) concluded that integrated types of professional development, including study groups, collaborative networks, mentoring, coaching, and individual learning activities allow for more sustained learning because they involve active participation on the part of the teacher. Moreover,

researchers and experts have suggested that these reform-type professional development experiences may be more effective in meeting teachers' needs and in transforming teachers and their instructional behaviors (Ball, 1996; Darling-Hammond, 1996).

Literature and research identify effective professional development characteristics that can be classified into three major categories: context characteristics, process variables, and content characteristics (Guskey & Sparks, 2002; National Staff Development Council, 2001; Elmore, 2002). There is no definitive list of characteristics for effective professional development. However, effective professional development involve teachers as learners and consider some of the following principles: (1) must consider adult learning theories; (2) must connect to the teachers' school settings and derive from their work with their students; (3) must be sustaining and ongoing with opportunities for inquiry, reflection and experimentation; (4) and must be collaborative, focused on instruction and on the collective practice of solving problems and analyzing instructional practices (Borko, 2004; Richardson, 2003; Desimone, Porter, Garet, Yoon, and Birman, 2002; Elmore, 2002; National Staff Development Council, 2001; King & Newmann, 2001; Loucks-Horsley, Stiles, & Hewson, 1996; Darling-Hammond & McLaughlin, 1995; Sparks, 1994). Professional development experiences with these principles have been shown to impact teacher growth in knowledge and skills along with change in teaching practice (Garet, Porter, Desimone, Birman, & Yoon, 2001). Still, few teachers participate in PD that meets all of those measures (Wei, Darling-Hammond, Andree, Richardson, & Orphanos, 2009). In fact, over 90% of the teachers surveyed reported that most of the PD in which they had participated consisted of short-term conferences and/or workshops (Wei et al., 2009).

Empirical research in the field of psychology provides strong evidence that individuals are different in their intentions, abilities, interests, and motivations to learn, and teachers are no

different. In fact, teacher intentions and motivations for learning vary between extremes. On one end, teachers participate in implicit learning without having any intentions or awareness of the learning. Also teachers learn as a result of reacting to something that happened unplanned or spontaneously. On the other end, numerous teachers participate in learning deliberately, exerting great efforts and setting aside the time (Van Eekelen, Vermint, & Boshuizen, 2006).

Teacher participation in professional development is motivated by many factors (Houle, 1961; Morstain & Smart, 1974; Johnston & Rivera, 1965; Darkenwald & Valentine, 1985; Scribner, 1999; Penner, 1999; Lohman, 2005; Marks & Wright, 2002). Research identifies both intrinsic and extrinsic factors as having an impact on teachers' decisions to engage in traditional professional development opportunities. Research has also shown that the social context can have a great influence on the behaviors of individuals. Thus, teachers' interactions with their social context will have some influence on their decisions to participate in professional development and ongoing renewal.

Using Social Capital Theory as a lens and Social Network Analysis as the methodological approach, this study investigated the relevant features of teachers' social relations that impact their motivational orientations toward job-embedded professional development. By conducting a social network analysis, a greater understanding of the information flow through the school can be established, as well as the role that different members play within the network to influence others.

This study uses a long-term voluntary professional development program in one school to investigate how dimensions of teachers' social networks influence their participation in professional development. The following three dimensions of social networks were examined: centrality, centralization and content of interactions. *Centralization and centrality* examine to

what extent teacher connections are concentrated around individuals (nodes). *Centrality*, an individual measure, refers to the specific positioning of nodes in a network to other nodes, and is most often used as a measure of social power. A person's position in a network affords him/her with certain opportunities and constraints. The relationship between the centralities of all the nodes can reveal much about the overall network structure. Related to centrality is the c*entralization* of the overall network. Like centrality, measures of *centralization* can be *degree-based*. Degree centralization measures the extent to which nodes in a network tend to center around those with many direct ties. The final feature is the *content of the interactions* that occur in these relationships. The interactions may result in pressures toward conformity and even downward leveling norms. Research provides evidence that teachers make decisions in conversations and interactions with their colleagues.

This study was guided by the following questions:

1. What relationship exists between teacher's motivational orientation and teacher decision to participate or not participate in job embedded professional development?
2. How does a teacher's level of collegiality, as measured by centrality (individual) measures, impact his/her decision to participate?
3. What relationship exists between centralization (network measures) and teacher decisions to participate or not participate in job embedded professional development?
4. To what extent and in what ways do teacher social networks influence a teacher's decision to participate in job embedded professional development?

CHAPTER II

REVIEW OF LITERATURE

This chapter reviews selected literature related to participation in job-embedded professional development. This review includes literature on effective professional development, theory on motivations, and social capital. A conceptual framework will be presented at the end of the chapter that will illustrate the variables for this study.

Effective Professional Development

Almost all of the literature criticizes the traditional paradigm of professional development which consists of "one-shot" programs that are often disconnected from teachers' daily work. Little (1993) suggested that this "one size fits all" approach does not consider the complexities of teacher work, nor does it foster the necessary motivation and commitment needed to learn and develop the effective new practices. Some suggest that a new perspective on professional development and teacher learning is needed (Darling-Hammond, 1998; Lieberman, 1995; Sparks, 1994).

Darling-Hammond and Ball (1999) explained that teacher education significantly influences teacher effectiveness. They offered the following premises pertaining to improving teacher learning opportunities: teachers' prior experiences and beliefs affect what they learn; learning to teach new standards is difficult and requires time; and opportunities for analysis and reflection are central to learning to teach. Furthermore, they suggested teacher learning should include integrating theory and practice, developing professional discourse around problems of practice, content-based professional development, and learning from practice. Standards-based reform, redesign of teacher education and induction, and restructured professional development are offered as promising strategies for improving teaching and teacher learning. The concept of

embedding professional development into a teachers' workday was explored by Wood and McQuarrie (1999). They defined job-embedded learning as a result of teachers sharing what they have learned from their teaching experiences, such as reflecting to uncover new understanding, and listening to colleagues share best practices they have discovered while trying out new programs, planning, and project implementation. Study groups, action research, and reflective logs are among the formal structures that have been created to promote job-embedded learning (Wood & McQuarrie, 1999).

Garet, Porter, Desimone, Birman, and Yoon (2001) suggested several ways for improving professional development, including sustained and intensive professional development focusing on an academic subject, giving teachers the opportunity to practice their learning within their own classrooms. Desimone, Porter, Garet, Yoon, and Birman (2002) examined the effects of professional development on teachers' instruction. They performed a wide-scale study of 207 teachers in 30 schools, in 10 districts, across five states. They designed "a series of studies that allowed them to examine the relationships between alternative features of professional development and change in teaching practice in a cross-sectional, national probability sample of teachers and a smaller, longitudinal sample of teachers" (Desimone et al., 2002, p. 3). In their study they hypothesized that six key structural features improved teaching practice. These structural features included: reform work type, such as a study group, mentor, committee, research project, course, or conference; duration of the activity, the number of contact hours; and the degree to which there is an emphasis on the collective participation of groups, such as grade level groups, participants from the same school or department. They considered the remaining three factors as characteristics of the activity such as the extent of active learning, the coherence of the activity, and the degree to which the activity had content focus.

Through surveys administered over three points in time (the fall of 1997, the spring of 1998, and the spring of 1999) they collected two-level data, a set of data as strategy and also teacher-activity levels. The analyses were conducted on the basis of data from three waves of Longitudinal Teacher Survey. They sought to explain teaching practice in year three based on the year two's professional development experiences, while controlling for teachers' classroom experiences in year one. They estimated the effects of professional development by using a hierarchical linear model. Separate analyses for each of the three areas studied (use of technology, higher order instruction, and alternative assessments) were conducted. They concluded that active learning, coherence, and content focused opportunities positively increased the effect of professional development on teachers' instruction. These authors suggested professional development could be a cornerstone of systemic school reform.

Adult Learning

Compared to children, adults have different needs and requirements as learners. In his theory of andragogy, Malcolm Knowles framed his critical assumptions about the characteristics of adult learners that distinguish them from children.

1. Adults develop a self-concept of self-directed in their learning;
2. Adults rely on a resource of experiences obtained as they mature;
3. Adults' readiness to learn depends on relevancy and need;
4. Adults' orientation to learn shifts from subject-centered to problem-centered with immediate application of their learning; and
5. Adults' motivation to learn becomes internal (Tennant, 1986).

Knowles emphasized that adults are self-directed and expected to take responsibility for their own learning. This notion of learning differs with pedagogy in which the teacher accepts

responsibility for the planning, instructing, and assessing of the learning. Though andragogy lacks sufficient empirical research, it has become an established doctrine in adult education (Jarvis, 1984). For this reason, Knowles' assumptions do provide a basic framework for the general disposition of the adult learner. Adults need to know why they need to learn something. Learning should be experiential and based on problem solving and allow for immediate application. The notion of self-directed identifies the adult as one who seeks to be life-long autonomous learner.

Pratt (1993), in his assessment of the impact of andragogy, weaves Knowles' assumptions into two implicit principles of learning. The first is that knowledge is not passively received by the individual from his environment, but instead actively constructed by him. Second, learning is a complex process of interpreting, integrating, and transforming the rich experiences he accumulates. According to Pratt (1993), these fundamental notions of the self-directed learner highlight a persistent "tension between freedom and authority, especially regarding the management and evaluation of learning" (p. 22). Andragogy heavily emphasizes autonomy and portrays the learner as the one in control in his pursuit of learning.

Sparks and Hirsh (2000) suggest a constructivist approach to professional development in order to promote teacher learning. Under constructivism, knowledge is constructed by the learner instead of merely receiving it from others. Because people have different experiences, each person constructs his or her own understanding. Boethel and Dimock (2000) outline six assumptions of the constructivists-learning theory:

1. Learning is an adaptive activity;
2. Learning is situated in the context where it occurs;
3. Knowledge is constructed by the learner;

4. Experience and prior understanding play a role in learning;
5. There is resistance to change; and
6. Social interaction plays a role in learning.

These basic tenets have been the focus in the instruction of children. However, these assumptions can also serve as a framework when looking at designing opportunities for teacher learning.

Learning should be experiential. Learning is an active process in which learners construct new ideas based upon prior knowledge and experience (Ball, 1996). Learning occurs by synthesizing new information into currently existing knowledge and adjusting prior understandings and beliefs to assimilate new experiences. Adults have a rich supply of experiences from which to draw. How successful a learner will be may depend upon how well the learner can integrate new knowledge into an existing schema and amend prior misconceptions.

Constructivism emphasizes learning over teaching, encourage learners to engage in peer dialogue, support collaborative learning while encouraging learner autonomy, emphasize the context in which learning occurs, and anchor learning to real-world, authentic tasks, so that it links to learner's prior experiences (Roseberry & Puttick, 1998; Ball, 1996). Through active participation, knowledge is acquired and constructed by the learner. Since knowledge is embedded in experience and personally constructed, instruction must situate learning in authentic, real-world contexts that involve collaboration and social interaction (Roseberry & Puttick, 1998). To be authentic, learning environments must have attributes of real-world problems. A constructivist approach will allow the self-directed learner to select individual learning goals, resources, activities, and motivation levels.

Teacher Collaboration

Researchers have presented varying definitions for collaboration, depending on their studies of collaboration. Friend and Cook (1990) defined collaboration as "a style for interaction between at least two co-equal parties voluntarily engaged in shared decision-making as they work toward a common goal" (p. 72). Friend & Cook (1990) outlined six concepts of collaboration. Collaboration

- requires a shared goal;
- is based on parity among participants;
- embraces shared participation in decision making;
- includes sharing in the accountability for results;
- is sharing resources which assists in developing a sense of ownership;
- is voluntary.

West (1990), after considering definitions from other disciplines, defined educational collaboration as "an interactive planning or problem solving process involving two or more team members. The process consists of up to eight interrelated, progressive steps: goal setting, data collection, problem identification/analysis, alternative solutions development, action plan development, action plan implementation, evaluation/follow up, and re-design" (p. 29). Both definitions emphasize that collaboration can only emerge during a school process or activity.

Little (1990) created a continuum (Figure 1), ranging from activities that are compatible with teacher independence to activities that require interdependence, to explain the form of collaboration that occurs between teachers. Activities on the independence end of the continuum have no impact on teacher autonomy. As school activities and processes move through the continuum toward interdependence of joint work, collaboration becomes more complex.

> The move from conditions of complete independence to thoroughgoing interdependence entails changes in frequency and intensity of teachers' interactions, the prospects of conflict, and probability of mutual influence. That is, with each successive shift, the warrant for autonomy shifts from individual to collective judgment and preference (p. 512).

Little's (1990) definition of collaboration is tied to the idea of joint work "that [rests] on the shared responsibility for the work of teaching(interdependence), collective conceptions of autonomy, support for teachers' initiative and leadership with regard to professional practice, and group affiliations grounded in professional work" (p. 519). In her work in identifying norms of workplace interactions and collegiality, Little (1982) identified four critical practices encouraged by collaboration.

- Teachers engage in frequent, continuous, and increasingly concrete and precise talk about teaching practices.
- Teachers are frequently observed and provided with useful critiques of their teaching which serve as referents for discussion about teaching.
- Teachers plan, design, research, evaluate, and prepare teaching materials together.
- Teachers teach each other the practice of teaching (p. 331).

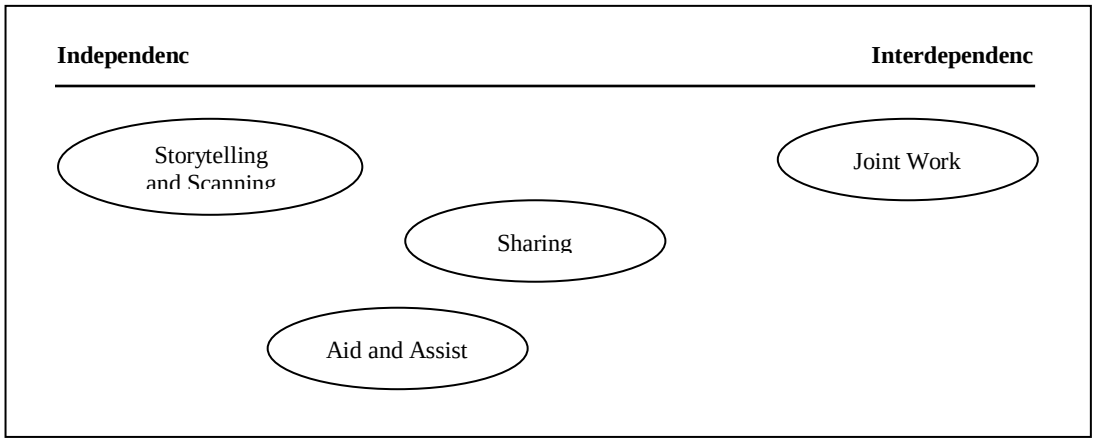

Figure 1. Little's Continuum

Contrived Collegiality and Collaborative Culture

Fullan and Hargreaves (1991) developed four categories of teacher cultures: individualism, balkanism, contrived collegiality, and a collaborative culture. They described three forms of collaboration that should be avoided: balkanization, comfortable collaboration, and contrived collegiality. These noncollaborative cultures do not encourage the necessary level of professional interaction, collegiality, and pressure to improve instruction. Hargreaves (1994) viewed school cultures from two aspects: content and form. *Content* of teacher culture is based on shared values and beliefs and are communicated by what teachers say, do and think. *Form* of teacher culture is based on the patterns of relationships and forms of associations and conveyed by how teachers interact with each other. Form, i.e., teacher relations, is powerful and can have profound implications on how teachers develop.

Balkanization of the teacher culture is often found in a school in which separate and competing groups seek power and influence for their own ends. Competition, poor communication, and poor integration of curriculum, instructional, and assessment characterize these schools. According to Fullan and Hargreaves (1991), a balkanized culture is "made up of separate and sometimes competing groups, jockeying for position and supremacy like loosely connected independent city-states" (p. 52). This isolation of competing groups resemble an isolated teacher, discouraging the rich exchange of ideas, solutions, and networking of practical knowledge that is characteristic of more collaborative settings (Little, 2003).

Comfortable collaboration occurs in school cultures that carefully restrict collaboration. Teachers avoid the deeper, more extended relationships with colleagues, eliminating the opportunities for problem-solving and the exchange of knowledge. This form of collaboration is weak, with teachers sharing some materials and some instructional techniques, but avoiding

deeper discussions about students, teaching, curriculum, long-range planning, and the shared purpose of education. Collegial interactions focus on comfortable day to day happenings that are not likely to solve bigger issues facing teachers. In these schools, comfortable collaboration is nonconfrontational. If teachers disagree with colleagues, they will maintain the “pseudo-community” and the “illusion of consensus”, in which “‘it is against the rules’ to challenge others or press too hard for clarification (Grossman, Wineburg, & Woolworth, 2001, p. 955). Cultures of *contrived collegiality* are characterized by "a set of formal, specific, bureaucratic procedures to increase the attention being given to joint teacher planning, consultation, and other forms of working together" (Fullan and Hargreaves, 1991, p. 58). Formal structures, e.g., joint planning meetings and peer coaching, may bring teachers together and foster the implementation of new programs. However, structures alone will not create collaborative cultures. Cultures of contrived collegiality are often imposed. Hargreaves (1994) used the distinction between internally generated and externally imposed collaboration when distinguishing between collaborative cultures and contrived collegiality.

Collaboration among teachers increases opportunities for teacher development in their work environment (Lieberman, 1995). Collaboration facilitates exchanges of ideas and information, as well as promotes supportive dialogues and interactions among teachers. McLaughlin (1993) stressed that strong professional communities promote teachers’ professional growth through collaborative reflection, feedback, and problem solving. In addition to creating collaborative norms, Lieberman (1995) explained that teacher development occurs when teachers share knowledge and engage in joint work like peer coaching, curriculum writing and common planning. Strong collaboration among teachers is critical in changing norms of practice and pedagogy, especially for veteran teachers. A lack of collaboration deprives teachers of the

necessary exposure to different beliefs and practices and the opportunity to challenge their own long-held beliefs and practices (Smylie, 1995).

The following studies provide evidence of how vital teacher collaboration is in the process of teacher development. In Thomas, Wineburg, Grossman, and Woolworth's (1998) study of the impact of professional development on teachers' learning, teachers participated in book studies, designed interdisciplinary units, videotaped and discussed classroom lessons. They found that veteran teachers, new teachers, specialists, and student teachers benefited from the emerging learning culture that promoted teacher engagement in critical intellectual discussions and provided escape from isolation As opposed to a day-long workshop or even a week long institute, in which differences in beliefs do not have time to surface, "only in a committed community where individuals have the sustained opportunity to explore issues of teaching and learning with their peers, do such differences emerge" (p. 32).

Manoucheri's (2001) study examined collaboration between two pairs of middle school teachers engaged in collegial discourse. They were given release time to plan with their partner teachers. More specifically, teachers were given the task to discuss issues surrounding the implementation of a new textbook. However, Manoucheri's findings were mixed. Ben and Gary, even though they disagreed with each other's practices, did not critique each other. They reinforced prior beliefs instead of creating change in beliefs. The other pair, Julie and Doug, challenged each other's thinking and created situations in which the other had to explain their reasoning. Manoucheri concluded that

> to initiate and sustain a culture in which teachers work with peers to improve both self and peer's practice, the teachers need to first believe that they have the right, and the potential, to influence the profession. This requires them to adopt a new paradigm on the very nature of the profession and how the roles and responsibilities of colleagues are defined. The teachers need to also learn how to engage in collaborative reflection on both self and peer practice in ways to improve teaching and to facilitate teacher growth (p. 96).

Unlike the other pair, Julie created a discourse structure that allowed her to engage in reflective collaboration with her partner. As Ball and Cohen (1999) pointed out, activities for teachers' professional learning "could not be adequately cultivated without the development of more substantial professional discourse and engagement in communities of practice" (p. 13). Collaboration fulfills personal needs for growth and facilitates development of appropriate skills and abilities within a teaching environment and school structures.

The power of collaboration relies on the notion that teachers are the experts and view themselves as active participants in overcoming the fears of change (Schmoker, 2004). Marks and Printy (2003) found that when "teachers inquire together, they encourage each other toward answers for instructional problems" (p. 374). This form of collaboration, as described by Little (1982), becomes a form of professional development that is embedded in the daily life and activity of teachers. Little's (2003) analysis of three collaborative teacher groups confirmed the "optimistic premise" of teacher learning communities (p. 913). Teachers engaged in mutual problem solving with open disclosure and acceptance of advice and new considerations. They "display[ed] dispositions, norms, and habits conducive to teacher learning and the improvement of teaching practice" (p. 938). Little's focus was on teacher learning groups that demonstrated some clear identity and task orientation.

According to the literature on professional development, collaboration between teachers is essential in order for it to be successful (Lieberman, 1995; Smylie, 1995). Therefore, structures which support collegiality such as observation of peers, feedback from peers, consultation and reflection with peers, planning and evaluating together are all positive factors (McLaughlin, 1993; Little, 1982, 2003). McLaughlin and Talbert (2001) found that collaboration in which

teachers share instructional resources and reflections in practice is essential to their success in innovating in the classroom. Professional development should be long-term and frequent, be school-based, enable teachers to consider their teaching in respect to their own practices, be grounded in teaching and student learning, and be linked to curricula (McLaughlin & Talbert, 2001).

Teacher Motivational Orientations

From their first year in the classroom to their last, teachers are exposed to professional development and training. Teachers are expected to have the skills to meet the needs of all students. Unfortunately, beginning teachers encounter the same expectations and responsibilities that are placed on veteran, more experienced teachers. Professional development has also collected all teachers together regardless of their professional needs. Teacher professional learning is not normally an isolated event but a continuous and career-long process (Scribner, 1999). Teachers move through different "stages" of their development at different times in their career. If professional development opportunities are to be effective, these stages must be considered, as the needs, concerns and beliefs of teachers may vary from one stage to the next. In order to better understand teacher development, models have been developed to identify the various characteristics of teachers at different stages and applied to help articulate the developmental process of the teaching profession.

Teacher Career Stages

In professional development literature, motivations to participate in professional development may be dependent on the career stage of the teacher (Scribner, 1999). Research has revealed that teachers have different attitudes and approaches, and varying levels of knowledge and skills at various stages during their careers. Huberman (1989, 1995) described

teachers' progression through seven phases in their careers. Based on interview data with 160 secondary school teachers in Switzerland, Huberman outlined trajectories of teachers' professional lives by dividing them into different phases such as survival and discovery (0-3 years), stabilization (4-6 years), experimentation and activism or reassessment (7-18 years), serenity (19-30 years), and disengagement (31-40 years). In spite of the diversity of the teachers' "personal journeys," some general motivational patterns also emerged from the quantitative and qualitative analyses of the data. The early career stage, to start with, was associated with either easy beginnings characterized by a sense of discovery and enthusiasm or painful beginnings laden with uncertainties, exhaustions, and reality shock. The mid-career years saw a period of stabilization marked by a definitive commitment to work, which was followed by a gradual loss in energy and enthusiasm in the later-career years.

These motivational changes over teachers' life cycles have been supported in some studies (e.g., Day & Gu, 2007; Klassen & Chiu, 2010); on the other hand, other studies have reported that mid-career teachers tended to show lower levels of satisfaction and motivation than early-career and late-career teachers (Lindholm, 1997; Mertler, 2002). The stagnation of teachers' motivation at mid-career can be attributed to the issue of routinization that Huberman (1995) observed among many of his interviewees. He pointed out that the sense of routine, which was an inherent part of the teaching profession, could easily lead to the loss of enthusiasm and the sense of stagnation.

Motivating Factors that Influence Participation

Cyril Houle's (1961) study proved to be a benchmark study concerned with the motivational orientations of adult education participants. After interviewing twenty-two

participants, Houle concluded that adult education participants tended toward three motivational orientations: goal oriented, learning oriented, and activity oriented. First, there was the goal-oriented individual who chooses to participate as a result of either personal goals or externally set goals that include the need for additional education. Next, he identified the activity-oriented individual whose primary motivation for participating in education is the social interaction with other adults. This individual is interested in forming relationships with others and the classroom setting provides an outlet for this desire. Finally, Houle recognized individuals who he described as learning-oriented. These individuals were driven by an internal motivation to seek knowledge for its own sake. His work was the first to shed light on why individuals chose to learn.

Morstain and Smart (1974) further refined Houle's typology of what motivates adults to learn. They suggested that the reasons for learning for an individual is complex, varied, often unpredictable, and may be intrinsically or extrinsically derived. The six motivating factors identified included:

1. Establishing social relationships through the activity;
2. Meeting externally imposed requirements;
3. Developing skills to help improve the social welfare of others;
4. Acquiring skills, knowledge or credentials for job enhancement or professional advancement;
5. Experiencing stimulating activities to alleviate boredom or escape work routine; and/or
6. Learning for the sake of learning.

In their study, they found that the participants placed more importance on professional advancement, learning for the sake of learning, and on the social welfare factors. Less

importance was placed on the external requirements, social relationships, and escape/stimulation factors.

An interest in why adults participate in adult education programs can be linked to a corollary interest in why adults do not participate. One of the first significant studies dealing with barriers (deterrents) to participation in education was conducted by Johnstone and Rivera (1965). They clustered their results in two specific barrier classifications: external (situational) barriers, and internal (dispositional) barriers. They also identified institutional and socio-demographic barriers affecting participation in education. The specific barriers identified by cluster were: situational barriers - time, money, child care, transportation, weather; dispositional barriers - self esteem, group participation; institutional barriers - factors determined by educational institution policies; socio demographic barriers - age, sex, race, income, educational level, and geographical location. Among other conclusions of the study were that dispositional barriers had a greater impact upon older adults, while situational barriers were considered more important for younger adults. Also, it was noted that individuals in a lower socio-economic class faced both situational and dispositional barriers (p. 221). The two most powerful barriers to participation were cost and time.

Darkenwald and Valentine (1985) developed a scale of deterrents that revealed the structure of perceived barriers to participation. Their study examined the factors that deter the general public from participating in adult education programs. The study identified adult education as “any organized learning activity for adults, including courses, workshops, seminars, and training programs offered by schools, colleges, and other organizations or community groups” (Darkenwald & Valentine, 1985, p. 178). The general adult population was defined as “all non-institutionalized persons, 16 or older, not enrolled full-time in a school, college, or other

educational institution" (Darkenwald and Valentine, 1985, p. 179). The scale included 34 items and yielded six factors.

1. *Lack of confidence* - Dispositional factors such as: self doubt, low self-esteem, lack of support, and lack of encouragement.
2. *Lack of course relevance* - Lack of quality, poor availability, and not suitable.
3. *Time constraints* - Limited time to spend on the pursuit of educational goals.
4. *Low personal priority* - Low motivation to pursue education due to impact upon family and leisure time.
5. *Cost* - A situation specific concern in that economic status will determine whether this factor is meaningful.
6. *Personal problems* - Restrictions such as child care, family issues, handicaps, and personal health matters.

It is significant that the highest rated factor was that of time constraints. The specific nature of time constraints included issues such as schedule, location of the school, study time, and regular attendance requirements.

There are few studies that focus to understand professional motivation to continue to update professional skills or knowledge. Scribner (1999) observed that, "existing research does little to clarify why professionals engage in learning activities" (p. 246). In an attempt to understand why teachers engage in professional learning, Scribner (1999) conducted a qualitative study regarding the influences of several context factors on teachers' professional development. Snowball sampling was used to identify 45 effective teachers across three diverse urban high schools in one large school district. Scribner conducted interviews with these teachers and with their principals and other administrators involved in professional development decisions; additionally, 12 professional development events were observed. Data were analyzed using grounded theory.

Scribner identified personal motivators and work context as two categories of influences on teacher professional development. In the category of work context, the foremost factor was leadership; Scribner described how the school leadership balanced (or failed to balance)

organizational learning goals and teachers' individual goals. Principals influenced teacher professional development through their structure of teacher work time and space, and through their allocation of resources. In addition, the teachers studied reported that district policy reforms and district professional development priorities influenced their work context. For example, the implementation of accountability testing and other district-wide initiatives created associated learning opportunities for teachers so that they would become better equipped to participate in district activities. However, Scribner observed, that "despite its reform agenda, the prevailing attitude among teachers across schools remains that the district's impact on their professional development was minimal because district-sponsored activities did not address critical issues" (p. 257).

In addition, Scribner also reported that, "strong faculty norms shaped teacher attitudes and expectations for professional development" (p. 255). Many of the faculty norms were shaped as a result of the "hectic pace of high school teaching and such stressors as maintaining safe environments for students and staff" (p. 256). Scribner found that the factors present in the daily life of the teachers he studied created a structure within schools that impacted teacher learning. Although Scribner's study focused on teachers' perceptions of professional development influences, the results provide insights regarding how leadership support can impact extrinsic motivators like organizational goals and teacher needs.

Penner (1999) investigated teachers' perceptions of the strength of the factors that influence their decisions to participate in professional development, comparing the perceptions of those to the perceptions principal's held. The factors were student need, organizational goals, collegiality, career stage, monetary rewards, teacher evaluation, administrative support, and intrinsic motivation. A sample of 441 teachers and 62 principals rated the influence of the eight

factors. The results showed statistically significant differences between teachers' and principals' perceptions for the following factors: organizational focus, career advancement, teacher evaluation, administrative support, and intrinsic motivation. Though the study compared perceptions of teachers and principals, important findings point to the strong influence of intrinsic motivation and student needs in teachers' decisions to participate in professional development.

In an attempt to identify the factors that contribute to participation, Lohman (2005) focused on informal workplace learning. The term is defined by the researchers as activities that are initiated by the employee in the workplace, which are perceived to enhance professional knowledge and skills: talking with others; collaborating with others; observing others; sharing materials and resources; searching the internet; scanning professional periodicals; engaging in trial and error; reflecting on one's actions; and other informal workplace learning activities identified by participants. In her 2005 study, Lohman asked both public school teachers and HRD professionals to indicate the frequency of participation in these activities, and the degree to which lack of time, lack of access, lack of monetary rewards, and lack of recognition, serve to inhibit participation in these activities. Finally, research participants were asked to indicate personal characteristics including age, gender, educational level, industry level, and job title, in order to determine the role of these factors in participation in informal learning.

Lohman (2005) found that various organizational and personal factors influence participation in informal workplace learning for the two groups. The personal factors identified for both groups included initiative, self-efficacy, love of learning, interest in the profession, commitment to professional development, a nurturing personality, and an outgoing personality. However, teachers preferred group-based learning activities (collaboration, sharing resources

with others, and trial and error learning) whereas HRD professionals preferred independent learning activities (searching the internet, scanning magazines and journals). Factors that serve to inhibit participation in informal workplace learning for both groups included a lack of support from the organization, unwillingness of others, and inaccessibility of subject matter experts. In addition to these factors, teachers cite the additional role of limited funding as a reason for not participating in informal workplace learning.

Marks and Wright (2002) presented a paper at the annual meeting of the Eastern Educational Research Association which described their study of intrinsic and extrinsic motivators and their relationship to continuing professional development. The study developed a valid self-report survey instrument to reliably identify intrinsic and extrinsic motivators that would engage teachers in continuing professional education activities. Marks and Wright (2002) identified the intrinsic and extrinsic motivators from research in the areas of adult learning and professional development. The extrinsic motivators noted were job security, promotion, salary advancement, and organizational goals to encourage teachers to participate in professional development. The intrinsic motivators included self-identity and perception, construction of meaning, context dependence, control, choice, collaboration, and personal goals and values.

The sample included 854 teachers who completed a self-report survey. Participants were grouped as elementary, middle, or high school and by years of experience. All groups produced significantly higher scores for intrinsic motivators than extrinsic with elementary teachers scoring higher than the other groups. Marks and Wright reported that participants were motivated to participate in professional development that had "…clear meaning and application to their personal goals and their professional responsibilities" (p.13). Additionally, the teachers preferred programs that provided for choices and a variety of presentation styles. Intrinsic

motivation was viewed as increasing self-image and adding value to participation in new learning. They reiterated how "extrinsic rewards are important, social collaboration is helpful, but enthusiastic engagement in continuing professional education is attained through intrinsic motivation" (p. 14).

Social Context

Network Theory of Social Capital

Researchers and professional development experts argue that there is a need for teachers to learn in new ways in order to meet their individual needs at their work (Desimone et al, 2002; Elmore, 2002). Researchers argue that teachers learn best when learning opportunities match the characteristics of effective professional development. Professional learning communities have emerged as site-based opportunities for teachers to learn collaboratively with and from their colleagues (Cochran-Smith & Lytle, 1999). It is within these communities that teachers work collaboratively on instructional improvement. Research has shown that teacher study groups are an effective form of job embedded professional development that can create this constructive collaborative environment. Discourse and reflection build collective knowledge through open discussions of teaching practices, common planning of learning objectives and instructional practices, and the review of student work and common classroom-based assessments in order to revise their instruction to best meet student needs (Little, Gearhart, Curry, & Kafka, 2003). The joint work of an effective professional learning community can have an effect on student outcomes through changing teacher practices.

Teachers engaging in collaborative work have been defined as "a group of people across a school who are engaged in common work; share to a certain degree a set of values, norms, and orientations towards teaching students, and schooling; and operate collaboratively with structures

that foster interdependence" (adapted from Van Maanen & Barley, 1984, as cited in Achinstein, 2002, p. 421-422). When working in collaboration, teachers are able to access and make use of the individual and collective resources embedded in their professional network (Dika & Singh, 2002). As teachers design and plan together, best practices are shared and developed through their discussions to be taken into classrooms (Little, 2003).

It has become increasingly clear that organizations in a knowledge-based economy are driven not by individuals' technical knowledge but by the productive interdependence of its members and their ability to leverage the existing knowledge and resources in the organization. Research on educational organizations has reiterated this notion by suggesting that the interpersonal relationships among school members are crucial to the implementation of programs and their success. Such interactions among individuals in social systems, along with the collective properties that arise from them, have prominently come to be conceptualized in the literature as social capital (Coleman, 1988; Lin, 2001).

Social capital theory provides a lens to look more closely at teacher collaboration and can serve to more formally conceptualize community building. The key elements of the social capital approach include an emphasis on relationships of individuals that aggregate to form a social network in which support, resources and expertise flow through the system (Lin, 2001). At an organizational level, social capital is concerned with the social processes through which the organization's collective assets are used to accomplish its objectives. Network theory of social capital proposes that the access and use of assets in an organization is strongly determined by the configuration of its interpersonal ties and the social structure that arise from them (Lin, 2001). In schools, social networks consist of a set of actors that are connected to one another through a series of different relations or ties. Pedagogical knowledge, reform information,

emotional support, and a variety of other resources may flow through these ties in schools from one actor to another (Wasserman & Faust, 1994).

Dimensions of Social Capital

Two dimensions can be found throughout most of social capital literature (Dika & Singh, 2002; Portes, 1998; Nahapiet & Ghoshal, 1998). The first dimension of social capital is the structural dimension which addresses the pattern of social relationships. Through social network analysis, the pattern of social relationships can be visualized as a network of individuals with opportunities to access resources through ties with others. The strength of the ties is a function of emotional/social closeness and the frequency of interaction (Granovetter, 1973). Strong ties are characterized by high degrees of closeness, indebtedness, and trust (Granovetter, 1973) and exist between people who are close friends. Contrary to strong ties, weak ties describe relationships between individuals who are acquaintances. Weak ties are associated with exchanges of only one resource, such as work-related information (Granovetter, 1973). Strong ties provide individuals with "greater motivation to be of assistance and are typically more easily available" (Granovetter, 1983, p. 209) whereas, weak ties provide individuals with "access to information and resources beyond those available in their own social circle" (Granovetter, 1983, p. 209). In addition, stronger ties tend to exist in closed structures and promote group cohesion, wheras weak ties are more likely to exist in open structures and conduct to group fragmentation (Smylie & Hart, 1999).

Similar to the concept of tie strength, social networks have also been described by the degree of closure of the network (Smylie & Hart, 1999). According to Smylie and Hart (1999), closure refers to "the extent of interconnectedness among a group's members" (p.423). Highly closed structures are characterized by denser interconnectedness, whereas open structures are

characterized by sparse interconnectedness. Coleman (1988) asserts that closed networks produce three forms of social capital. First, they produce an important form of social capital in the "potential for information that inheres in social relations" (p. S104). That information is important because it may provide a basis for action which is fundamental to Coleman's definition of social capital. Individuals in a closed network gain access to information through their relationships with others. Second, "when a norm exists and is effective, it constitutes a powerful, though sometimes fragile, form of social capital" (p. SI04). Effective norms can facilitate certain actions; however, they can also constrain other actions. Norms depend on network closure. Norms arise as "attempts to limit negative external effects or encourage positive ones" (p. SI05). With individuals interacting in a closed network, they are more likely to "convey and reinforce norms of exchange and more easily able to monitor their observance and enforce sanctions" (Moran, 2005, p. 1131).

Third, network closure is necessary for the existence of the "trustworthiness of social structures that allows the proliferation of obligations and expectations" (Coleman, 1988, p. SI07). Coleman (1988) describes obligations as *credit slips*. Using his example, obligations take two forms: credit slips that one holds and credit slips that one needs to repay. In practice, actor "A" accumulates credit slips from actor "B", which establishes for "A" an expectation of an obligatory performance by "B" for servicing the debt. Likewise, "B" holds credit slips from "A" setting an expectation for obligatory performance by "A". But unlike economic exchange, credit slips held on either side of relationships do not cancel each other out and obligatory performance or repayment of the debt may be different from what was originally incurred. Within the broader social structure, credit slips and obligatory performance are held by all actors relative to other actors. These obligations set up of sort of interdependence among actors, which actors view as an

asset and resource that is held in place by collective norms of reciprocity, trust, honor, and disapproval of selfish actions. An open network structure would not necessarily facilitate the expectation or obligation that Coleman describes in that the only individual who can sanction another is the individual to whom the obligation is owed. Fundamental to Coleman's social capital is based on the concept of reciprocity, that is, that favors extended to an individual will be reciprocated by favors granted by that individual at a later date. The importance of closure to social capital, according to Smylie and Hart (1999), "rests in the ability of members of a social structure to develop and sustain common norms and effective sanctions that monitor and guide behavior. It also rests in members' ability to exchange information and develop *trust* through shared expectations and mutual obligations" (p.423). These obligations, norms, and the social structure facilitate one's sense of personal identity and connectedness to community, which makes collective action more possible (Adler & Kwon, 2002).

The second dimension of social capital is the relational dimension which addresses the quality of the relationships in social networks. Social capital literature identifies relational trust as the most important norm in a learning community (Nahapiet & Ghoshal, 1998) and can be defined as an individual's or group's willingness to be vulnerable to another party based on the confidence that the latter party is benevolent, reliable, competent, honest and open (Hoy & Tschannen-Moran, 1999). According to Bryk and Schneider (2003), relational trust also allows teachers to be vulnerable and open to new learning experiences that are central to ongoing teacher development in schools. As a consequence, improving the quality of education and student learning becomes both an individual and collective enterprise, which motivates teachers to engage in instructional change and willing to take more risk. Research has shown that trust has

positive effects on teacher professionalism and teachers' motivation (Tschannen-Moran, 2009; Bryk & Schneider, 2003; Tschannen-Moran & Hoy, 1998).

Benefits of Social Capital

Social capital has been argued to have three primary benefits for its members (Adler & Kwon, 2002). First, social capital increases the value of information shared between members because it provides easy access to information, facilitates the dispersion of information, and improves the quality of information (Coleman, 1988; Lin, 1999). Network members with high levels of social capital generally acquire higher volumes of information from others in the network. As teachers interact with others within the network and outside the network, they acquire new knowledge as well as insights into how that knowledge is relevant for their schools. This knowledge can be either explicit or tacit.

A second benefit associated with social capital resources is the ability to influence important decisions (Burt, 1997; Coleman, 1988). Due to being linked to multiple other members in a network, actors with higher levels of social capital have higher levels of influence over decisions within the network. Further, network members with greater influence over decision making are more able to achieve their goals than less well-connected members. In addition to providing greater power over individual decisions, higher levels of social capital are also accompanied by greater social norms, expectations and constraints on behavior. Thus, cohesion among network members is the third benefit associated with social capital. Networks in which strong normative pressures exists are more likely to be characterized as being able to control behavior of members (Coleman, 1988; Granovetter, 1983). The greater social control associated with cohesive networks further facilitates interaction among network members and eases the flow of information among members.

Conceptual Framework

Adults are motivated to participate in learning for many reasons. Motivation is a hypothetical construct that provides a possible explanation of behavior. It is very often divided into two categories - extrinsic and intrinsic motivation. Extrinsic motivation can be explained as the performance of an activity to attain a separable outcome or consequence, such as grades, money, or recognition. These rewards are said to be extrinsic because they are unrelated to the action (Covington, 2000). Extrinsic motivation, however, may be the process of satisfying a need which is related to the activity, but not satisfying the learning itself. Other explanations of extrinsic motivation focus on the individuals' accomplishments in relation to others. Extrinsically oriented individuals demonstrate their accomplishments by comparison with their peers (Ames, 1984; Covington, 1984). These individuals are driven to exceed normative standards or to surpass their peers.

In contrast, intrinsic motivation refers to performing a task for the inherent satisfaction or joy involved with the specified activity (Ryan & Deci, 2000). Examples of intrinsic rewards are the satisfaction of overcoming a personal challenge, learning something new, or discovering things of personal interest. Intrinsic motivation results in engaging in activity for the activity's sake. Intrinsically oriented individuals are focused on developing new skills, trying to understand their work, improving their level of competence and/or achieving a level of mastery based on self-referenced standards (Ames, 1984). In comparing individuals whose motivation is authentic (intrinsic) and those who are driven by external control, it is typical to find that the authentic have more interest, excitement, and confidence which show up as enhanced performance, persistence, and creativity (Ryan & Deci, 2000) .

Early studies that examined intrinsic versus extrinsic motivation were based on models having each at opposite ends of the same spectrum. In other words, if the level of intrinsic motivation increases, extrinsic motivation would have to decrease and vice versa. These studies reported that extrinsic rewards negatively affect intrinsic interest in an activity (Deci, 1971; Deci & Ryan, 1987). The conclusion was that tangible extrinsic rewards undermine intrinsic motivation. These conclusions were based on results that showed behavior returning to baseline standards when the extrinsic rewards were removed. Intrinsic and extrinsic motivation would appear to be at opposite ends of a spectrum, with individual's motives being described as leaning toward one end or the other. But intrinsic values do not exist in a reward vacuum. Individuals expect some type of payoff for their work. Covington and Mueller (2001) stated that "any realistic study of intrinsic motivation must take into account not only it's unique presence, not merely the absence of material incentives, but the inevitable and simultaneous presence of other motives that may have little or nothing to do with the love of learning" (p. 162).

Perhaps a better explanation of extrinsic versus intrinsic motivation would be that they are two independent concepts rather than a point on a single continuum (Covington & Mueller, 2001). Using this explanation, extrinsic and intrinsic factors are independent of each other and therefore able to coexist and are not measured as opposite ends of a spectrum. More recent research focuses on the ability of intrinsic and extrinsic motivation to coexist, refuting the proposition that extrinsic rewards are detrimental to intrinsic motivation. In fact, it has been proposed that extrinsic rewards can complement or enhance intrinsic motivation (Ryan & Deci, 2000).

The social context – our personal and professional environments - can either support and/or impair our own individual development. This context is critical in determining how one

will perform and respond to challenges faced in the performance environment. In fact, people who hold significant roles in our lives (e.g., parents, spouses, family members, or friends) have a great influence on our motivation as well (Deci, 1971). In addition, teachers' attitudes, behaviors, and motivations are affected by the quality of their connection to others. Teachers who feel connected are more likely to embrace established norms and values. Thus, teachers' interactions with their social context (e.g., principals, colleagues, students, parents) will influence their participation in professional development and ongoing renewal (Dzubay, 2001).

Social Network Analysis (SNA) can be used to study the social network's contextual influences on behavior, as well as the influence of individual behavior on the structure of a network. A network can be studied from the viewpoint of an actor (an egocentric network study), or across a group or groups (a whole network study). When studying whole networks, *cohesion* of the network reveals how connected actors are with each other. Bidwell and colleagues completed a SNA study about high school teachers that produced a series of papers concerning teachers' instructional collaboration (Bidwell, 2001; Bidwell, Frank, & Quiroz, 1997; Bidwell & Yasumoto, 1999; Uekawa, Aladjem, & Zhang, 2005; Yasumoto, uekawa, & Bidwell, 2001). The aim of the study was to find the mechanism in teacher social organization that provided for social control or influence of teachers' instructional practices and beliefs. Bidwell and fellow researchers concluded that "collegial foci," or informal faculty networks that problem-solve instructional issues, were the mechanism. Bidwell and Yasumoto (1999) note:

> Networks of collegial relationships comprise pathways for communication, influence, and sanctioning. In this way, they enable both individual and collective solutions of instructional problems in a school, letting teachers learn about the work of colleagues, consult one another, and adapt and enforce occupational norms. In other words, in these networks, instructional practice is socially controlled. (p. 236)

The networks they described did have a "spiral" aspect to them; a circular process of selection, interaction, and continuing socialization created and sustained like-minded, stable groups. Therefore, the social organization of the faculty was found to have a strong influence on behavior.

One of the most common aspects a social network analysis attempts to uncover is the identity of the prominent individuals (actors) in a social network (Borgatti, et al., 2009). Deal, Purinton and Waetjen (2009) referred to these individuals as “stars,” because the connections they had with others resembled a star on a social network graph. In SNA terminology, these “stars” are central actors, and are said to have a high degree of centrality. A study of centrality seeks to identify the prominence of an individual in the network (Borgatti, et al., 2009). Mapping centrality is not used to evaluate the effectiveness of an individual; rather it is used to learn from whom members of the organization are being influenced. By mapping “the reality” and comparing this to “the expectation,” school leaders can learn to what degree the established chains of command exert influence within the organization (Deal, et al., 2009).

Another group of individuals (actors) examined in a social network analysis are those who are found on the shortest path between other actors in the network. These individuals are referred to as having betweeness centrality. Actors who are found with this type of centrality have the potential to wield power by serving as a gatekeeper of information to others whose path they lie upon. They can speed up or slow down the flow of information, as well as distort what is passed on, in order to further their own individual interests (Borgatti, et al., 2009).

Hatala and Fleming (2007) conducted a case study which used betweeness centrality, in part, to study the transfer climate of an organization prior to initiating a training program. They surveyed the individual members of a workgroup concerning who they went to for help after a

training session, as well as those whom they sought for company gossip. By examining these two networks, the authors were able to identify potential information flows that could affect the success of the training initiative. By knowing who the “go-to” people were for both technical support and company gossip, the managers were able to see that these employees were provided with accurate information about the training initiative. In this way, the actors who served as “brokers of information” could be prepared in advance of the training so as to become part of an effort to bring other members onboard quickly (Hatala & Fleming, 2007).

Schools are composed of complex social structures. Social interactions take place between teachers for various purposes, causing networks to form – all of which have their own characteristics. In a knowledge-intense society, it is inevitable that people make connections as a result of learning. These learning practices allow people to “form social networks along which knowledge about that practice can both travel rapidly and be assimilated readily” (Brown & Duguid, 2000, p.141). These types of social networks are formed by “communities of practice” (Lave & Wenger, 1991), which focuses on “relatively tight-knit groups of people who know each other and work together directly” (Brown & Duguid, 2000, p. 143).

Professional networks formed by networked communities of practice can be illustrated as the fact that school professionals voluntarily making contact with one another to learn and share new skills for their collective goal of achieving school improvement (Robertson & Acar, 1999). In Smith and Wohlstetter's (2001) study of school networks, they found these types of professional networks promote community-based collaboration and knowledge sharing. Professional networks allow each individual to use and exchange of intangible knowledge assets (Powell, 1990), which are the most crucial components of social capital established in schools. These professional networks promote individuals to share knowledge and effectively smooth the

flow of information (Smith & Wohlstetter, 2001). These networks use the established social capital to create (a) channels for communicating and disseminating information to one another, (b) knowledge for and about network members' expertise, and (c) confidence to trust one another to perform work (Bardach, 1998).

Another important network centers on the friendships that develop between teachers. Research has shown that having three or more friends in the workplace can increase job satisfaction by as much as 50 percent. Much of the real work of schools will occur within these various friendship networks (Deal, et al., 2009). Teachers tend to find friends that have classrooms near their own classroom, known as proximity or who share similar background characteristics, known as homophily (Deal, et al., 2009). How these relationships form and how information flows through them can be affected by the physical layout of the school. For example, when individual academic departments are clustered in their own section of the building, social networks tend to form within departments. On the other hand, when schools are configured into “houses” or teams, such as with many middle schools (Conley, Fauske, & Pounder, 2004), teachers from different departments will be clustered together according to the group of students they teach. In this latter case, networks develop centered on groups of students taught rather than on the departmental membership of the teachers. These different configurations subsequently impact the flow of information in the school (Deal, et al., 2009).

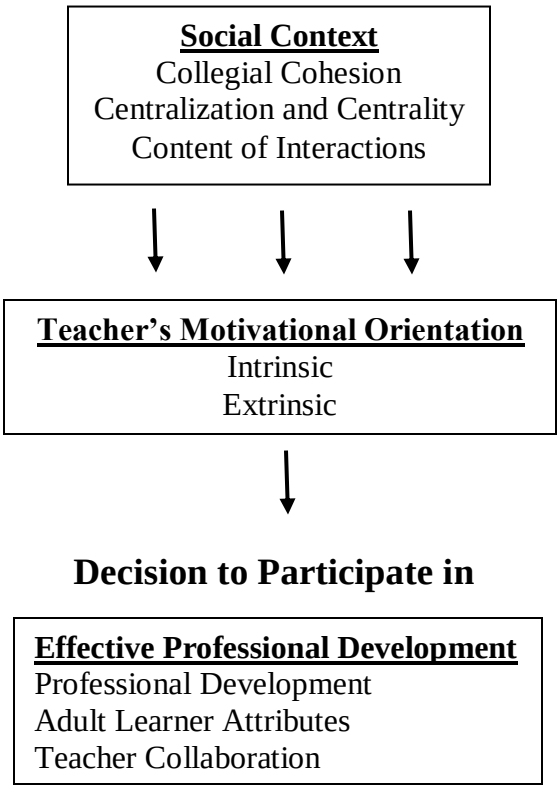

Figure 2. How social context impacts decision to participate in professional development

This study examined how teachers' social context impacts their motivational orientations toward participation and was guided by the following questions:

1. What relationship exists between teacher's motivational orientation and teacher decision to participate or not participate in job embedded professional development?
2. How does a teacher's level of collegiality, as measured by centrality (individual measures), impact his/her decision to participate?
3. What relationship exists between centralization (network measures) and teacher decisions to participate or not participate in job embedded professional development?
4. To what extent and in what ways do teacher social networks influence a teacher's decision to participate in job embedded professional development?

Summary

The review of the literature has revealed that effective professional development is job embedded and collaborative in nature. In addition, teachers are motivated by many factors that are intrinsic and extrinsic when making professional development decisions. However, what is absent from the literature is how social organizations in schools impact teacher decision making, especially in how they learn. Therefore, the research-base would benefit from a study that examines how teachers' social context impacts their decisions about professional development. Based upon the conceptual framework described earlier and the review of the literature, the next chapter describes how this study was conducted to reveal how teachers' relationships impacted their decision to participate in job embedded professional development available in their school.

CHAPTER III

METHODOLOGY

This chapter provides information on the context, design, participants, instruments, data collection, and data analysis for the current study. The study is designed to answer research questions about how teachers' social context impacts their motivational orientations toward participation in professional development. As such, a mixed methods approach was employed for data collection. Included in this chapter are the following: descriptions of the research context and design, sample, data collection strategy, data analysis procedures, and role of the researcher.

Research Context

GCMS is a middle school, grades 6 – 8, in a midsize, suburban K-12 district. GCMS, in partnership with Montclair State University, became one of the first middle school Professional Development Schools in the state of New Jersey in 2002. In addition to the PDS designation, GCMS is a member of the New Jersey Network for Educational Renewal through the Montclair State University's Center of Pedagogy. This partnership allows the following professional development opportunities for the GCMS staff: clinical teaching supervision, graduate courses and after school mini-courses, summer Conferences/Institutes, Leadership Associates Program, and Teacher Study Group and Teacher Incentive grants.

At the beginning of every school year, teachers make a decision to participate in the early morning teacher study group. With this decision, the teachers will apply for a Teacher Study Group grant from Montclair State University. The GCMS teacher study group has received DODGE and Teacher Study Group grants every year since 1997. Yearly, teachers meet for a

total of 16 sessions, conducting action research, book studies and discussing topics of interests. At the end of the teacher study group and as a part of the grant requirement, a presentation on the year's study is conducted at Montclair State University.

Because of its tradition with job embedded professional development, GCMS will provide the setting to investigate the factors that motivate teachers to participate in job embedded professional development. Over the years, the number of teachers participating has grown and those who choose to participate change from year to year. This study explored the factors that influenced their decision and also explored the relationship the social networks had on these decisions.

Research Design

This study took a mixed method approach of combining quantitative and qualitative methods to gather data regarding how the social context impacts teachers' decisions to participate in professional development. In the first phase, the quantitative data was collected, using a self-report questionnaire. In the second phase, a qualitative multiple case study approach was used to collect data through individual semi-structured interviews to help explain and enrich the quantitative findings by explaining how the social context impacts the motivational orientations of teachers. The knowledge claims made in this study are based on the theoretical grounds that individuals have motivational orientations that determine their behavior. As a result of social networks, relationships with other teachers impact teacher's motivations to participate in teacher study groups. Such a stance lends itself to the process of collecting both quantitative and qualitative data sequentially, which Creswell (2003) recommends when researchers seek to expand the findings of one method with another. Studies such as this "begin with a quantitative

method in which theories or concepts are tested to be followed by a qualitative method involving detailed exploration with a few cases or individuals" (p. 16). Utilizing this approach helped to triangulate the data sources collected by identifying the areas of convergence across the qualitative and quantitative data collected. Finally, Creswell explains that studies using the mixed methods approach begin with a "broad survey in order to generalize results to a population and then focuses, in a second phase, on detailed qualitative, open-ended interviews to collect detailed views from participants" (p.21). This notion further solidifies the rationale for choosing a mixed methods approach for studying the views and perspectives of those involved in these schools.

Phase One – Quantitative

Sample

The survey was administered to the entire GCMS staff (n=51). The staff consisted of general education, special education, and related arts teachers in grades 6 – 8. At an after school staff meeting, the survey was administered and collected.

Instrument

The first section of the cross-sectional survey gathered demographic characteristics. The second section used items, adapted from the Teacher Professional Development Decision Survey (Penner, 1999) and Deterrents to Participation Scale-General (Darkenwald & Valentine, 1985) to examine motivational orientations of the teachers. The final section was a social network survey that asked about the social context, specifically the collegial ties that exist that may influence participation (Penuel, Riel, Krause, & Frank, 2009).

Professional Development Decision Survey. Penner (1999) developed Teacher Professional Development Decision Survey to study factors that influence teachers in their decision to participate in professional development. The survey was comprised of forty-one Likert type questions answered on a 0 to 3 scale with responses ranging from "no influence" to "a great deal of influence" to indicate the extent of influence on teacher decisions that each might exert. The study revealed that teachers rated intrinsic motivation, student need, and collegiality as the strongest influencing factors on participation in professional development activities. For this study, the teacher evaluation factor will be excluded since there was not research basis for its inclusion.

Validity. The content validity of the instrument was established through Penner's submission of the survey to individuals involved in the field of teacher professional development, both in the Houston public schools and University of Houston. Experts read and evaluated the items on the survey for validity.

Reliability. A pilot of the instrument was administered to a group of teachers from a Houston elementary school on two occasions three weeks apart. Penner utilized a test-retest research design to determine the extent of reliability of the instrument. Twenty-seven pairs of pilot study surveys were then subjected to analysis using SYSTAT descriptive statistics and the Pearson-Product Moment technique, yielding a correlation coefficient of .85. Appendix C lists the subscale factors for the instrument. Alpha scales were also run for each subscale. Supporting the validity that these items measure discrete influences, subscale reliabilities were found at .75 for student need, .72 for organizational goals, .78 for collegiality, .88 for career advancement, .90 for monetary rewards, and .84 for administrative support.

Deterrents to Participation Scale-General (DPSG). Based on prior research and theory development, Darkenwald and Valentine (1985) defined the "deterrents" construct as the *opposite* of motivation. The DPS-G was designed to measure the factors that deter the general public from participating in adult education activities. The survey uses a 5-point Likert rating system for 34 forced-choice statements. For this study, the following factors will be used: time constraints and personal problems.

Validity. The DPS-G was assessed for construct validity by correlating the six factors with demographic background variables. In examining the demographic background variables, the researchers found that the correlations derived were what one would expect, therefore providing support for construct validity of the DPS. Factor 1, lack of confidence, was related to higher age and lower socioeconomic status. Factors 2 and 3, lack of course relevance and time constraints, are weakly or unrelated to the demographic background variables. Factor 4, low personal priority, was more important for men than women. Factor 5, cost, was a significantly higher deterrent to women. Factor 6, personal problems, was also a greater deterrent to women. The authors concluded that the DPS-G correlated meaningfully with demographic background variables.

Reliability. Darkenwald and Valentine (1985) reported .86 reliability for the DPS-G instrument. For the six factors, the reliabilities were the following: 1) Lack of Confidence, which contains six items and has an alpha reliability coefficient of .87; 2) Lack of Course Relevance, which contains seven items and has an alpha reliability coefficient of .83; 3) Time Constraints, which contains five items and has an alpha reliability coefficient of .72; 4) Low Personal Priority, which contains five items and has an alpha reliability coefficient of .64;

5) Cost, which contains three items and has an alpha reliability coefficient of .75; 6) Personal Problems, which contains four items and has an alpha reliability coefficient of .40.

Social Network Survey. Social network analysis is a technique to systematically examine patterns of relationships in order to understand how individual action is situated in an organization. This section of the survey was used to calculate several social network measures at the individual and group levels. This data was used to construct sociograms or social network maps that produce pictures of the relationships and interactions among individuals in the school. These maps indicated the strength of these networks by showing the number of connections being made among the members and the degree of cohesion within networks. Indicators of a teacher's social network included centrality. Indicators of network strength included density.

Research differentiates between the types of social networks by their relationship content. (Penuel et al, 2009). For this study, the social relationships distinguished between instrumental networks (work-related) and expressive networks (friendship and social support). The following questions mapped out social interactions that contribute to collaboration around advice about work and friendship.

Network	Question
Advice about work	Whom do you ask about work-related advice?
Friendship	Who do you consider as a friend?

For each of the individual actors, centrality (in-degree and out-degree) in the social networks was determined by the total number of ties an actor received and sent in each of the networks divided by the size of the network (Hanneman & Riddle, 2005). Both in- and out-degree provided information on the relationships of an individual. In-degree refers to the number of people by whom the respondent is chosen. An individual will have a high in-degree, if

s/he is chosen by many (different) colleagues as a person with whom they discuss work. In-degree can therefore be interpreted as an indication of an individual's prominence, or importance in a network (a higher in-degree means being chosen by many colleagues). Out-degree refers to the number of people chosen by the respondent. As such, out-degree can be interpreted as an indicator of relational activity. Individuals who have high out-degree centrality may be relatively able to exchange with others, or disperse information quickly to many others. So individuals with high out-degree centrality are often characterized as influential. Centrality can vary on a scale of zero (the teacher has no in- and out-going relationships and occupies a marginal position in the social network) to one (the teacher initiates all the in- and out-going ties and occupies the central position in the network).

At the group level, group density is an important network measure. Group density was used to indicate the level of group cohesion or closure (Wasserman & Faust, 1994). Group density explains "the speed at which information diffuses among the nodes, and the extent to which actors have high levels of social capital" (Hanneman & Riddle, 2005, p. 99). Group density also ranges from zero to one. A density score of one indicates that all possible ties are connected within the network. Group density was calculated by dividing the actual number of ties by the total number of possible ties in the group.

Data Analysis

Data analysis was conducted in two stages. Information provided by all teachers was transferred to Excel spreadsheets and converted into social network maps, or sociograms using UCINET and NetDraw software packages. These sociograms were then analyzed to identify patterns of relationships within each network around both groups - participants and non-

participants in the teacher study group. From the data gathered by the surveys, social network maps were generated. A social network analysis was also conducted at the individual and group levels. A centrality score for the individuals and a density score for both groups were determined. T-tests were computed to determine if there were relationships teacher's decision to participate and his/her motivational orientation and the social network centrality measures.

Phase 2 – Qualitative

Sample

Due to the nature of the sequential design of this study, the selection of the participants for the qualitative phase depended on the results from the quantitative phase. Based on these results, maximal variation sampling was used. This allowed the researcher to present multiple perspectives of individuals to represent the complexity of their world (Creswell, 2005). For this study, the participants were selected based on the statistically significant difference results. Three participants from each group (participating and non-participating) were chosen based on their *betweenness centrality* scores for a total of six participants for the qualitative phase. In social network analysis, this type of centrality identifies those who have the potential to wield power as gatekeepers of information to others whose path they lie upon. Selecting individuals with high, medium, and low *betweenness centrality* scores will provide a random sample.

Interview

The purpose of the interview protocol is to investigate in depth, enrich, and elaborate on the results of the quantitative phase. The primary data collection technique included a one hour in-depth semi-structured individual interviews with teachers from both groups. The same interview questions were asked of both groups with one adjustment – a question specifically

asking why they did or did not participate. All interviews were audio recorded. Interviews were scheduled according to participants' availability and conducted at the location that (a) was convenient for participants, and (b) had necessary conditions to protect participants' confidentiality. Immediately after each interview, the researcher wrote down (1) reflections on what had been learned from the interview, and (2) observations of the participant.

Reliability and Validity. One concern in traditional research is with the reliability and validity of the chosen method. Reliability refers to the process of measuring the phenomenon that is being studied. Each time the study is conducted, the findings must be accurate from the standpoint of the researcher and all of those involved. Validity refers to the process of verification. The instrument that measures the phenomenon must, in fact, measure that very thing which contributes to validation. In qualitative research, the researcher is the primary instrument of data collection; hence, two different studies with two different researchers could lead to two different outcomes simply because the instruments are not the same.

Creswell (2003) refers to "verification" as the eight-step process typically used by researchers to check the accuracy of their findings.

1. Triangulation is collecting data from a variety of sources and using a variety of methods.

2. Member-checking is determining the accuracy of the qualitative findings through a final report that is returned to the participants to determine if the experiences summarized are accurate.

3. Rich, thick description is used to convey the findings. This can transport the reader to the setting and give the discussion a feeling of shared experiences and potential transferability to other settings.

4. Bias: Opinions and viewpoints the researcher brings to the study should be stated and clarified at the beginning of the study so that his or her bias will not interfere in the findings.

5. Negative or discrepant information should be presented and the working hypothesis should be revisited in light of negative information, which means that any information

that is negative or discrepant should be further analyzed to gain an understanding of its meaning and why it is so.

6. Prolonged time should be spent in the field. The researcher should develop an in-depth understanding of the phenomena being studied and build trust and confidence with the participants.

7. Peer debriefing should be used to embrace the accuracy of the account or experience being studied.

8. An external auditor to review the entire project and provide an opinion is always helpful to increase reliability.

Creswell (2003) suggests that a researcher use at least one of the above procedures to test the accuracy of the findings. For this study, the following procedures were used: triangulation, prolonged time, and rich, thick description.

Data Analysis

In the qualitative analysis, data collection and analysis proceeded simultaneously (Creswell, 2003). Each interview was audio taped and transcribed verbatim. The transcriptions were checked for accuracy by listening to the audio and comparing it with the transcribed text. Once interviews were transcribed, the participants' responses were coded to help identify trends and patterns with respect to the research questions. This coding scheme was based on answers from the interviews using broad content categories identified from the literature on motivational orientations, social networks, and effective professional development. Returning to the transcripts, the broad categories were examined to develop, subcategories or themes, which were used to draw conclusions regarding the manner in which social context and the interactions between teachers impacted teachers’ decisions to participate.

Role of the Researcher

The intent of this study was to provide a full and rich description of the reality, or realities, experienced by the participants. Because I had a close relationship with the study site, it was important to state my role in the study, and evaluate and clearly state any possible biases that may have impacted analysis and interpretation of the data, and color the outcomes. I served as the vice principal for seven years. During that tenure, I supervised and evaluated the entire staff. In addition, during those seven years, I participated closely with the teacher study group, assisting in its coordination and growth. In the initial years, approximately 8 – 12 teachers participated in the teacher study group. I left the building to become an elementary principal in the district but still participated in the study group. The last three years of my involvement, an average of 30 teachers participated in the early morning teacher study group. I have presented at conferences about the description, growth, efficacy of the teacher study group. I am currently an assistant superintendent outside of the district and have had no contact with the study group.

CHAPTER IV

FINDINGS

Chapter 4 will discuss the findings of this research study. Guided by the research questions, the results are presented to describe and elaborate on emerging themes. A summary of significant findings conclude this chapter.

This study was guided by the following research questions:

1. What relationship exists between teacher's motivational orientation and teacher decision to participate or not participate in job embedded professional development?
2. How does a teacher's level of collegiality, as measured by centrality (individual) measures, impact his/her decision to participate?
3. What relationship exists between centralization (network measures) and teacher decisions to participate or not participate in job embedded professional development?
4. To what extent and in what ways do teacher social networks influence a teacher's decision to participate in job embedded professional development?

Data are presented as answers to these questions.

Question 1: What relationship exists between teacher's motivational orientation and teacher decision to participate or not participate in job embedded professional development?

Of the 51 teachers in the building, 22 teachers chose to participate in the teacher study group (Table 1). The average number of years these teachers have taught in the building is nine

years. Out of the 22 teachers, twelve teachers are general education teachers, while six are special education and four taught the related arts. Of the 29 teachers who chose not to participate in the teacher study group, twelve are general education and five are special education teachers. Nine related arts teachers and three non-instructional staff members chose not to participate. The average number of years in the building is 12. Finally, to determine the participation rate, a Participation Score was calculated by dividing the number of years teachers participated in the teacher study group in the last 5 years by the number of years in the building over the last 5 years.

Table 1.
Demographic Data Results for Both Groups

	Participating	**Non-Participating**
Members	22	29
Average Years in the Building	9	12
General Education	12	12
Related Arts	4	9
Special Education	6	6
Non-Instructional	0	2
Participation Score	.87	.17

According to the participation scores (Figure 3), currently participating teachers have a history with participating in the teacher study group. Over the five year period, 16 participating teachers chose to participate fully while 19 non-participating teachers chose not to participate at all. Table 2 displays those participating teachers with participation scores less than one tended to join the teacher study group late and were current participants while the non-participating teachers typically left the group earlier in the five year span. Teachers did not fluctuate back and forth in their decision to participate; those who either left or joined the group continued with their decision.

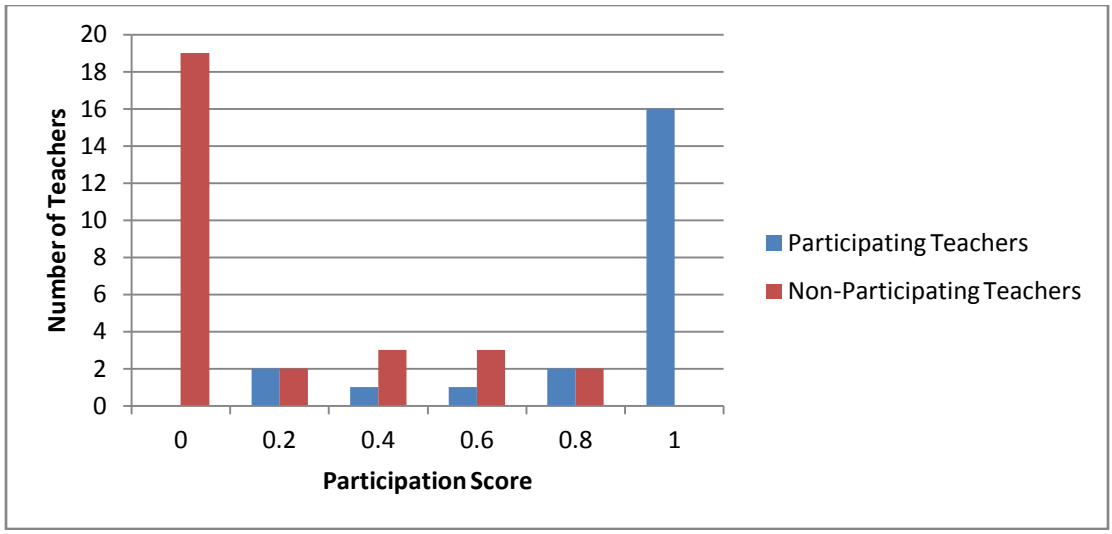

Figure 3. Participation scores for both groups

The structure of the GCMS teacher study group has changed to resemble the characteristics of effective professional development. Initially, the teacher study group was a time for teachers to come together to engage in reflective dialogue around topics chosen by teachers. Over the years, the administrators became more involved and shifted the focus of the teacher study group around best practices based on school goals and teacher needs. Focusing on best practices, the teacher study group emphasized learning over teaching through the critical and collaborative analysis of student outcomes. Table 2 displays the topics and focus of the teacher study group over a five year period - topics on differentiated instruction and technology integration and formative assessment through action research in an effort to support their practices of authentic assessment and nurturing pedagogy. This change in structure from teacher selected topics that was supported by shared readings and discussion to a more intense study of specific best practices that provide teachers specific learning based on learning data may explain some of the participation decisions made by the teachers over the five year period.

Table 2.
Participation History of Teachers Who Joined or Left

		Action Research Based on Building Goals *	Action Research Based on Building Goals *	Formative Assessment - Action Research *	Transformative Assessment - Action Research *	Differentiated Instruction Using Technology – Topic Study **	
Teacher	**Years in building**	**2012-2013**	**2011-2012**	**2010-2011**	**2009-2010**	**2008-2009**	**Participation Score**
114	14	1	1	1	1		0.8
138	9	1	1	1	1		0.8
149	8	1	1	1			0.6
102	6	1				1	0.4
101	4	1					0.25
115	14	1					0.2
118	5		1	1	1	1	0.8
144	5		1	1	1	1	0.8
132	17		1				0.2
133	5			1	1	1	0.6
139	19			1	1	1	0.6
145	6			1	1	1	0.6
140	10			1	1		0.4
106	10				1	1	0.4
110	12				1	1	0.4
119	6					1	0.2

* topic

Motivations

Teacher Professional Development Decision survey asked teachers about what influenced their decisions about their participation in their own professional development. After organizing the survey data in Excel, SPSS was used to determine the means of the factors for both groups – participating teachers and non-participating teachers. The data illustrates the importance of Collegiality in a teacher's decision to participate and the importance of Time Constraints and Personal Problems in a teacher's decision not to participate. As Table 3 displays, for participating teachers, Intrinsic, Student Needs, Collegiality, and Organizational Goals factors ranked highest as having Moderate to Strong influence in their decision making about professional development. Based on this ranking, participating teachers' continued decision to participate in the teacher study group is influenced by their intrinsic desire to learn how to improve their teaching in a collaborative manner in order to meet building goals and needs.

Table 3.
Influencing Factors for Participating Teachers in Rank Order

Influencing Factors	**N**	**Mean**	**Std. Deviation**
Intrinsic	22	2.6818	0.45632
Student Need	22	2.4091	0.51816
Collegiality	22	2.3545	0.59179
Organizational Goals	22	1.9727	0.36669
Administrative Support	22	1.8027	0.52908
Career Advancement	22	1.7909	0.67747
Time Constraints	22	1.5182	0.7372
Monetary	22	1.4636	0.80329
Personal Issues	22	0.6023	0.49797

For Non-Participating teachers, Table 4 displays Intrinsic, Student Needs, Time Constraints, and Collegiality as factors that had Moderate to Strong influence in their decision making. Based on this ranking, Non-Participating teachers would choose to participate in the

teacher study group if it were not for the time constraints that prevented their participation. For Participating teachers, the extrinsic oriented factors were lowest ranked, while Time Constraint was identified as an important factor for those who chose not to participate. Examining the means and how these factors rank, Time Constraint factor appear to be a determining factor for not participating while Organizational Goals is one for participating.

Table 4.
Influencing Factors for Non-Participating Teachers in Rank Order

Influencing Factors	N	Mean	Std. Deviation
Intrinsic	29	2.4414	0.56916
Student Need	29	2.0483	0.74192
Time Constraints	29	2.0345	0.58571
Collegiality	29	1.9103	0.73404
Career Advancement	29	1.7655	0.6258
Organizational Goals	29	1.7172	0.59165
Monetary	29	1.6759	0.89029
Administrative Support	29	1.5286	0.68001
Personal Issues	29	1.3966	0.70558

To confirm the differences between the two groups, independent t-tests were conducted and Table 5 displays the three factors that resulted in significant difference for participating and non-participating teachers. Participating teachers found Collegiality more important while non-participating teachers found Time Constraint and Personal Issues factors to be more important. The change in the structure of the teacher study group required teachers to engage in more work and time in collaboration. The seventh grade math teacher (110) was a participant in the teacher study group but found that she was not able to meet the demands of the study group:

> I'd liked it more when it was - we would read and then discuss something, and it wasn't so heavy on creating something. I just felt with – not that it is all about the professional development hours, but it was a lot of extra that you have to do – I mean you know how it is, it is just there is not that much extra time sometimes.

Table 5.
Results of Independent Samples t-Test Comparisons for the Motivating Factors

	Participation	N	Mean
Years	Non-Participating	29	11.79
	Participating	22	8.50
FormalGroup	Non-Participating	29	3.69
	Participating	22	3.09
StudentNeed	Non-Participating	29	2.0483
	Participating	22	2.4091
OrgGoals	Non-Participating	29	1.7172
	Participating	22	1.9727
Collegiality *	Non-Participating	29	1.9103
	Participating	22	2.3545
CareerAdv	Non-Participating	29	1.7655
	Participating	22	1.7909
Monetary	Non-Participating	29	1.6759
	Participating	22	1.4636
AdmSupport	Non-Participating	29	1.5286
	Participating	22	1.8027
Intrinsic	Non-Participating	29	2.4414
	Participating	22	2.6818
Personal **	Non-Participating	29	1.3966
	Participating	22	.6023
Time **	Non-Participating	29	2.0345
	Participating	22	1.5182

*p < .05, **p < .01

She also felt that “Why should I spend extra time? Besides my regular class, I need time to correct assignments and I have some of the kids that come in the morning for extra help” (110). The sixth grade Math/Science teacher (118), who used to participate, shared simply: “Honestly, the only reason why I didn’t participate this year was because of time and personal reasons – a new baby.”

The other sixth grade Language Arts/Social Studies teacher (144) shared the same sentiment:

> I find that the professional development I take advantage now is just my grad school classes because it fits in my life at the moment. It's like now I have to use that time from 7:00 until 8:30 to do other stuff – Olivia, my daughter.

Regardless of the benefits of teacher networks and the relationships developed, opportunities for collegiality were not enough to influence some teachers from participating in teacher study group. Time Constraints and Personal Issues factors had an influence on some teacher's decision to not participate in teacher study group.

Collegial Relationships

Relationships and networks are structures that support individuals professionally and emotionally. To get a better perspective of how Collegiality impacts teachers' decisions, a social network analysis was completed using the data collected from the social network section of the survey. Social network data were collected for two kinds of networks. The Advice Network identifies relationships that contribute to interactions around work related advice and support and data were collected by asking teachers to report who they went to for work related advice. The Friendship Network identifies relationships created through friendships and emotional support and data were collected by asking teachers to report who they considered as friends, those with whom they socialize and from whom they receive emotional support.

For each network, centralization was computed which identifies which members are central to the network. These measures help determine the importance of individuals in the network. Centralization describes the extent to which cohesion is organized around particular individuals. It indicates how tightly the network is organized around its most central individuals. Network centralization is generally calculated by looking at the differences between the centrality scores of the most central individual and those of all other members. Higher

centralization score indicates that a few network members hold highly central positions in the network. An individual centrality score is calculated by measuring the number of direct connections a particular individual has. An individual's centrality score can be directional. An individual's out-degree centrality is a measure of potential influence (ties going out) because of the ability of the individual to exchange information with others, or disperse information quickly to others. An individual's in-degree centrality is a measure of prominence (ties coming in) because many individuals seek direct ties to the individual which may be regarded as a measure of importance.

Network density was also computed which provides a measurement that represent a percentage of interactions or ties among the teachers that actually exist out of the total possible ties that could exist within the specific network. The more nodes are connected to one another, the denser the network. Density indicates the connectedness among individuals, and is often used to measure cohesion. Since cohesion begins with individuals who are connected, higher levels of group cohesiveness should entail that the removal of one (two, three…) individuals should not disconnect the group. This measurement is intended to give a sense of how well communication and resource pathways in the network are capable of getting information out to the network's participants.

For ease of explanation, networks are considered to be "low", "moderate", or "high" in terms of density and centralization. No acceptable cutoff points have been identified in the literature for each, but for this discussion, "low" describes density and centralization of below 30 percent, "moderate" is between 30 and 60 percent, and "high" is any score over 60 percent. For individuals, the level of collegiality can be described as "low" when centrality scores are below 30 percent, moderate when between 30 and 60 percent, and high when over 60 percent.

Question 2: How does a teacher's level of collegiality, as measured by centrality (individual) measures, impact his/her decision to participate?

For both networks, a visual representation, known as a sociogram, is presented and examined. Sociograms provide visual representation of network data reported in the tables. In each sociogram, a node represents an individual teacher. Triangles represent participating teachers and squares represent non-participating teachers. The line between two nodes indicates the presence of a relationship between two teachers in the network. The arrows at the ends of each line tell whether the tie is directional or reciprocal. The size of the node represents how connected the node is – the degree centrality score. Figure 4 displays the Advice Network and Figure 5 displays the Friendship Network, both made up of related arts, special education, general education, and non-instructional staff members.

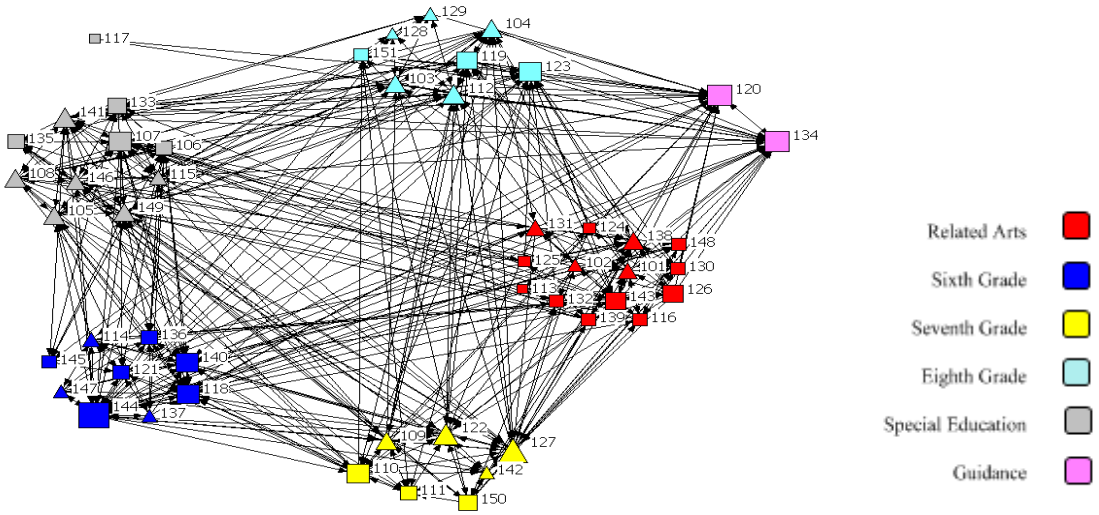

Figure 4. Advice Network for the Entire Building

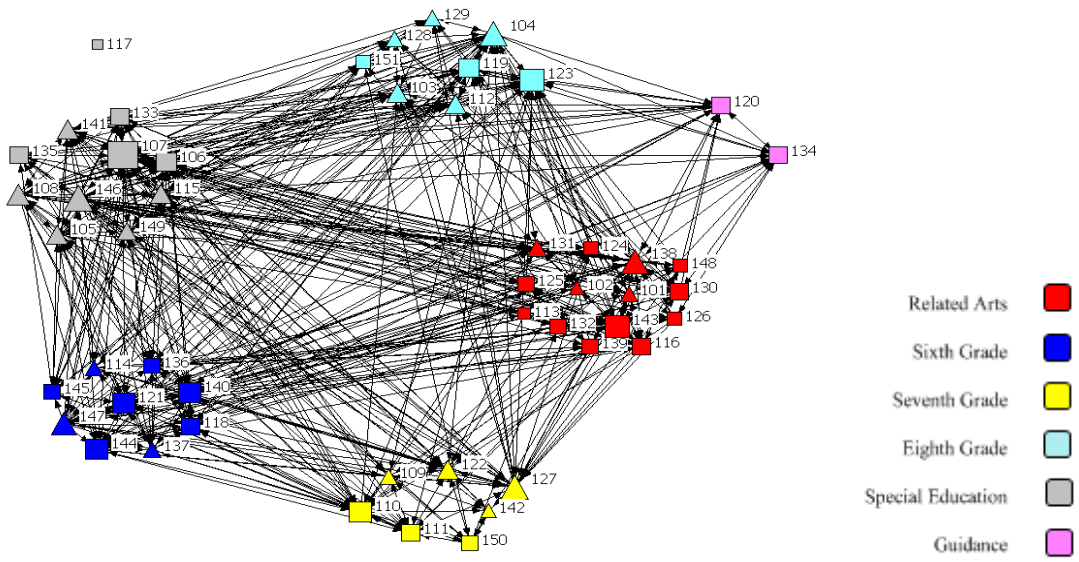

Figure 5. Friendship Network for the Entire Building

The sociograms show that three teams can be considered participating teams since the majority of teachers on the team are participating teachers – Special Education, Seventh Grade, and Eighth Grade. Table 6 displays the highest centrality scores for both networks. The participating teams not only consist of majority of teachers who participate, but also are centered around participating teachers. For example, the Seventh Grade team is centered around three participating teachers (Nodes 127, 122 and 109) and only one non-participating teacher (Node 110). The Sixth Grade team is a non-participating team and is centered around four non-participating teachers (Nodes 144, 118, 140, and 121) and one participating teacher (Node 147). The only general education classroom team that does not have a majority of teachers participating is the Sixth Grade team. The Sixth Grade team is also the only general education team that teaches two core subjects, working in teacher teams and sharing students. The Related Arts team is not considered a participating team and it consists of teachers who teach different

subjects, making up smaller subject groups, which could explain the low level of interactions with colleagues from other teams.

Table 6.
Individual Centrality Scores

Participation	Teacher	Team	Advice Network Degree Centrality	Friendship Network Degree Centrality
Non-Participating	143	Related Arts	**0.36**	**0.56**
Non-Participating	126	Related Arts	**0.32**	0.2
Participating	138	Related Arts	**0.32**	**0.64**
Non-Participating	144	Sixth Grade	**0.64**	**0.52**
Non-Participating	118	Sixth Grade	**0.4**	0.36
Non-Participating	140	Sixth Grade	**0.38**	**0.5**
Non-Participating	121	Sixth Grade	0.24	**0.48**
Participating	147	Sixth Grade	0.16	**0.58**
Participating	127	Seventh Grade	**0.56**	**0.68**
Participating	122	Seventh Grade	**0.44**	**0.4**
Non-Participating	110	Seventh Grade	**0.38**	**0.5**
Participating	109	Seventh Grade	**0.36**	0.28
Participating	112	Eighth Grade	**0.42**	**0.42**
Non-Participating	123	Eighth Grade	**0.4**	**0.58**
Non-Participating	119	Eighth Grade	**0.36**	**0.46**
Participating	104	Eighth Grade	**0.36**	**0.68**
Participating	103	Eighth Grade	**0.34**	**0.38**
Non-Participating	107	Special Education	**0.42**	**0.84**
Participating	141	Special Education	**0.4**	**0.44**
Participating	149	Special Education	**0.36**	0.34
Participating	108	Special Education	**0.34**	**0.52**
Participating	105	Special Education	**0.32**	**0.42**
Non-Participating	133	Special Education	**0.3**	0.34
Participating	146	Special Education	0.28	**0.78**
Participating	115	Special Education	0.24	**0.38**
Non-Participating	106	Special Education	0.22	**0.4**
Non-Participating	134	Guidance	**0.46**	0.3
Non-Participating	120	Guidance	**0.44**	0.36

Collegiality can be illustrated by examining a network's density and the distribution of its member's centrality scores. At GCMS, participating teachers tended to seek out advice and receive advice from their colleagues more so than non-participating teachers. Table 7 displays the density and centralization scores for both networks. The Advice Network is low in density in that 20% of all possible connections are present. In terms of degree centralization, which accounts for direct ties, the Advice Network is centered around a few prominent individuals (in-degree = 24.6%), but does contain a moderate number of influential individuals (out-degree = 43.3%). Figure 6 displays the distribution of participating and non-participating teachers' centrality scores. When looking at collegiality in the Advice Network, we see that it originates from teachers who are sought out for advice by their colleagues. The In-degree centrality scores for participating teachers are skewed to the left and are more evenly distributed as indicated by the low In-degree Centralization scores. Collegiality tends to also be higher among participating teachers in terms of their Out-degree Centrality scores. The network's Out-degree Centralization score indicates that the network is centered around a moderate number of individuals and as Figure 6 displays, those individuals are participating teachers. In a network with a density of 20%, a higher number of participating teachers are more connected and more sought after for advice.

Table 7.
Density and Centrality Scores for Each Network

Measure	Advice Network	Friendship Network
Density	20.4%	27.0%
Degree Centralization	37.9%	49.0%
In-degree	24.6%	31.6%
Out-degree	43.3%	47.9%

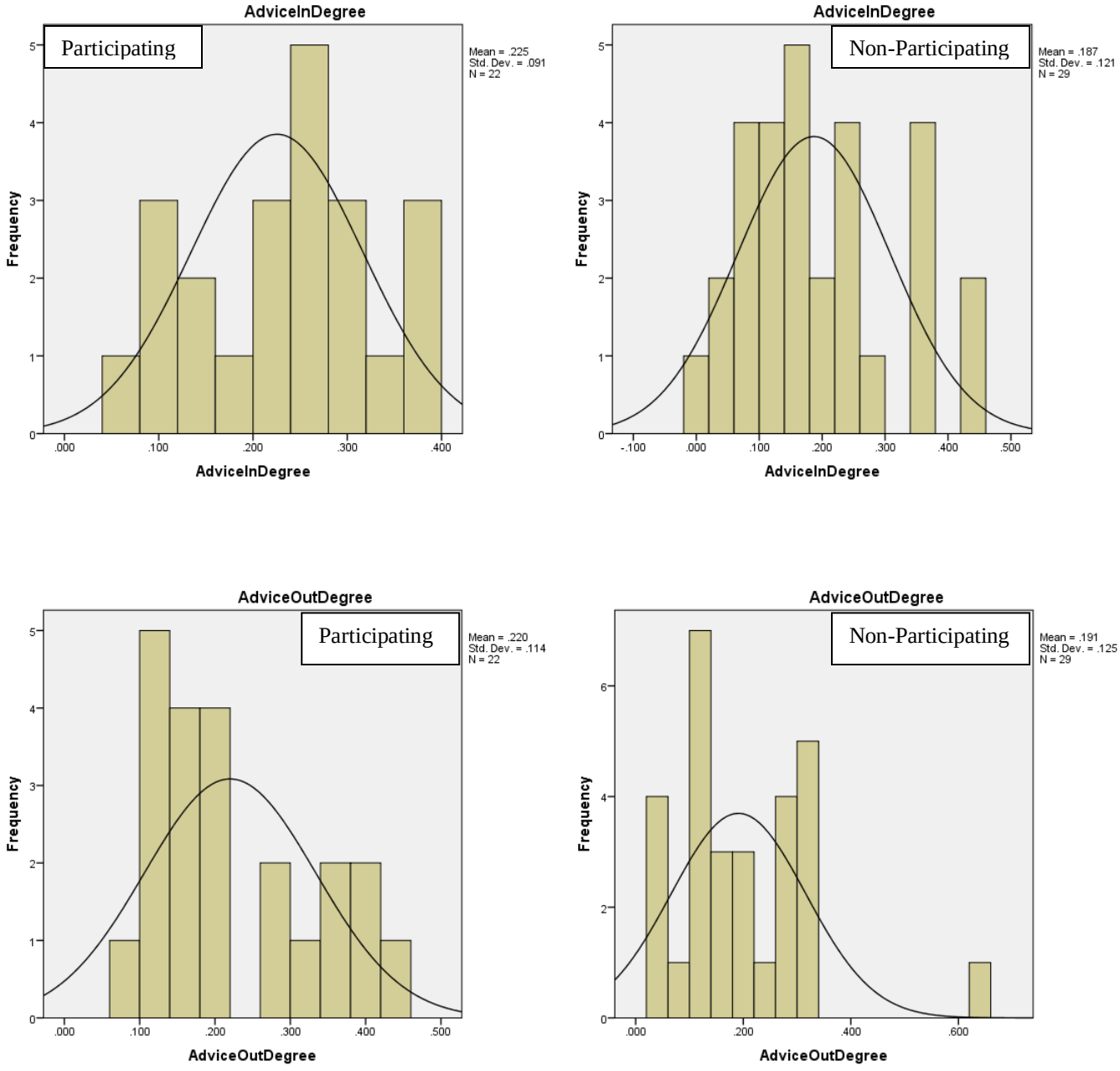

Figure 6. Distribution of Centrality Scores for Both Groups in the Advice Network

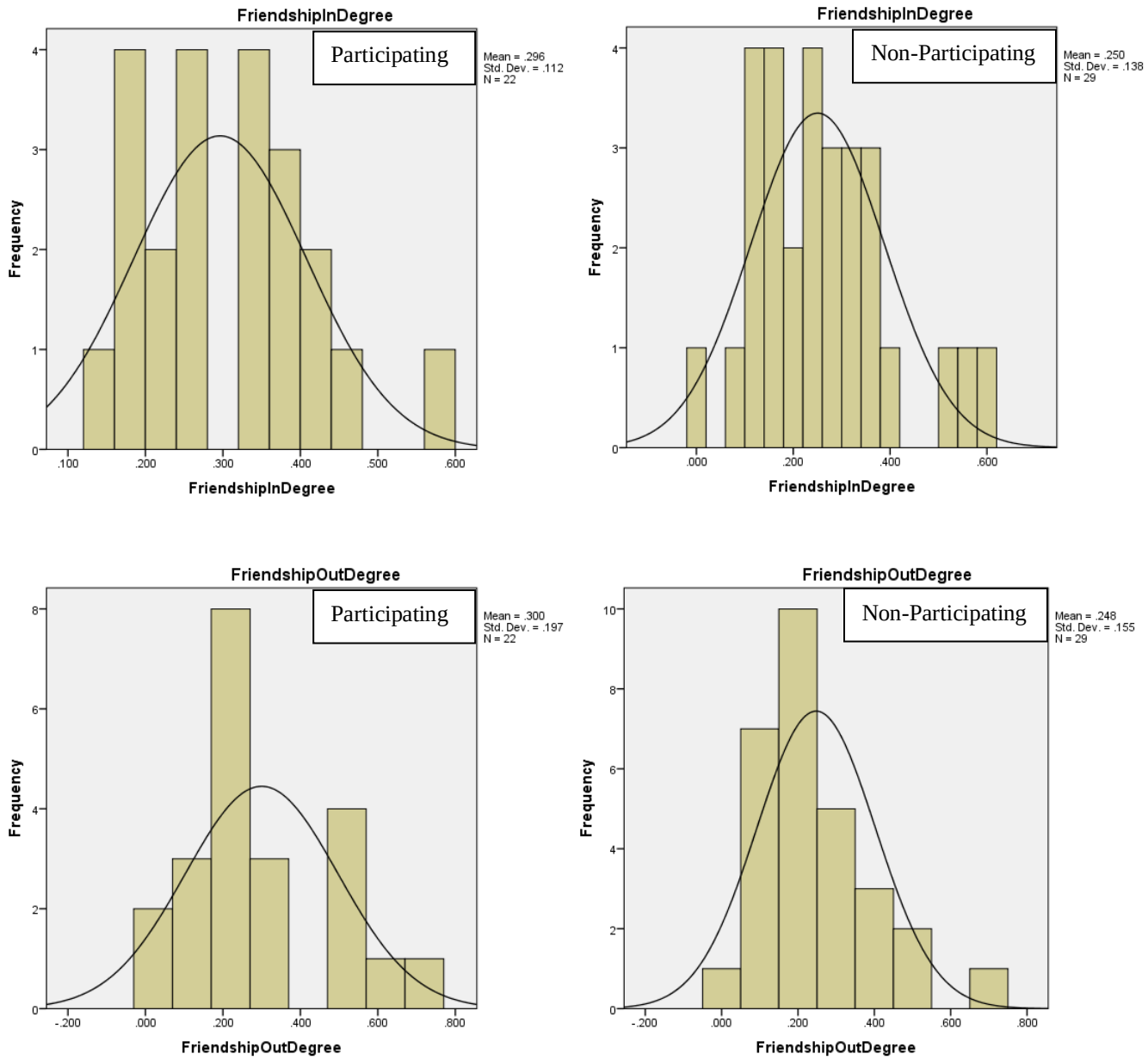

Figure 7. Distribution of Centrality Scores for Both Groups in the Friendship Network

Centrality scores in the Friendship Network were considerably higher with means approaching the moderate level for participating teachers. The Network data and the distribution of centrality scores illustrate how the network is centered around participating teachers. Again,

the density of the network is considered at a low level, 27% of all possible connections present. In terms of degree centralization, the Friendship Network is centered around a moderate number of prominent individuals (in-degree = 31.6%). Figure 7 displays the distribution of participating and non-participating teachers' centrality scores. The network is centered slightly around a few prominent non-participating teachers (n=3) and centered around a few influential participating teachers (n=6). Though the network is centered around a few prominent non-participating teachers, the centrality scores for participating teachers are more decentralized and result in a higher mean which illustrates that the 27% density is more of a result of participating teacher ties. Based on network and centrality scores, participating teachers are sought out and connected more than non-participating teachers.

Question 3: What relationship exists between centralization (network measures) and teacher decisions to participate or not participate in job embedded professional development?

To examine cohesion and relationships between individuals in each group, network measures for each group's Advice and Friendship Networks were calculated. Measures of network density and centralization are shown in Tables 8 and 9. According to Table 8, the groups are low in density but the density of the network for the participating teachers (28.4%) is higher than the density for the non-participating teachers (19.7%) and the density for the entire network (20.4%). Since density measures the connectedness among individuals, it can be said that the connectedness of participating teachers contributes to the density of the Advice Network at GCMS more so than the connectedness of non-participating teachers. In other words, though

the network is considered to be low in density, it does demonstrate a higher cohesion among the participating teachers.

Table 8.
Advice Network Scores for Each Group

Measure in Advice Network	Participating Teachers	Non-Participating Teachers
Density	28.4%	19.7%
Degree Centralization		
Total degree	34.8%	27.7%
In-degree	31.7%	32.5%
Out-degree	36.9%	36.4%

According to Table 9, the groups have a higher density for their Friendship Networks than their Advice Networks. Density for the participating teachers is moderate at 34% and higher than the density for non-participating teachers (26.2%) and the density for the entire network (27%). Again since density measures the connectedness among individuals, it can be said that the connectedness of participating teachers contributes more to the density of the Friendship Network at GCMS than the connectedness of non-participating teachers. In other words, there is higher cohesion among the participating teachers.

Table 9.
Friendship Network Scores for Each Group

Measure in Friendship Network	Participating Teachers	Non-Participating Teachers
Density	34.0%	26.2%
Degree Centralization		
Total degree	44.3 %	38.9%
In-degree	25.5%	40.9%
Out-degree	56.9%	33.2%

According to the survey results, Collegiality factor was found to be influential in teacher's decisions to participate in professional development. In examining social network

measures, participating teachers tend to seek out colleagues for advice and friendship and be sought out for advice and friendship more than non-participating teachers. To confirm the network analysis results, independent t-tests were conducted and Table 8 displays the results which indicate a relationship between participation and the number of collegial relationships developed. Independent t-tests confirmed that there were significant differences between the two groups (See Table 10). Participating teachers had higher mean centrality scores, both *in-degree* and *out-degree*. Most significant is the difference in In-degree centrality scores for the Friendship network which signifies a high sense of collegiality among participating teachers throughout the Friendship network and not around only a few teachers.

Table 10.
Results of Independent Sample t-Test Comparisons for the Network Measures

	Participation	N	Mean
AdviceOutDegGROUP *	Non-Participating	29	.19703
	Participating	22	.28350
AdviceInDegGROUP *	Non-Participating	29	.19700
	Participating	22	.28359
AdviceDEG-GROUP	Non-Participating	29	.27838
	Participating	22	.35059
FriendOutDegGROUP *	Non-Participating	29	.26228
	Participating	22	.38959
FriendInDegGROUP **	Non-Participating	29	.26241
	Participating	22	.38950
FriendDEG-GROUP **	Non-Participating	29	.35224
	Participating	22	.50214

*p < .05, **p < .01

Content of Interactions

Question 4: To what extent and in what ways do teacher social networks influence a teacher's decision to participate in job embedded professional development?

Another network characteristic displayed in a sociogram is the density of the network (Figures 8 & 9). When comparing sociograms of the two networks, density is displayed by the number of lines connecting nodes. The more lines there are connecting nodes in a network, the denser the network. The Friendship Network is denser as indicated by the number of lines connecting the nodes. Even though the Friendship Network is denser, one node (117) is not connected in the network. Unlike Advice Networks in which every individual seeks out or is sought for advice in regards to work that is specific, Friendship Networks are based on different relationships and individuals may not have developed and or engaged in social interactions that would identify with strong ties. Weak ties are usually only activated for a specific purpose, rather than being part of a multi-layered emotional relationship. Strong ties require that one invest significant amounts of time. Node 117 is a special education specialist who travels and has been in the building two years.

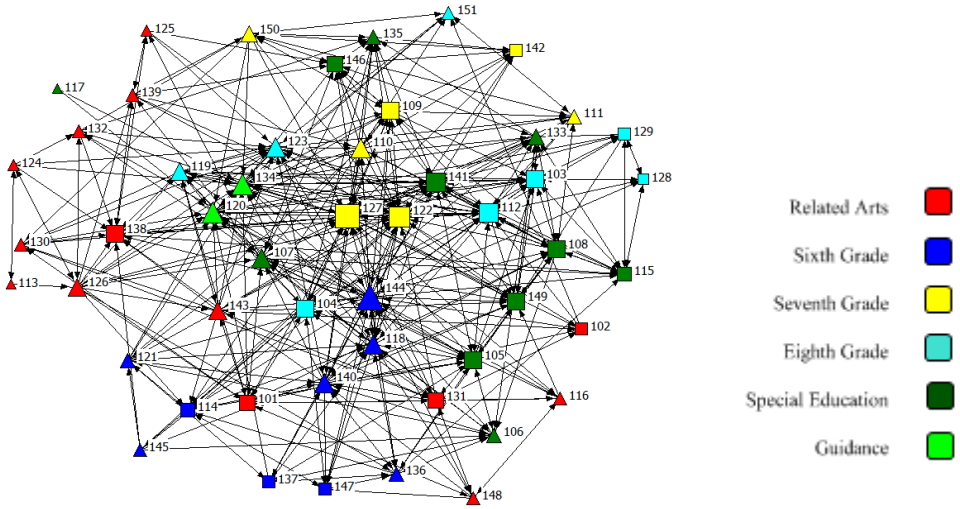

Figure 8. Advice Network for the Entire Building Illustrating Density

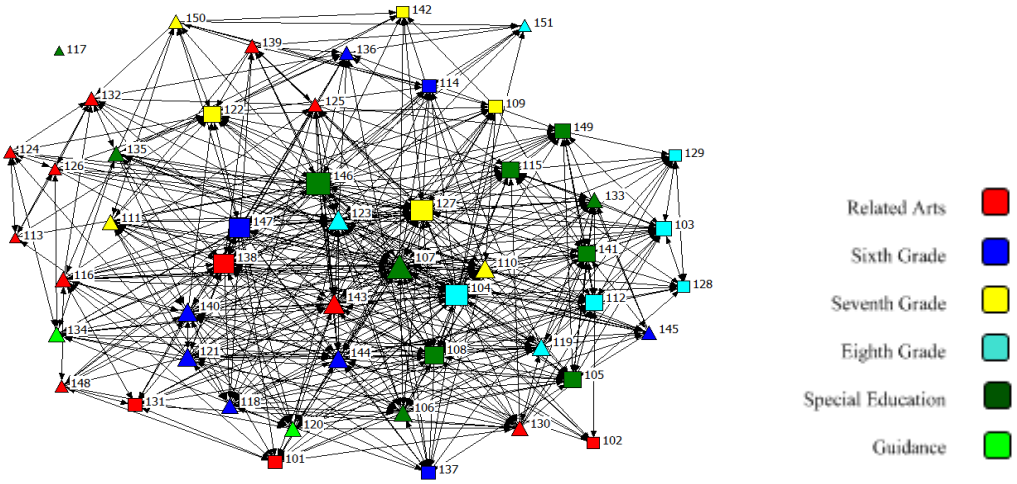

Figure 9. Friendship Network for the Entire Building Illustrating Density

There are two kinds of social support offered in the workplace: expressive networks and instrumental networks. Expressive networks were mapped out by asking teachers to identify those who they considered to be friends. Instrumental networks were mapped out by asking

teachers who they turned to for support or advice to complete work-related tasks or responsibilities. To examine how these relationships impact decisions to participate in the teacher study group, three teachers were interviewed from each group (participating and non-participating).

Teachers gain a lot from talking and listening to colleagues whom they respect for their skills in teaching. Networks develop as individuals form network ties based on their perceptions of others, reaching out to those whom they perceive as having expertise. Teachers responded that the most effective professional development were those that allowed for sharing of experiences. Teachers who chose to participate in the teacher study group indicated what appealed to them was the opportunity to share. For example, a sixth grade teacher Math/Science teacher (114) pointed out, "the best thing I like about teacher study group is the ideas that I can directly use in my teaching, and they are practical. Those suggestions can actually be used." The data explicitly show how participation in job embedded professional development activity, like teacher study group, can meet their need for collegiality. A Related Arts teacher (138) pointed out that, "I like it because of the fact that it's with my coworkers and I enjoy seeing the coworkers that are involved in it and I'd love to hear their ideas and I appreciate what they have to offer." And she also pointed out a personal benefit from attending teacher study group:

> The best part of this group is the joy of personal growth. After all, I feel I have different perceptions about my relationships with my friends and students. I now have different perspective about the behaviors of people.

A similar sentiment was expressed by an eighth grade Language Arts teacher (112):

> Even not related to professional issues, listening to other teachers' experiences or perspectives also make me grow. Because teaching is very lively, we can use those stories or experiences in our classes.

Non-participating teachers responded in a similar way. For a sixth grade math/science teacher (118), sharing was achieved through subject area collaboration that began with her student teaching experience.

> I'll go to Isabel and Jane because I kind of developed that relationship with them when I was here student teaching, so, something not as personal, but something more – how – do you think there's another way like to get this across or have you guys used another strategy or the kids really aren't getting this or I'm having issues getting them to take notes properly or they have a whole slew of ideas.

A seventh grade math teacher (110) found that individuals on their grade level team provided learning opportunities.

> I don't know, he just has very strong beliefs and he can certainly I guess approach any situation, and he takes the emotions out of things. So, I think sometimes he does better at handling situations because he does not have the emotions like some of us might get a bit too emotional in a situation. If we have really something that is really bothering us, we can certainly talk to him and he could help us not overreact before we talk to another parent or something like that.

Obviously, sharing includes exchanging life experiences and learning about others' perceptions and teaching. It seems to have an impact on teacher's value systems and possibly their teaching beliefs. Moreover, this hidden change has also been embedded in the teachers' teaching jobs. In the fact that the influence on personal and emotional development is difficult to measure, the fact that teachers commented this as an influence makes it worth noting.

In addition to sharing, teachers reported effective professional development related directly to their work and their classroom. For instance, a participating teacher (114) felt strongly that, "the best thing about teacher study group is the ideas that I can directly use in my classroom, and they are realistic and practical. Ideas can actually be used." Responses from teachers show how collaboration through participation in teacher study group helped their

instruction since it was directly related to their needs in the classroom. Another participating teacher (112) reported how teacher study group helped her with her workload:

> Collaboration with other teachers can reduce the heavy burden of my work. Most of the time, we need to plan and design teaching materials alone, but the teacher study group gives us opportunity to work together. And my plans become richer because of the contributions from others.

This practice of collaboration carried over to the team level for this teacher (112):

> Professional development is even when it's just Meagan, Ann, and I sitting down and really kind of sifting through the curriculum and looking at what works in Ann's class and what didn't work in my class.

Non-participating teachers shared the same feelings about how professional development is most effective when it is related to the work in the classroom. The sixth grade Language Arts/Social Studies teacher (144) shared that:

> It gives me all the information I really need to know. I'm on like a need to know basis, so if I can use it, if it's important, if it's relevant for me either in the future or at that time, that's the thing. I think that's the best, that it -- that's it's practical, that's what I'm trying to say.

Obviously, teacher relationships around instructional practices provide the collaborative opportunities to develop instructional materials and plans, and to share learning experiences. These benefits to teacher networks are realistic and help teachers make good connections with their work with their students.

Summary

In this chapter the results of the examination into the motivations of teachers as they decide on their participation in a job-embedded professional development experience were reported. Based on the survey results, when making decisions about participation in professional development, Collegiality, Time Constraints, and Personal Issues were found to be factors that differentiate participating teachers from non-participating teachers at GCMS. Using the Social Network data, teachers who decided to participate in the teacher study group were found to have higher levels of connectedness and collegiality than teachers who chose not to participate. And regardless of their decision to participate, teachers interviewed reported the importance of collegial opportunities to share experiences for their own professional development. The next chapter will summarize these findings and discuss (a) how the findings fit within the literature, (b) how the findings extend the knowledge base, and (c) how the findings set an agenda for further research.

CHAPTER V

CONCLUSION

This final chapter summarizes how the findings of this study connect theory to practice, using the framework that underpinned this study. Following the discussion, the limitations of the study are addressed and recommendations for future research are made so that there can be a better understanding of how to support collegiality and teachers' motivations to participate in rich job-embedded professional development.

Discussion

With increasing emphasis on teacher accountability, it is important that teachers are not just equipped as they enter teaching but continually develop as life-long learners. The professional development of teachers should be a critical component of their ongoing effectiveness and even satisfaction in teaching. Professional development experiences are designed to increase teacher content knowledge and instructional practices. There is considerable consensus for the characteristics of effective professional development (Borko, 2004; Richardson, 2003; Desimone, Porter, Garet, Yoon, and Birman, 2002; Elmore, 2002; National Staff Development Council, 2001; King & Newmann, 2001; Loucks-Horsley, Stiles, & Hewson, 1996; Darling-Hammond & McLaughlin, 1995; Sparks, 1994). In addition to the focus on teacher knowledge and practices, there has been a call to examine the role of teacher motivation in professional development (Wei et al., 2009).

This study found a relationship between motivational orientations of GCMS teachers and their decisions to participate in job-embedded professional development. When making decisions about participation in professional development, Collegiality, Time Constraints, and

Personal Issues were found to be factors that differentiate participating teachers from non-participating teachers at GCMS. Participating teachers found Collegiality more important as a factor while non-participating teachers found Time Constraints and Personal Issues as factors more important in their decision making. Over the five year period, the nature of the study group changed. Some non-participating teachers left the study group after this change because it required more effort and time in collaborative work. This renewed emphasis on focused collaborative work actually encouraged some teachers to participate. And those interviewed identified a change in their personal lives – birth of the babies – as a reason for deciding not to participate.

To examine how Collegiality impacted teachers' decisions to participate, Social Network data were collected and analyzed. In examining the connectedness of teachers, participating teachers were found to have higher levels of Collegiality for both the Advice and Friendship Networks. The centrality scores, which measure the number of direct interactions in the building, were found to be higher for participating teachers. In other words, teachers who were sought out for and were chosen for advice and friendship were teachers who tended to participate in the teacher study group. An additional Social Network analysis was conducted on each group's networks to examine the cohesiveness of the groups. Group cohesion or closure, as measured by density, tended to be higher for the networks associated with participating teachers. Within each group, the percentage of interactions (of the total number possible) was higher for the teacher study group teachers.

As discussed in Chapter 2, Coleman (1988) introduced the idea of closure as a characteristic of some social networks. Coleman argued that closed networks are better able to reinforce social norms and, as a result, can provide more social capital than open networks. In a

closed teacher network, all of a teacher's collaborative activities are connected by a consistent set of principles, goals, and definitions and teachers bring these same concepts into their own learning. Closed teacher networks may be better able to impose on teachers a sense of obligation to improve their instruction while also providing a common vision for what high-quality instruction looks like. In other words, a closed teacher network may be able to provide teachers a higher level of collegiality and, as a result, greater access to the resources they need to learn from and improve their instruction.

Analysis of the data revealed two important, but distinct types of collegiality – collegial interactions that helped produce an emotionally supportive work environment, and collegial interactions that truly engendered significant professional development. Synthesis of comments made by GCMS teachers indicate that a supportive, collegial environment is one in which colleagues keep open the lines of communication, and listen to both the concerns and ideas of others. They found that opportunities to share experiences, both learning and work-related, were important in their learning. Participating teachers found these opportunities from the relationships they developed on their teams and from the teacher study group. Non-participating teachers found these opportunities from only their relationships with the members from their teams.

Teachers need opportunities to work with each other in various ways including networking. The current interest in professional learning communities in schools confirms the importance of collaborative activities which provide opportunities for teachers to work together. Participating teachers, through their level of interactions with colleagues, described the importance of collegiality as part of their decision making about professional development. Little (1990) describes collegiality as "storytelling and scanning for ideas" which permits

teachers to maintain their independence and privacy through occasional sharing and informal "peeking" into colleagues' classrooms. Unfortunately, the realities and norms of teaching and beliefs about the nature of teachers' work create barriers to sustaining professional learning communities in many schools (Achinstein, 2002; Ball, 1996; Little, 1990, 2003). Patterns of teachers' relationships including individualism and balkanization may hinder the development of learning communities for the entire staff of a school (Hargreaves, 1992, 1994). Also, many teachers lack the skills and/or motivation to engage their colleagues in critique and dialogue which interferes with teachers' capacities to grow and learn (Ball, 1996). Collaboration, including networking, may be an effective way for teachers to learn, but as the experience at GCMS demonstrates, most school and teacher cultures will need to address issues with collegiality and motivational barriers before this approach can take hold.

Implications

The results of this study have some implications for buildings and their administrators and to the study of social networks in schools. For an instructional leader who facilitates the learning for teachers in the building, the findings of this study may guide how the leader approaches professional development of his teachers. The reason teacher work has been considered isolated work is not because teacher networks are inclined to be isolated, but because there are factors that prevent teachers' collegial interactions. As a school leader, the importance of collegiality through teacher networks is clear. Leaders must consider creating opportunities that eliminate barriers to collegiality. Researchers have found that job embedded professional development, such as teacher study groups, provide quality learning opportunities for teachers (Desimone et al., 2002; Smylie, 1995; Wood & McQuarrie, 1999). A teacher study group, like

the one at GCMS, invited teachers to join a larger network which required providing a common time convenient for all which typically was before or after school. Instead smaller teacher study groups may eliminate the need to meet before and after school and allow all to participate. As the school leader, carefully planning of the team time can ensure quality time for teacher learning.

The findings also imply that professional interaction among teachers is a major vehicle to foster teacher professional development. Teachers reflect on their experiences in the classroom and share perspectives through discussion with colleagues. Therefore, strategies that facilitate professional interactions among teachers need to be integrated into job embedded professional development opportunities. In order for teachers to have an opportunity to collaborate with each other on a professional level, teachers must have input into the types of conversations they need and how often they would benefit from them. The conversations can take form as teacher sharing circles, mentoring, study groups, and inquiry projects. However, schools would benefit most from engaging in work suggested by Little (1993) that involve teachers in the construction of knowledge rather than the consumption of knowledge. Schools would profit from providing teachers with time to investigate, experiment, consult, or evaluate learning that is embedded in the routine organization of teachers' workday and work year. These types of on-going collaboration and professional learning opportunities would provide a challenge to the staff's intellect and collegial exchange of ideas.

This study also provides a framework and terms to examine the forms of support and types of relationships that teachers have, which have implications on the ways in which school leaders can help teachers learn more about how to develop collegiality. The analysis of the two groups at GCMS offers a perspective of how teachers might reflect upon and examine their own

network and networking behaviors; teachers can think about what shapes their networks, their networking behavior, the characteristics of the people in their network and what forms of support they offer. The findings also suggest that teachers and school leaders may benefit from observing school dynamics and culture from networking perspectives: Who works with whom in the school? Why do they make these choices, and how do they interact with each other? These exercises can help prepare teachers for the various forms of school cultures that they will encounter when they teach. But more importantly, school leaders will be more informed as they orchestrate formal networks that allow for collaboration.

In building formal social networks, the findings from this study suggest that school leaders should start local, within schools, and foster relationships by making space and time for collaborative work, driven by the interests and needs of the teachers. Also, the act of networking and collaborating is important, and teachers (or the community) may benefit from critically examining their networking practices and learning how to more consciously build and sustain their support networks. Further, this study describes the importance of frequent, regular interactions to sustain work and collaboration between colleagues.

Of course, collegiality is not developed overnight. A school's leader and its teachers must support it. While the leader can mandate that teachers engage in collaboration around school activities, for collegiality to develop, the teachers must work within a network to support it. The school leader can model and encourage such collaborative practices and even provide time and support to facilitate them, it is the teachers in the network who will develop and cultivate these relationships with their colleagues.

Limitations

Case studies can provide an in-depth look at the many interactive levels of knowledge sharing that take place in a school. However, the complexity and richness of the study is also a limitation as it is hard to know which features of the study might generalize to other schools. The purpose of this study was to explore the relationships that developed in the different networks at GCMS. By examining the characteristics of these networks, a better understanding of how collegiality supported the participation in the job-embedded professional development at GCMS, specifically the early morning teacher study group.

Because of the complexity of this study, it is difficult to determine, for some teachers, if collegiality supports their decisions to participate or if it is their participation that supports their sense of collegiality. Even prior to the study, GCMS had a tradition of job embedded professional development. A core group of teachers have participated in the teacher study group since the very beginning. It may be clear that these teachers' sense of collegiality to each other supported their decisions to participate all these years. However, with new teachers to the building, it is not clear if the relationships supported their decision or if they decided to participate in order to support the development of new relationships. This causal order issue is another limitation to this study.

In addition, there is a limitation in using Social Network Analysis as a formative method of identifying and analyzing teacher networks. This study was restricted to one academic year. Studying the teaching community over a longer period of time would provide expanded opportunities to observe the teachers further as they develop their collegial relationships. Mapping out the networks and utilizing other tools in Social Network Analysis could provide a richer view at the collegiality in the school setting.

Future Research

This study was primarily concerned with examining how teacher's relationships impacted their decision to participate in teacher study group. Further research is needed that focuses on identifying the elements within school culture that effectively support the elements of collegiality and facilitate the movement of expertise within the community. Social network analysis can provide a method of revealing how information, resources, and expertise travel through the various components of a community. This type of analysis could further serve to outline the structures and systems that enable schools to develop and sustain high levels of collegiality.

In this study, levels of collegiality were studied using basic level Social Network Analysis techniques. These techniques were quite general and many higher level analyses are possible in specific circumstances. This study examined collegial interactions of teachers in two networks for both groups – participating and non-participating teachers. A subgroup analysis could look at the different types of subgroups within each network and how they interact. A deeper study of the effect of subgroup composition on levels of collegiality seems warranted based on the fact that they have not yet been treated within the theoretical base and that SNA can find these subgroups easily.

There is much more that could be investigated in terms of network structures and dynamics. Obviously, tie strength and relationship-type can both change dynamically through the year; some can begin as close colleagues at the beginning of the year, and then drift apart, while others can slowly become close over the course of the year. How do the networks change over time, and what influences these changes? How do the forms of support change as the dynamic is altered? A deeper study of a school's network and the "professional culture" might

offer more insight into the dynamics between school norms, social network development, and professional support.

Finally, examining how to overcome such barriers to successful job embedded professional development as lack of time and/or resources would yield valuable data to inform practice. This research could explore alternative ways to embed teacher learning into the flow of the school day so more teachers could participate. Subsequently, identifying the practical strategies school leaders can use to build capacity in their teachers by cultivating collegiality through the various formal and informal networks in the building.

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APPENDICES

Appendix A

Subscale Factor Items for the Teacher Professional Development Decision Survey

Reasons for Participation

Student need	Items 10, 14, 20, 24, 35
Organizational goals	Items 1, 4, 11, 28, 29
Collegiality	Items 6, 13, 17, 19, 26
Career Advancement	Items 2, 5, 16, 25, 33
Monetary rewards	Items 3, 9, 22, 34, 36
Administrative support	Items 8, 12, 23, 27, 30, 31
Intrinsic motivation	Items 7, 15, 18, 21, 32

Deterrents to Participation

Personal Issues/Concerns	Items 2, 4, 7, 8
Time Constraints	Items 1, 3, 5, 6, 9

Appendix B

Motivations for Professional Development
Section 1 – Demographic Information

First Name _____ Last Initial _____

1. What is the total number of years you have been teaching at GCMS (including this year)?

_____

2. Check all that apply.

___ 6th grade ___ 7th grade ___ 8th grade

___ Art ___ Music ___ Physical Education ___ Spanish

___ Language Arts ___ Math ___ Science ___ Social Studies

___ Guidance ___ Special Education ___ Other _____

Section 2 - Teacher Professional Development Decision

Directions: Teachers engage in professional growth activities (e.g., inservice, university courses, workshops, independent study, etc.) for a variety of reasons. Which of the following have had an influence on your decision to participate or not to participate in professional development, and how strong has that influence been?

0	1	2	3	N/A
no influence	slight influence	moderate influence	strong influence	not applicable

Reasons for Participation

For each item listed below, please circle the number to indicate to what extent that factor has influenced your decision to participate in professional development.

Circle N/A only for those items that do not apply to you. For example, you would circle N/A for item #1 only if your school does not have a school improvement plan.

	no influence	slight influence	moderate influence	strong influence	not applicable
1. The school improvement plan.	0	1	2	3	N/A
2. Increased job responsibilities.	0	1	2	3	N/A
3. Stipends for curriculum work.	0	1	2	3	N/A
4. School staff development goals.	0	1	2	3	N/A
5. Aspirations for a new position.	0	1	2	3	N/A
6. A group of peers who encourages my professional development.	0	1	2	3	N/A
7. Desire to keep current on newest educational research.	0	1	2	3	N/A
8. Encouragement for my professional development from an administrator.	0	1	2	3	N/A
9. Monetary benefit through increased salary.	0	1	2	3	N/A
10. Changes in my students' needs.	0	1	2	3	N/A
11. Involvement in a major committee or school improvement project.	0	1	2	3	N/A
12. A supervisor who models professional growth.	0	1	2	3	N/A

13. Opportunities to share ideas with my colleagues through meetings or workshops.	0	1	2	3	N/A
14. Desire to work more effectively with special needs children.	0	1	2	3	N/A
15. Desire to keep abreast of current trends and issues in my field.	0	1	2	3	N/A
16. Desire to advance my career.	0	1	2	3	N/A
17. Informal discussions with other colleagues that identify concerns, topics, and opportunities for professional development.	0	1	2	3	N/A
18. Desire to keep current on newest educational practices.	0	1	2	3	N/A
19. Recommendations of a particular workshop by a colleague.	0	1	2	3	N/A
20. Desire for increased student scores on the NJASK.	0	1	2	3	N/A
21. Desire to learn new techniques and methods such as formative assessment, cooperative learning, running records, etc.	0	1	2	3	N/A
22. Monetary benefits through stipends.	0	1	2	3	N/A
23. Invitations to attend workshops from central office.	0	1	2	3	N/A
24. Desire to be successful with challenging students.	0	1	2	3	N/A
25. Desire to take a leadership position within the school.	0	1	2	3	N/A
26. Informally consulting with colleagues regarding issues related to instruction.	0	1	2	3	N/A
27. Invitations to attend workshops from building administration.	0	1	2	3	N/A
28. Involvement in curriculum revision, textbook selection or other similar school projects.	0	1	2	3	N/A
29. District sponsored professionally relevant inservice programs.	0	1	2	3	N/A
30. Recognition for participation in professional development activities from administration.	0	1	2	3	N/A
31. Availability of professional release days.	0	1	2	3	N/A

32. Desire to be a life-long learner.	0	1	2	3	N/A
33. Additional certification requirements for career advancement.	0	1	2	3	N/A
34. Stipends for attending workshops on non-school days.	0	1	2	3	N/A
35. Desire to increase student achievement in a subject area.	0	1	2	3	N/A
36. Additional salary stipend for graduate hours above a masters.	0	1	2	3	N/A

Deterrents to Participation

For each item listed below, please circle the number to indicate to what extent that factor has influenced your decision NOT to participate in professional development.

1. Professional development at inconvenient time.	0	1	2	3	N/A
2. Professional development in an unsafe area.	0	1	2	3	N/A
3. Length of professional development.	0	1	2	3	N/A
4. Child care issues.	0	1	2	3	N/A
5. Professional development in inconvenient locations.	0	1	2	3	N/A
6. Inability to attend regularly.	0	1	2	3	N/A
7. Personal health problem or handicap.	0	1	2	3	N/A
8. Family commitments.	0	1	2	3	N/A
9. Amount of time required to study.	0	1	2	3	N/A

Section 3 – Social Network

This section of the survey asks you to identify people in your school with whom you communicate with on a variety of issues. Circle the names of your colleagues.

1. Whom do you ask about work-related advice?

Katelyn A.	Frank A.	Anne B.	Jeff B.	Erin B.	Lori C.	Barbara C.	Sheila C.	Eileen D.	Isabella D.
Laura D.	Gina D.	Annelie F.	Christine F.	Marcy F.	Gary G.	Colleen G.	Nicole G.	Adriana H.	David K.
Amanda K.	Jane K.	Mara L.	Paul L.	Priscilla L.	Noreen L.	Maura L.	Pamela L.	Lisa M.	Laura M.
Rachel M.	Inez M.	Laura N.	Susan N.	Lisa P.	Arleen P.	Jennifer R.	Diana R.	Betsy R.	Ryu S.
Catherine S.	Jessica S.	Melissa S	Dana S.	Beth S.	Melissa T.	Mike T.	John T.	Barbara W.	Donna Z.
Steve Z.									

2. Who do you consider as a friend?

Katelyn A.	Frank A.	Anne B.	Jeff B.	Erin B.	Lori C.	Barbara C.	Sheila C.	Eileen D.	Isabella D.
Laura D.	Gina D.	Annelie F.	Christine F.	Marcy F.	Gary G.	Colleen G.	Nicole G.	Adriana H.	David K.
Amanda K.	Jane K.	Mara L.	Paul L.	Priscilla L.	Noreen L.	Maura L.	Pamela L.	Lisa M.	Laura M.
Rachel M.	Inez M.	Laura N.	Susan N.	Lisa P.	Arleen P.	Jennifer R.	Diana R.	Betsy R.	Ryu S.
Catherine S.	Jessica S.	Melissa S	Dana S.	Beth S.	Melissa T.	Mike T.	John T.	Barbara W.	Donna Z.
Steve Z.									

Appendix C

Interview Guide

I. Importance of Professional Development

1. Describe yourself as a learner. How do you learn best?
2. To you, what is professional development?
3. What are your thoughts about professional development experiences available to teachers? Are they important to your teaching effectiveness? Do they meet your needs?

II. Factors that Influence Participation

4. What factors hinder your participation in professional development?
5. Why did you choose to participate in this teacher study group?
   Or Why did you choose not to participate?
6. If you could just pick one person, who do you think is the most influential person in the school today? Why?
7. One of my survey questions was "Whom do you go to discuss your work?" You identified a list of individuals. What made you choose the particular individuals on your list?
   a. What types of issues do you discuss with this particular individual? Give me an example.
   b. What types/kinds of support has he/she provided? Give a few examples.
8. One of my survey questions was "Whom do you ask about work-related advice?" You identified a list of individuals. What made you choose the particular individuals on your list?
   a. What types of issues do you discuss with this particular individual? Give me an example.
   b. What types/kinds of support has he/she provided? Give a few examples.
9. One of my survey questions was "Who do you consider as a friend?" You identified a list of individuals. What made you choose the particular individuals on your list?
   a. What types of issues do you discuss with this particular individual? Give me an example.
   b. What types/kinds of support has he/she provided? Give a few examples.
10. Why do you think your list of individuals was different for all three questions?