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Using Social Network Analysis to Investigate the Diffusion of Special Education Knowledge within a School District

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Using Social Network Analysis to Investigate the Diffusion of Special Education
Knowledge within a School District

A Dissertation Presented

by

MARTHA H. VON MERING

Submitted to the Graduate School of the
University of Massachusetts Amherst in partial fulfillment
of the requirements for the degree of

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Using Social Network Analysis to Investigate the Diffusion of Special Education

Knowledge within a School District

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DEDICATION

To my ever patient and loving family.

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I wanted to take this opportunity to deeply thank my advisor Mary Lynn Boscardin for shepherding me through this incredible and fantastic journey called a dissertation. From coursework, to seminar, to writing, I could not have done this work without your thoughtful insight, guidance, assistance, and a lot of good natured prodding. I also would not be at this stage of my academic life without my fellow cohort members both past and present. Without your support, late night texts of encouragement, and Sunday morning writing sessions, I would have likely given up long ago. Special thanks to Wyatt Taylor for his extensive time helping me to understand the power of networks. Thank you from the bottom of my heart for all you have done that has allowed me to make this wonderful dream become a reality.

ABSTRACT

USING SOCIAL NETWORK ANALYSIS TO INVESTIGATE
THE DIFFUSION OF SPECIAL EDUCATION KNOWLEDGE
WITHIN A SCHOOL DISTRICT

MAY 2017

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The primary purpose of this study was to analyze the relationships that existed between the district-level special education leadership team and two elementary schools. The study used social network analysis (SNA) as the primary methodological and analytic approach to reveal the structural dimensions of the advice giving/receiving networks within the schools to delve more deeply into network relationships, collaboration, and knowledge impact. By mapping the existing network relationships through the lens of network centralization, reciprocity, and density, the study sought to analyze what, if any, link existed between the network properties and the extent to which leadership was distributed. The study also examined the extent to which advice giving/receiving affected the knowledge of staff members and whether a relationship could be seen between network properties and school performance, albeit indirectly. Moderate findings were present between network properties and diffusion of special education knowledge, the type of advice being given/received, and the effect advice giving/receiving had on the

knowledge base of staff members. An indirect relationship was also found between network properties and school performance. The study concludes with a discussion of the implications for professional practice and future research on distributed leadership particularly from a social network and diffusion of knowledge perspective.

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CHAPTER 1

INTRODUCTION

Educational leadership research has primarily concentrated on principals and superintendents (Billingsley & McLeskey, 2014; Crocket, Billingsley, & Boscardin, 2012; Garner & Forbes 2013). Often left out of primary leadership research is the role of the special education administrator despite the fact that their decisions significantly impact student programming and the organization as a whole (Boscardin & Lashley, 2003; Crocket et al., 2012). With an increasing number of students with disabilities being taught in inclusive settings by general education teachers who are supervised by principals and assistant principals, the abilities of these general education leaders need to include knowledge and skills customarily utilized by special education administrators (Boscardin, 2007).

Since the provision of special education continues to present one of the foremost challenges encountered by school leaders in light of on-going demands for school reform, it is incumbent upon researchers to study general educational leadership in conjunction with special education leadership (Crocket et al., 2012; Zaretsky, Moreau, & Faircloth, 2008). Thus this study seeks to investigate the relationships that exist between a special education leadership team, the schools within which they work, and their general education counterparts.

General v. Special Education Leadership

Some researchers do not distinguish differences in leadership practices used by special education administrators versus general education administrators and question the need to study this distinction that other researchers do feel exist (Hewitt, Davis, &

Lashley, 2014; Zaretsky et al., 2008). The idea is that effective leadership practices should, in theory, apply uniformly across boundaries regardless of whether they are being used in a general education setting or special education setting. However Boscardin and Lashley, (2003) assert that a distinction has occurred between general education and special education leadership which can be attributed to the intersection of general education, special education, and educational leadership. At this intersection lies special education administration (Boscardin, 2007). According to Boscardin and Lashley (2003),

“special education administrators are those individuals who work in school districts to lead, supervise, and manage the provision of special education and related services for students with disabilities. They are also responsible for implementing the provisions of special education law, state, local statutes as well as policies and procedures that stipulate a free, appropriate public education in the least restrictive environment” (p. 6).

Therefore, leadership practices of special education administrators should be carefully studied to discern what practices are effective. As a result, both special education and general education leaders can be provided with, and benefit from using, the essential tools to be effective in the school setting for all students, but especially those students with disabilities (Boscardin, 2005). It is imperative to study general educational leadership practices in combination with the demands of special education administration. Ultimately, until the work of special education and general education leaders merges and becomes a responsibility of all leaders, special education leaders and administrators continue to be unique and face their own set of leadership challenges that require specific leadership skill-sets (Crockett, Becker, & Quinn, 2009; Crocket et al., 2012; Garner & Forbes, 2013).

Historical Perspective on Education

The Constitution of the United States does not contain a provision for education. According to Standerfer, early federal legislation regarding education only provided monies or land for schools and special programs but allowed states to make all decisions on curriculum and the day-to-day operations of school facilities (2006). However while the federal government realized that some form of indirect intervention was needed to ensure students would academically thrive, both the federal and state governments were hard-pressed to define what types of interventions would yield the best student results.

Spanning more than 100 years from the top-down structure of the factory model in the early 20th century, the more-is-better philosophy of the Excellence movement in the 1980's, to the bottom-up reforms captured by the Restructuring movement in the early 21st century, educators, researchers, stakeholders, and policy makers have been attempting to unravel, analyze, and define effective educational leadership. According to Leithwood, Louis, Anderson, and Wahlstrom (2004), "leadership is second only to classroom instruction among all school-related factors that contribute to what students learn at school" (p. 3). However the impetus for varied educational reform movements was not just a way to organize and deliver instruction but a way to ensure effective classroom learning and effective outcomes for students (Darling-Hammond, LaPointe, Meyerson, Orr, & Cohen, 2007). Fullan suggests that educational reform in the United States erroneously focuses on accountability, individual teacher development, technology, and fragmented components from various reform movements (2011). To be successful, future leaders of a school or district need very different characteristics than those expected of leaders in the last few decades (Darling-Hammond, et al., 2007)

especially since “isolationism [and] individualism remain deeply ingrained in the culture of schooling (Gajda & Koliba, 2008, p. 149).

The Excellence and Restructuring movements represented a leadership style known as transactional leadership. Transactional leadership is a quid pro quo type of leadership where leaders expect a certain level of service or goods in exchange for the provision of perquisites. For example in an educational context, a principal (leader) would release a teacher (follower) early in exchange for having covered lunch duty all week. Unfortunately transactional leadership does not allow for authentic collaboration and rich conversations to occur between the leader and follower since the follower will always be subservient to the leader (Fullan, 2011). Such a relationship is unequal and will not achieve effective growth of staff members, initiatives, and increases in student achievement (Fullan, 2004; 2011). In the context of education, transactional leadership eventually became less effective as the need for greater collaboration and distribution of work occurred (Acker-Hocevar, 2014; Leithwood, Mascall, & Strauss, 2009). While the educational field was occupied moving from one reform to another, the legislative field was busy in its attempts to support education at a national level.

Ostensibly to fight the perils of poverty, President Lyndon B. Johnson signed the Elementary and Secondary Education Act (ESEA) on April 11, 1965. This act emphasized equal access to education and established high standards and accountability by authorizing federally funded education programs administered by the states. However missing from the ESEA of 1965 was equal educational opportunities for students with disabilities. Therefore, following just ten years later, President Gerald Ford signed into law on November 29, 1975 the Education for All Handicapped Children Act (EAHCA),

now famously known as PL 94-142. This act provided equal access to education by supporting states and localities in protecting the rights of, meeting the individual needs of, and improving the results of students with disabilities and their families. Specifically, PL 94-142:

- assured that all children with disabilities have available to them...a free appropriate public education (FAPE) which emphasizes special education and related services designed to meet their unique needs
- assured that the rights of children with disabilities and their parents...are protected
- assisted States and localities to provide for the education of all children with disabilities
- assessed and assured the effectiveness of efforts to educate all children with disabilities

Together the ESEA of 1965 and EAHCA of 1975 provided both disabled and non-disabled students far reaching educational opportunities unheard of to this point in the 20th century.

Reauthorizing the ESEA of 1965 was the Improving America's School Act (IASA) that President Bill Clinton signed into law on October 20, 1994. This iteration featured Title 1 to provide extra help to disadvantaged students, the inception of charter schools, grant monies for safe and drug free schools, and provisions to hold schools accountable for their results at the same level as other students. It was again authorized in 2002 by then President George W. Bush but under the title of the No Child Left Behind Act (NCLB). NCLB expanded equal access to administer annual state-wide standardized

assessments to all students, farther reaching accountability, and the requirement to have highly qualified teachers. A few additional areas of focus of NCLB are:

- ensuring that high-quality academic assessments, accountability systems, teacher preparation/training, curriculum and instructional materials are aligned with state academic standards,
- meeting the educational needs of low-achieving students in high poverty schools,
- closing the achievement gap between high and low performing students,
- accountability for improving the academic achievement of all students, and
- providing greater decision-making authority and flexibility to schools and teachers in exchange for great responsibility for student performance.

Just two years later, the Individuals for Disabilities Education Act (IDEA) was reauthorized in 2004. It was signed into law on December 3, 2004 by President George W. Bush with the provisions of the act becoming effective on July 1, 2005. According to Yell the subsequent amendments made to the EAHCA were intended to offer greater clarification, clearer restructuring, and further extension of the original law (2012). As with previous authorizations, IDEA 2004 is intended to provide states and school districts with the monetary supports needed to protect the educational rights of students with disabilities. In exchange for these monies, states and school districts must provide special education services to students with disabilities that are reasonably calculated to provide a FAPE in the least restrictive environment (LRE). A FAPE in the LRE, according to the U.S. Supreme Court, was met if a district complied with the procedural provisions of the

IDEA and if the services outlined on the Individual Education Plan (IEP) were reasonably calculated to provide meaningful educational benefit to the eligible student.

On March 13, 2010, President Barack Obama, through the U.S. Department of Education, released his proposal for revising the ESEA. Citing “every child in America deserves a world-class education”, this 45-page “blueprint” document asserts that the last iteration of the ESEA is flawed. The blueprint also asserts that the law needs to be revamped and that the upcoming reauthorization must revisit the federal government’s role in education. The five areas of focus of the proposed ESEA revision were:

- college and career ready students
- great teachers and leaders in every school
- equity and opportunity for all students
- raise the bar and reward excellence
- promote innovation and continuous improvement

However when the ESEA was finally reauthorized and titled the Elementary and Secondary Education Act (ESSA) on December 10, 2015 by President Obama, no longer was the first focus area of college and career ready students left in the law. Instead, the ESSA looks to states and districts to take a well-rounded and broader approach to student learning. For example, NCLB expected that educational efforts would be focused on interventions for students in Title I schools that were either at risk of failing or already failing annual state academic achievement standards. In contrast, the ESSA version asks that the work of districts and states focuses on ensuring that “all children receive a high-

quality education [while closing] student achievement gaps” (ESSA, 2015). Other notable differences between NCLB and ESSA are illustrated/depicted in Table 1.

Table 1: NCLB and ESSA Highlights

NCLB	ESSA
Required states to apply the same academic standards to all schools and children.	Allows states to develop alternate academic achievement standards for students with the most significant cognitive disabilities.
Required districts to annually assess all students with limited English language proficiency.	Allows schools to phase in the use of test results of English language learners for accountability purposes.
Not addressed	Allows states to limit the aggregate amount of time spent on assessments for each grade while requiring districts to publicly post information on all required assessments including the amount of time students spend taking the assessments.
Required 100% of students to be proficient in reading and math by June 2014 and that schools make adequate yearly progress (AYP) for all students and those subgroups that were disaggregated.	Eliminates AYP and 100% proficiency. Allows state to determine how much weight will be given to tests in their accountability systems and whether any consequences should be given for poor performance.
High-quality teachers and teacher evaluation system	High-quality teachers and teacher evaluations are no longer requirements

In order for the ESSA reauthorization to be successful, the need for collaboration among all members of an educational community is imperative. Whether discussing needed collaboration among teachers, principals, and other stakeholders in order to determine key statewide definitions, or working in collaboration with these same people to develop fair and meaningful teacher and principal evaluation systems, collaboration is a critical element needed to ensure successful outcomes for students. (Crockett et al., 2009; May, Susskind, Shapiro, 2013). When there is high engagement within an educational environment along with copious two-way collaboration, there is a deepened

sense of shared ownership and commitment for all students including those perceived as being disadvantaged such as students with disabilities, English language learners, homeless students, migrant students, etc. (English, Papa, Mullen, & Creighton, 2012). Specifically focusing on the education of special education students, a greater review of what is special education and its administration is needed at this juncture.

In Boscardin's article titled, "What is Special about Special Education Administration? Considerations for School Leadership" (2007) she is not referring to why special education is special, but rather she is referring to why special education *administration* is special. While children with disabilities are not a new phenomenon, appropriate and effective education for students with disabilities has not always existed. In fact, as discussed previously, education that was specialized specifically for students with disabilities is relatively new as are the civil rights acts that protect these same children. Such protections eventually grew into education acts that granted special education students certain entitlements. Our collective moral purpose makes explicit the goal of raising the bar and closing the gap for all individuals, including those with special education needs, and schools (Boscardin et al., 2011; English, et al., 2012).

At this juncture, it is important to delve more deeply into two critical entitlements at the heart of special education that were briefly mentioned above - FAPE and the concept that such an education will occur in the LRE. It is important to illustrate these two concepts because they are the foundation for providing effective special education to students with disabilities by those people who find themselves in leadership roles.

In Title 20 of the United States Code (USC), section 1401 et seq., 2011 edition, the following is stated about FAPE:

“The term “free appropriate public education” means special education and related services that—

(A) have been provided at public expense, under public supervision and direction, and without charge;

(B) meet the standards of the State educational agency;

(C) include an appropriate preschool, elementary school, or secondary school education in the State involved; and

(D) are provided in conformity with the individualized education program required under section 1414(d) of this title.”

At 20 USC, section 1412, LRE is defined as:

“To the maximum extent appropriate, children with disabilities, including children in public or private institutions or other care facilities, are educated with children who are not disabled, and special classes, separate schooling, or other removal of children with disabilities from the regular educational environment occurs only when the nature or severity of the disability of a child is such that education in regular classes with the use of supplementary aids and services cannot be achieved satisfactorily.”

By interpreting the regulatory code above, public agencies must ensure that students with disabilities, whether they are in public or private facilities, are educated with their nondisabled peers. Such education with nondisabled peers must be to the maximum extent possible but appropriate to the needs of the student with disabilities. Additionally, any removal from the general education setting must only be due to the fact that the nature or severity of the student’s disabilities prevents them from satisfactorily accessing the general education curriculum even with the provision of supplementary aids and services. Therefore, in order to achieve LRE, public agencies must offer a

continuum of alternative placements to effectively educate all students with disabilities that is comparable to non-disabled peers and allows students with disabilities to also participate in both state and district-wide assessments (Boscardin, 2005). While it is necessary to ensure special and general education providers collaborate together so that all students progress, Boscardin (2005) raises the question of outcomes of all students as it relates to special education and general education instruction. Boscardin (2005) asks the question, “Will blended systems result in diminished opportunities for students with disabilities to receive individually appropriate instruction they need to grow into productive adulthood?” (p. 22). Or worse, will students with disabilities be discarded for students who can perform better in the growing wake of high-stakes academic survival? (Pazey, Heilig, Cole, & Sumbera, 2015). To better address these questions, we must next discuss the person ultimately responsible for educating students with disabilities – the special education administrator.

Evolution of the Special Education Administrator’s Role

According to Lashley and Boscardin (2012) “the development of special education leaders continues to be a dynamic process, characterized by ongoing revision and reconceptualization of models of professionalism as new research continues to inform the knowledge base” (p. 38). However historically little has been special about the education of students with disabilities. Special education has typically been characterized by low academic expectations, near non-existent accountability, ill-trained and inadequate staffing, overall warehousing of students in overly restrictive settings, and a perceived “separateness” between general and special education (Boscardin, 2007; Crockett et al., 2012). What makes special education special is the work that general education teachers, special education teachers, and their respective leaders do as a

collaborative team on behalf of all students, including those students with disabilities (Billingsley & McLeskey, 2014).

Contemporary leaders of special education who are effective do not marginalize students with disabilities. Instead they seek equity under the law by providing for an inclusive school culture and inclusive practices (Billingsley & McLeskey, 2014; Crockett et al., 2012). Those leaders who are exceptionally effective practice ethically in order to provide for and advocate for educational opportunities for all students (Boscardin et al., 2011).

The National Association of State Directors of Special Education (NASDSE), founded in 1938, works to ensure that state education agencies (SEA) provide students with disabilities a rigorous education that prepares them for a successful transition to post-secondary education, employment, and independent living. The role of the special education administrator has become more predominant in school districts since the enactment of P.L. 94-142 in 1975. At that point, a gradual increase in the number of states requiring special education administrators to possess a separate license or certificate could be seen (Boscardin, Weir, & Kusek, 2010). However Boscardin et al. discovered in their 2010 study that “unlike data that show that all states require credentials for special education teachers, national data indicate that only 27 states required licensure/certification/endorsement as an administrator of special education”, leaving 23 states that do not require certification and/or endorsement as a special education administrator (p. 61). In these 23 states general education leaders, that have no specific training or experience in special education, with the assistance of special

education teachers and related service providers, will be responsible for the provision of special education services to students with disabilities (Boscardin et al., 2010).

Moving the focus away from those states without an endorsement and/or certification for special education administrators, it is appropriate to explore the role of a special education administrator as it has progressed over time. The focus of special education administrators has historically been to create and deliver special education programs and adhere to regulatory compliance requirements with little attention being paid to student outcomes (Billingsley & McLeskey, 2014; Boscardin, 2005; Crockett et al., 2012). While this still holds true today with regards to regulatory compliance, especially as laws governing special education have continually been strengthened over time, there is increased need for special education administrators to work with general education administrators to allow for the effective implementation of district-wide initiatives and reforms ultimately realizing better outcomes for all students along with overall school performance (Crockett et al., 2012). Lashley and Boscardin (2003) argue that the greatest challenge facing administrators of special education lies in their ability to create conditions that encourage, not constrain, collaboration among general education and special education staff members within an educational community (2003). While special education administrators have historically worked in isolation from their general education peers, this isolationism has been changing as a result of special education students being included more in general education classes (Boscardin et al., 2011). Thus, the role of a special education administrator has been transforming and requiring a greater reliance on collaboration with general education leaders (May et al., 2013). Interestingly, it has been hypothesized that such collaboration among all staff members

may very well pave the way for ensuring robust educational instruction is provided to all students (Crockett et al., 2012; Day, Leithwood, & Sammons, 2008). Such collaboration might subsequently lead to greater levels of achievement and improved school performance (Crockett et al., 2009; Day et al., 2008; May et al., 2013). Therefore present day special education administrators, with their ever changing role in the educational system, must acquire new skills, among them, collaboration with their general education peers (MacBeath, 2005).

Strong collaboration skills allow special education administrators to work in school districts to lead, supervise, and distribute the skills and knowledge needed to effectively provide special education and related services for students with disabilities (Crockett et al., 2009; May et al., 2013). They are also responsible for implementing the provisions of special education law, state and local statutes, as well as policies and procedures that stipulate a FAPE in the LRE (Lashley & Boscardin, 2003; Crockett et al., 2012). Nevertheless, the preparation of special education administrators most often reflects the existence of a parallel system of general education and special education that highlights the struggle to effectively educate students with disabilities (Bays & Crockett, 2007; Crockett et al., 2009; Crockett et al., 2012).

However over the past several years, emphasis on improved outcomes for students with disabilities has become a critical focus especially in light of the fact that more and more students with disabilities are being educated in general education classrooms (Boscardin, et al., 2011; DuFour, DuFour & Eaker, 2005; Mascal, Leithwood, Strauss, & Sacks, 2008). It is not enough for general and special education administrators to individually carry out their daily tasks but rather they need to work in

reciprocal collaboration in order to ensure the curriculum is also accessible to students with disabilities and that those students make effective progress (Crockett et al., 2012; Hulpia & Devos 2009; May et al., 2013). Collaboration between all staff members in a school contributes to the improvement of instruction and therefore student achievement and school performance (Woodland, Lee, & Randall, 2013).

Nonetheless, general and special education staff members typically have limited opportunities to engage in collaborative experiences that deepen the understandings of leadership, organizational dynamics, and general education (Crockett et al., 2009). Therefore there can be an unintentional separateness created between special education and general education – a parallel system of education if you will. (Boscardin, 2005; Boscardin, et al., 2011). Because of this phenomenon, it is important that special education administrators and their general education counterparts work to reject this type of parallel system (Hulpia & Devos, 2009). Because while the appropriate provision of services will always be the foundation on which special education is built, special education administrators must collaborate with their general education counterparts to ensure students with disabilities have access to both rigorous curriculum and to appropriately modified and/or accommodated assessments regardless of their degree of learning differences (Darling-Hammond et al., 2007; English et al., 2012; Hulpia & Devos, 2009). However, in order for general and special education administrators to work together and create effective programs for special education students, it requires special education administrators to distribute their special education skills and knowledge throughout the whole school network. Such diffusion of information will allow all leaders to become true leaders in their respective fields despite the fact that the job of educational

leaders has become increasingly complex, constrained, and intensified (Woodland et al., 2013). Only those leaders that are prepared to handle complex and rapidly changing environments can implement the changes needed that produce student achievement improvements (Fullan, Rincón-Gallardo, & Hargreaves, 2015).

Collaboration

Administrators that are forward thinking recognize the enormous significance of sharing leadership - of networking and collaboration (DiPaola & Walther-Thomas, 2003; May, Susskind, Shapiro, 2013). Effective leaders stand out from those that are ineffective because they encourage and make time for staff members to share the work and, in turn, build their foundations of knowledge (DiPaola & Walther-Thomas, 2003; May et al., 2013). These leaders nurture collaboration, teamwork, and networking (DiPaola, Tschannen-Moran, & Walther-Thomas, 2004) and encourage this work to be done by all stakeholders (Crockett, Becker, & Quinn, 2009; May et al., 2013). Leaders that see the interdependency of staff members' work and the role it plays in positive student outcomes will ensure that those same staff members are afforded fixed time to work together as a team on prescribed instructional activities such as the creation or adaptation of effective lessons and teaching strategies (Camburn, Rowan, & Taylor, 2003; May et al., 2013; Schmoker 2004). It is urgent that this level of planfulness also be extended to include the coordination of services for students with disabilities (Lashley, 1992).

A goal of an effective leader is to identify skilled staff members and coordinate their expertise among the remaining staff members in order to promote improved instructional practices and shared goals (Crockett, 2004; Day, Leithwood, Sammons, 2008). Since it is not simply enough to work with members of the staff, strong leaders

must also collaborate with parents and the community at large when conceiving and effectuating valuable instructional programs for both general education and special education students (Lashley 1992). A skilled leader recognizes the interdependency in a school and planfully joins together myriad elements of school activities and processes in order to produce dynamic relationships among staff members (DiPaola, Tschannen-Moran, Walther-Thomas 2004; May, Susskind, Shapiro, 2013) and external stakeholders.

In 2001, Spillane, Halverson, and Diamond found that school improvement literature identified collaboration as essential for instructional leadership. Although MacBeath suggests that while leaders may distribute activities, they should still make all final decisions (2005). However the majority of literature suggests that when faced with complex tasks, skilled leaders recognize the importance of system-wide collaboration (Spillane, Halverson, Diamond, 2004; May, Susskind, Shapiro, 2013). These skilled leaders further recognize that effective collaboration is attained by employing strong interpersonal communication skills and reciprocal esteem (DiPaola et al 2004). It is not enough to study the actions of a leader. Rather it is necessary to analyze their mindset, actions, and the needs of the situation all within an integrated context (Spillane, Halverson, Diamond 2004). Fewer and fewer schools are able to look toward one leader for all guidance and therefore replacement of the hierarchical framework becomes necessary (Hulpia, Devos, 2009; May, Susskind, Shapiro, 2013). As such, leaders have no choice but to employ collaborative activities (May, Susskind, Shapiro, 2013) and typically within a distributed leadership context (Hulpia & Devos 2009).

Collaboration and Special Education

Teams and committees are not rare occurrences in the majority of educational environments (Gronn 2000). However, Gronn found that such team and committee mechanisms typically lack collaboration when it comes to their actual decision-making (2000). These teams or committees will plan collaboratively but often times final decisions are left to a few rather than the collective (Gronn 2000).

People who espouse collaboration are, in essence, espousing the idea of the person-plus perspective (Spillane, Halverson, Diamond, 2004). Evidence suggests that when staff members work together on a particular assignment, their collaboration leads to a greater output than had those same staff members worked individually on the assignment (Spillane, Halverson, Diamond 2001; Margolin 2013). Then if the collaborative work of thoughts and actions are done in short-term, continuous cycles, it creates the most productive of combinations (Schmoker 2004).

However, the education of students with disabilities cannot be left behind. Crockett discovered that leadership work tends to focus on those leaders that work with the general education population (2002). However it is equally important to train special education leaders in the use of effective communication, negotiation, and collaboration (Crockett 2002). As collaboration in a school and district increases, so will the inclusiveness of the learning environments according to DiPaola, Walther-Thomas. Finkenbinder goes so far as to strongly recommend that special education students must be integrated within the whole school population but that in order to realize success, there must be ongoing communication and mutual cooperation among staff members (2001).

In 2002 Crockett asserted that the need to reawaken collaborative leadership was long overdue and theorized that one way to accomplish this goal would be to illuminate the activities administrators performed thereby clarifying their individual roles. Crockett went further and indicated that in order to provide effective instruction to all students, isolated special education service provision must not be the norm, be replaced by an integrative service delivery model, and be based on accountable partnerships and collaborations with all stakeholders (2002). A mere seven years later in 2009, Crockett, Becker, and Quinn noted that the activity of collaboration within the work of school administrators had become a chief trend.

However collaboration is not merely working together with others. Rather it is quite important for team members to realize that their day to day work is, in fact, interdependent and therefore can no longer be premised on the sole work of the supervisor (MacBeath et al 2004). Collaboration is also a process of learning together. To do so successfully, a school must provide for exceptional professional learning experiences that encourages positive exchanges between staff members. Such experiences, whose main goal is to inform how students are learning, allows staff members to work conjointly, take time to process their work together, and reflect on useful instructional strategies (Elmore, 2002; Schmoker, 2004). Finally, collaboration is not static but rather an ongoing process that ensures school teams achieve effectiveness. Such effective teams realize there is a symbiotic relationship between instruction, progress monitoring, and suitable student/teacher support (DiPaola et al., 2004).

Collaboration and Student Outcomes

It is quite remarkable that despite all of the indications that collaboration is one of the more successful tools for positively impacting instruction and student outcomes, according to Schmoker it still sadly remains the exception in educational settings (2004). Staff members most often work in seclusion in their assigned rooms because leaders have not realized just how valuable common planning time is to positive instructional outcomes. It is imperative that collaboration be cultivated in the staff (DiPaola et al., 2004). Without planned time to meet and work collaboratively, staff members lose the opportunity to realize that their work is interdependent. Therefore their lack of time to collaborate robs them of an essential instructional learning activity that subsequently negatively impacts student learning (Camburn, Rowan, & Taylor, 2003).

Evidence suggests that when a school practices collaboration with fidelity throughout its organizational structure, they meet with greater success and efficiency than those schools who ascribe to more commonly seen tiered organizational structures (DiPaola, et al 2004). As such, successful instructional programs are born through the use of collaborative activities that employ strong organization, positive supervision, and effective reinforcements (DiPaola et al., 2004).

A key element of success is when dedicated time is given to staff members to collaborate with one another and learn together that in turn leads to improved instructional practices and subsequent student outcomes (Leithwood, 2004; Schmoker, 2004; Harris 2005a). Spillane, Halverson, and Diamond (2004) saw in their work that when teachers were given supports and occasions to improve upon their instructional skills it was likely that the school itself ascribed to norms of collaboration and

accountability for student outcomes. Thus, improved student outcomes and overall school improvement may be achieved through collaboration of staff members that allow for the engagement of frequent, ongoing, and detailed discussions around student learning and teaching strategies (Schmoker, 2004).

Shared Vision

"Building vision and setting directions...it is about the establishment of shared purpose as a basic stimulant for one's work [and the] more specific practice in this category is building shared vision" (Leithwood, Harris, & Hopkins 2008, p. 29). Spillane, Halverson and Diamond suggest that shared vision must be constructed by and sold to staff members for full acceptance (2004). They also assert that leaders who help to construct and sell the shared vision to staff members also provide those staff members with ample time and incentives to grow their instructional practice skills (2004).

To ensure that time allotted to collaboration is being used effectively, it is important that there be a shared purpose. Collaboration without a common goal is merely socialization and will rarely positively move the network forward as a whole. Shared school-wide efforts to improve student achievement for all students must be supported by leaders through the creation of living and breathing learning communities through a shared goal focus (DiPaola et al 2004).

Educational leaders must draw from their myriad communities within the school in order to develop a common understanding of student expectations and outcomes while supporting each staff member's skills and knowledge (DiPaola, Tshannen-Moran, 2004). By assembling shared outlooks regarding the development and utilization of staff members' skills and knowledge, an administrator is more likely to be effective (DiPaola,

Walther-Thomas). Effective school leaders create a positive instructional culture that consists of shared goals and a common understanding with regard to the organization and its work (Leithwood 2004). However effective leaders cannot develop and implement a shared vision in isolation but rather must develop it through the cultivation, and with the support, of the whole school community (DiPaola, Walther-Thomas).

MacBeath asserts that there must be a shared vision held by staff members that articulates where the school is headed (2005). This coordination of efforts with staff members all working towards the same common goal oftentimes leads to improved student outcomes (Gronn, 2002; Leithwood et al 2007). Schools and districts must prioritize their activities in order to guarantee that their focus does not waiver from ensuring successful academic outcomes for all students (DiPaola, Tschannen-Moran, Walther-Thomas 2004). One way to accomplish this is for leaders to strategically rearrange expectations, goals, configurations, and cultures with the desired outcome of building and maintaining consistent performance (Day, Leithwood, Sammons, 2008).

As teachers individually share good practices with one another, they begin to learn together as a whole (DiPaola et al 2004). Those schools with more formally established school teams usually afford extended time for collaboration within and amongst themselves in order to create a cohesive set of goals that are then linked to a shared or common vision (2004). On an aside, researchers have noted that as staff members work together and begin to develop a shared school vision and goal orientation, the organizational health of the school community improves (Hulpia, Devos, 2009).

"It is important for an organization to have a shared concept of the task, and a model of how their knowledge and skill bear on that task" (Elmore 2002 p. 47). This is

especially important when teaching students with disabilities. A shared vision is derived from a leadership team that has a common sense of purpose and agreement about the goals of the district and school (Hulpia, Devos, Rosseel, 2009). Having a shared vision means that vision applies to all students. Therefore educational leaders must take ownership of their school environments and ensure that high academic standards and outcomes are expected for each and every child (DiPaola, Tshannen-Moran, 2004). Shared values and beliefs will lead to stronger instruction and subsequently better outcomes for all students (Leithwood et al 2007). "Leaders who are capable of analyzing complexities, respecting others, and advocating for every student's benefit in order to realize a full educational opportunity [are] ensuring universal educational access and accountability" (Crockett, 2002, p. 169).

Summary

No longer is it sufficient for the organizational structure to define instructional practice. Instead, instructional practice comes first and will therefore inform the school's structure (Elmore 1992). As the academic needs of students change, so too must the organization that is charged with educating them. As a result of changing student needs, more and more schools have come to the realization that staff member roles and responsibilities must be redefined in order to respond to student needs and afford them the opportunity for academic success (DiPaola, et al, 2004). Rather than administrators prescribing to their staff members on what work to complete, administrators are asking staff members to work in groups and redefine their own activities in the hopes of creating more responsive learning communities that support a wider-range of student needs and outcomes including those students with disabilities (DiPaola et al., 2004; Margolin, 2014).

CHAPTER 2
REVIEW OF THE LITERATURE

Introduction

“We are surrounded by concentric circles of special interests...However, a person is never merely a collective being, just as he is never merely an individual being.”
(Simmel, 1950, p. 261).

The roles that relationships play between people in forming and shaping outcomes for schools and their students are often unaccounted for when conducting research in educational leadership (Carolan, 2014; Margolin, 2014). While relationships do play an integral part in a person’s day to day work, as most would agree, the majority of “methods and models used in educational research do not properly account for these influences (Carolan, 2014, p. 4). Wasserman and Faust in 1994 noted that it is imperative to analyze the social networks that people find themselves a part of and emphasize that:

1. Individuals and their actions must be viewed as interdependent,
2. Relational ties between individuals are opportunities for the diffusion of information and resources
3. The pattern of relations between individuals can either constrain individual action or improve collaboration and networking among individuals,
4. Social network models theorize structure as enduring patterns of relations between individuals

Administrators that are forward thinking recognize the enormous significance of sharing leadership - of networking and collaboration (DiPaola & Walther-Thomas, 2003; May, Susskind, Shapiro, 2013). Effective leaders stand out from those that are ineffective

because they encourage and make time for staff members to share the work and, in turn, build their foundations of knowledge (DiPaola & Walther-Thomas, 2003; May et al., 2013). These leaders nurture collaboration, teamwork, and networking (DiPaola, Tschannen-Moran, & Walther-Thomas, 2004) and encourage this work to be done by all stakeholders (Crockett, Becker, & Quinn, 2009; May et al., 2013). Leaders that see the interdependency of staff members' work and the role it plays in positive student outcomes will ensure that those same staff members are afforded fixed time to work together as a team on prescribed instructional activities such as the creation or adaptation of effective lessons and teaching strategies (Camburn, Rowan, & Taylor, 2003; May et al., 2013; Schmoker 2004). It is urgent that this level of planfulness also be extended to include the coordination of services for students with disabilities (Lashley, 1992).

Fullan posits in his article titled “The Change Leader” (2002) that there are five essential components that characterize leadership:

1. Moral purpose
2. An understanding of the change process
3. The ability to improve relationships
4. Knowledge creation and sharing
5. Coherence making.

To lead with morality, there is a deep concern to make a difference in student lives by raising their achievement capacity. These type of leaders implement activities that make a positive difference in not only their schools but in the other schools within their district. They are continually asking how the students are doing in school and in the other schools in the district. These leaders also exert effort to prepare other leaders in the

school and district to ensure sustainability and even advance reform after they leave their position - "in short - the Cultural Change Principal displays explicit, deep, comprehensive moral purpose" (p 17).

To understand the change process is a complex undertaking. However the leader must first be a change agent or a catalyst (Fullan, 2002; Fullan et al., 2015). This means that they are able to get commitment from others in the organization even when those other people do not agree or like the ideas being proffered (Fullan, 2001; 2002). A change agent leader helps staff members to find collective meaning and commitment to new ways of doing the work of the school (Leithwood & Riehl, 2003; Leithwood et al., 2008). These leaders, in essence, are transforming the culture by changing what people in the organization value and how they collaborate to accomplish it to secure deep and lasting change (Leithwood & Riehl, 2003; Spillane, Halverson, & Diamond, 2001). A positive symptom of successful change is improvement in the relationships within the organization (Barber & Mourshed, 2007; Gajda & Koliba, 2008).

When relationships within an organization improve so, too, do schools (Bays & Crockett, 2007; Gajda & Koliba, 2008; Graczewski, Knudson, & Holtzman, 2009). One natural outcome of such school improvement is enhanced student performance (Barber & Mourshed, 2007; Eilers & Camacho, 2007; Hallinger & Heck 2010; Hord, 2009; Stein & Nelson, 2003). However, the reverse is also true. If relationships either remain the same or deteriorate, then precious ground will be lost for the school and its students (Leithwood & Mascall, 2008; Leithwood & Riehl, 2003). Thus it is imperative for leaders to build relationships with people who think differently than they do in order to build emotional intelligence which, in turn, becomes critical when times inevitably become

difficult during times of change (Bolman & Deal, 2003; Hulpia & Devos, 2009; Spillane, 2005).

Creating and sharing knowledge is a central tenet to effective leadership and is realized through collaborative relationships (Bays & Crockett, 2003; Day, et al., 2008; DiPaola, Tschannen-Moran, & Walther-Thomas, 2004; Lee, Hallinger, & Walker 2012; 2006; Lee et al., 2012). It is not enough to merely seek knowledge but also give knowledge so individuals are continually giving and taking knowledge to augment the overall knowledge of the organization (Day, et al., 2008). While schools are typically seen as concrete organizations that “[feature] linear lines of communication, top-down decision making...[and] hierarchical supervision their environment is, more often than not, complex, overloaded, and fraught with fragmentation (Gajda & Koliba, 2008, p. 136). Therefore it is necessary for leaders to make sense - coherence - of the chaos of a school’s network (Bolman & Deal, 2003; Boscardin & Lashley, 2012; Day, et al., 2008; Prell, 2011; Wenger, McDermott, & Snyder, 2002).

The implementation and interaction of the first four essential characteristics of effective leaders helps to give coherence to leading in today's world. Fullan (2002) asserts that it "helps forge coherence through the checks and balances embedded in their interaction [because] coherence is an essential component of complexity and yet can never be completely achieved" (p. 18).

Hierarchical leadership was extremely active from approximately the late 1930's to the early 1980's and is still very much in use today, including in today's school systems. Distributed leadership is premised on varying collaborations and networking that signify a relatively complex approach to school organization (Harris, 2005, Margolin

Lefoe, Harvey, & Ryland, 2012; Northouse, 2012; Pearce, Manz, & Akanno, 2013; Spillane, 2005). Critics of hierarchical leadership see it as executive exploitation for short-term gains at the expense of the organization's stakeholders whereas proponents believe there will always be a need for some hierarchy in any organization and, as such, it should not be discounted as a viable leadership style (Onorato, 2013; Pearce et al., 2013). In a 2012 article, Jones et al. argues for the need to have a less hierarchical approach in the higher educational sector since hierarchical leadership does not always have the flexibility to address higher education's specialized and professional perspectives. The hierarchical leadership approach does not always consider individual learning and academic independence and can therefore highlight the gap between the leader and their followers. Any over-dependence on a dominant, heroic-like leader may cause the majority of stakeholders to conform without question and, instead, focus on the traits, skills, and behaviors of the individual leader (Jones et al., 2012; Raes, Decuyper, Lismont, Van den Bossche, Kyndt, Demeyere, & Dochy, 2013). Pure hierarchical leadership without the influences of collaboration and shared decision-making often does not consider the myriad networks that exist and interact within every system including education (Jones et al., 2012; Northouse, 2012; Pearce et al., 2012; Raes et al., 2013; Spillane, 2005). These networks, which may constrain and/or support the work of the system, are critical to the effectiveness of the system and should be studied in detail when possible (Gajda & Koliba, 2008; Onorato, 2013).

Supporters of a top-down structure may not see the need to have reciprocated communication amongst teams (Bass & Avolio, 2002; Bidwell, 2001; Jones et al., 2012; Northouse, 2012; Pearce et al., 2012; Spillane, 2005). Staff members in such an

environment receive both praise and criticism from the leader, however the leader's management of his/her staff members is more likely to be predicated on the leader's own subjective standards versus objective standards applied equitably to all (Bidwell, 2001; Jones et al., 2012; Northouse, 2012; Onorato, 2013; Pearce et al., 2013; Spillane, 2005). Fundamental hierarchical leaders view themselves as implementers of the work that is subsequently performed by their staff members (Bass & Avolio, 2002; Northouse, 2012; Onorato, 2013; Raes et al., 2013; Spillane, 2005). Supporters of hierarchical leadership anticipate that followers will receive direction, have goals set on their own behalf, and be given an environmental structure that will seemingly support maximum work production effectiveness. Whereas detractors of hierarchical leadership see it as negative, pessimistic, and somewhat belittling while at the same time encouraging dependence on the leader, submissiveness, and loss of individuality (Bass & Avolio, 2002; Jones et al., 2012; Bidwell, 2001; Northouse, 2012; Onorato, 2013; Pearce et al., 2013; Raes et al., 2013; Spillane, 2005).

Typically, top down leaders prefer not to inquire into what their staff members are thinking about work production/processes because they do not recognize the value in having staff members understand the overall functions of the organization (Bidwell, 2001; Northouse, 2012; Pearce et al., 2013; Raes et al., 2013; Spillane, 2005). Cross-training staff members with new skills that reach beyond what they came with to the organization is rarely seen since top-down leaders usually move the organization forward on their own (Bidwell, 2001; Jones et al., 2012; Northouse, 2012; Onorato, 2013; Pearce et al., 2013; Raes et al., 2013; Spillane, 2005).

Hierarchical structures, also known as traditional, institutionalized bureaucracies, see staff members as solely accountable for output without any assistance from their co-workers or leaders (Bass & Avolio, 2002; Bidwell, 2001; Northouse, 2012; Pearce et al., 2013; Spillane, 2005). Staff members typically work in isolation, sans collaboration, and are expected to produce positive results. It is an individual versus consensus approach and is far from a collaborative structure that allows for reciprocity of ideas and solutions (Bass & Avolio, 2002; Bidwell, 2001; Northouse, 2012; Pearce et al., 2013; Raes et al., 2013; Spillane, 2005). Table 2 illustrates the hierarchical leadership characteristics that are most commonly attributed to in top-down organizational structures.

Table 2. Overarching Hierarchical Leadership Characteristics

OVERARCHING HIERARCHICAL LEADERSHIP CHARACTERISTICS	
1.	Short-term Sustainability
2.	Clear Goal Direction
3.	Work is Delegated versus Shared
4.	Power Constructs are Steadfast and Rarely Flexible
5.	Authority Roles are Traditional
6.	Probability of Job Dissatisfaction
7.	Staff are often Isolated versus Collaborative
8.	Work is Leader Directed and not Distributed
9.	Organizational Goals are Clear

Spillane (2005) extols the strengths of effective distributed leadership in an educational setting. He first considers how a top-down/hierarchical model could address a struggling school, likening such a model to the “heroics of leadership”. He asserts that hierarchical leadership is not often productive because the work falls to an individual leader and does not pay attention to leadership practice. Spillane contends that leadership is typically associated with a sole leader solitarily leading an organization to prominence through the use of functions, routines, and role definitions of followers. As such,

hierarchical leadership in a school setting is more about the singular leader and less about fostering instructional improvement and positive student outcomes. Since

“they dwell mostly on the “what” of leadership.rather than the “how” of school leadership – the daily performance of leadership routines, functions, and structures” researchers need to center their attention on how and why successful leaders perform their daily work (Hallinger and Heck, 2010, p. 27).

In considering new models of leadership, Jones et al. (2012), assert that innovative models are needed in lieu of the antiquated hierarchical model in order to graduate students that have leading-edge skills. Their study ascribes to a distributed leadership approach that focuses on collective collaboration over hierarchical approaches of individual power and control and finds that education – specifically higher education – has been subjected to:

1. Managerial Control
2. Market Competition
3. Increased Scrutiny
4. Structural & Operational Remodeling

Subsequently, one side effect found was an increase in staff resentment due to decreased autonomy, In the wake of increasing administrative units forming throughout the universities, staff members, accustomed to a certain level of self-government, were finding themselves in untenable situations because they were having to answer to these administrative units for things that were previously within their own purview. However in order for colleges and universities to create leadership that is sustainable, it is critical that the leadership structure be participative and collaborative while at the same time

honoring the fact that creative and innovative thinking occurs as a result of individual autonomy.

This qualitative study spanned 18 months and consisted of multiple leadership teams at the participating higher education institutions. The study began by collecting and sharing thoughts generated from each of the leadership teams. These data were then corroborated by a cross section of academic leaders at a project meeting. Supplementary questions were identified and provided to the original participants who, in turn, discussed the data, considered the additional questions, and generated a list of skills necessary to achieve an effective leadership model. A strength of the qualitative method used was its inbuilt flexibility that allowed for ongoing reflection and inquiry over the 18 month time span. A potential weakness of this study is its lack of data triangulation that may have possibly lead to inherent biases by the researchers. Since the study was completed in 2012, it would be conceivably worthwhile to re-engage the original leadership teams to discuss the leadership skills/model they initially identified during the research project to illuminate current perceptions and opinions regarding the current academic and administrative environment participants are now working.

Searching for the Holy Grail of Management Development and Sustainability – Is Shared Leadership Development the Answer, a conceptual article by Pearce et al. (2012) clarifies the relationship between leadership and its sustainability. By developing a theoretical model, the authors explore the linkages that occur between the many leadership practices that are in use and their ability to exist over a prolonged period of time within the management arena. The focus of many sustainability studies either extols the virtues of key executives for their ability to sustain effective leadership overtime or

derides them for their faltering expertise that leads to leadership impediments. The authors assert that both views are too generalized and unsound overall.

Sustainability is a critical topic being researched within management literature in the last decade (as cited in Gitsham et al., 2009). Many leaders in this realm are forsaking sustainability because unsustainability – the use of short-term gains at the expense of staff members – yields quicker results. Pearce et al. suggest that shared leadership, in lieu of typical hierarchical models, will allow for the construction of a system that facilitates “organizational sustainability” (p. 248). As cited in Pearce and Manz (2005), the authors assert that “[t]raditionally, organizations have focused on a top heavy, [hierarchical], heroic model of leadership in order to extract work-product from their employees. We believe this model is a myth” (p. 249). The question remains why hierarchical leadership, when apparently ineffective, continues to thrive in today’s organizations including educational systems. In the article, two broad strategies of leader selection and leader skill enhancement are reviewed. Since leader selection appears to be an inaccurate and inexact science, the authors recommend the use of sophisticated psychological testing in order to uncover any hidden, negative motives that could ultimately undermine the organization’s sustainability. Second is leader skill enhancement whereby organizations provide thorough and comprehensive training and development. Today, there appears to be a scarcity of training and development of leaders provided within organizations and subsequently stands to reason that an organization’s sustainability could be negatively impacted. But instead of merely providing training to the top leaders – a hierarchical model – the authors assert training and development must be widely distributed to include those staff members not yet identified as leadership candidates. “We advocate

both selecting and edifying for shared leadership as a fundamental mechanism for enhancing overall organizational capacity for sustainability” (p. 253). Given that followers usually emulate the leadership behaviors of those above them once they become leaders, it is imperative that both effective leadership selection and management development are utilized. Management and leadership of managers have the ability of “unleashing or curtailing the potential for sustainable practices” (p. 253) and therefore warrant more research that examines the linkages between sustainability and the use of shared – non-hierarchical – leadership.

To their point, the authors accomplished the development of numerous recommendations that are able to be implemented and tested relatively effortlessly. They did this by grounding their examination of the topic in a well-rounded review of the literature in order to demonstrate the appropriateness and usefulness of a future study. One disadvantage of a conceptual article is knowing whether, in this case, the use of a theoretical model will yield valuable data that can be verified. Ultimately, the questions are whether the resultant findings are reflective of the evidence uncovered and if the model can effectively be used to inform current and future practitioners.

Berg and Karlsen’s (2011) qualitative study, *An Evaluation of Management Training and Coaching*, sought to identify whether leader coaching is a helpful training tool that enables followers to learn to solve real work challenges. Specifically, the authors consider what effect coaching has on changing the behavior of leaders, where the leaders learn about leadership tools, and subsequently what tools the leaders prefer to use in their daily work. Realizing that “conventional management development does not always deliver the expected outcomes” (p. 177) such a hierarchical management techniques, the

authors looked to coaching as a different approach to management development. Believing there is a current knowledge gap, the authors deem their study will contribute to the body of work they feel is lacking with regards to coaching as an effective methodology for management training and learning in the workplace. Their hope was for the data to reveal that leader coaching contributes to followers gaining self-confidence, self-efficacy, and the ability to contribute to their work in a way that facilitates positive work results. While the hierarchical model subscribes to dictating orders to followers to garner their work output, the coaching method uses a collaborative, more distributed, approach to effectuate positive change and increased work output. The authors assert that coaching is about enabling people to succeed because at its core is learning and change (as cited in Cox et al., 2010).

Drawing on both a cognitive behavioral approach and solution focused approach to coaching, the authors delve into the methodology for training 14 middle managers and project managers so that their skills can be enhanced and allow them to function more successfully in their respective leadership roles. They posit that since coaching helps leaders to be able to have open dialogues with their followers that, in turn, often change their behavior, the work of both the leader and follower becomes more results-oriented and action-focused. The authors focus on two different forms of coaching. In the first instance, the coach may work with a manager/leader in a one-to-one setting or work with multiple managers/leaders at one time through the use of seminars and workshops. In either instance, it is hoped that direct intervention will help to focus the work of the managers/leaders and utilize their resources, including followers, effectively.

In order to try to understand subjective experiences and meanings among managers/leaders, the authors utilized case studies of the 14 managers. The authors identified a list of “toolbox” techniques that a manager/leader could use in various situations. The 19 items were taken from a mixture of well used methods stemming from both self-leadership and situational leadership, and less known methods arising from positive psychology. The participants were then provided with five, two-day seminars within which they were exposed to the 19 items contained in the “toolbox”. Both one-on-one coaching and team coaching approaches were used. The days that passed between the two-day seminars were used by the participants to practice using the “toolbox” items in the context of their daily work with both their superiors and their followers. At the end of each two-day seminar, semi-structured interviews of the participants were conducted to collect data on item usage. The data results showed that through coaching, participants learned a variety of alternative solutions from the “toolbox” which led to self-reflection and subsequently reinforcement of participant learning. Specifically the data showed that 1) participants’ superiors and followers, when involved with the training processes, enhanced the learning of the participants; 2) when the coaching method was utilized, good relationships began to be established that reflected both trust and respect; and 3) the ongoing practice that participants did in their work environments appeared to lead to stronger managerial/leadership skills of the participants. However there were distinct limitations of the study that the authors themselves pointed towards, particularly when it came to item selection.

The authors, in retrospect, felt that the content of the “toolbox” was too limited to really fully represent the topic in question. The study also did not measure the use of the

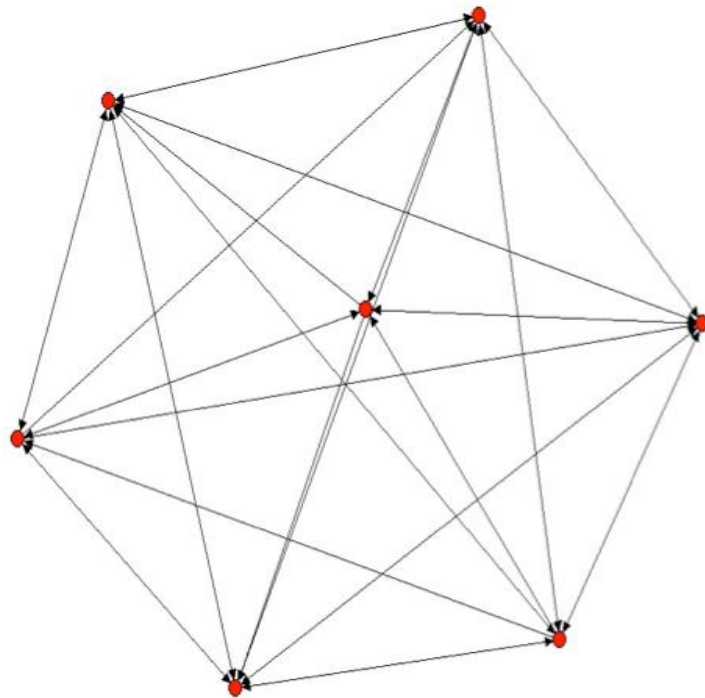
individual “toolbox” items amongst the participants. Therefore it is not possible to identify the utility of the overarching leadership “toolbox” as compared to others. As a result, the authors propose that future research of peer coaching be carried out to determine its true efficacy and potentially validate the data the current study revealed. Furthermore, additional research is needed to determine what positive characteristics exist within a non-hierarchical peer-to-peer work environment that, if present, could be applied in other environments such as education.

Despite the disadvantages of hierarchical leadership, it does provide goal direction and clarity of the work to be accomplished and interestingly, can realize more output in a shorter period of time (Bass & Avolio, 2004; Bidwell, 2001; Northouse, 2012; Pearce et al., 2013; Spillane, 2005). However a possible disadvantage of hierarchical leadership is its sustainability over extended periods of time. Given the present-day volume of school reform efforts, organizations, including educational organizations, need to move away from “bureaucratic and hierarchically ordered organizations” (Gajda & Koliba, 2007, p. 28).

Distributed Leadership

Unlike the typical organization chart seen earlier, organizations are “inevitably untidy and tangled places” (Deal, et al., 2009, p. 6-7). Figure 2 depicts what a reality of a school organization can look like when the organizational chart is transformed into a network and accurately mapped, resulting in the following sociogram.

Figure 2. General Sociogram



As various industries continued to look toward more effective ways to lead, distributed leadership was first theorized in the educational arena around 1995 although its first manifestation occurred sometime in the 1950's in the field of social psychology (Gronn, 2002; 2011). In 2004, Fullan associated distributed leadership at the school level to large-scale reform in that they both require multiple levels of leadership teams that consist of people creating and driving clear, coherent strategies. Distributed leadership, while first looked at with a great deal of skepticism by researchers, gained wider acceptance as the years passed (Gronn, 2011; Harris, 2005; Margolin, 2013).

A distributed leadership model is premised on varying collaborations and networking that signify a relatively complex approach to school organization (Harris, 2005; Margolin, 2013). This model allows leaders to think about their practice in a different light and takes into account novel organizational forms and structures (Harris,

2005). However it was "[t]hrough the late 1990's and early 2000's, [that] the conceptual models guiding research on school leadership came to focus on leadership activities that are widely distributed across multiple roles" (Camburn, Rowan, & Taylor, 2003, p. 348). This novel idea of effective leadership saw many school members implementing robust instructional leadership activities to effectuate programmatic change and instructional enhancement (Camburn et al., 2003). Table 3 illustrates the distributed leadership characteristics that are most commonly attributed to in decentralized organizational structures.

Table 3. Overarching Distributed Leadership Characteristics

OVERARCHING DISTRIBUTED LEADERSHIP CHARACTERISTICS
1. Long-term Sustainability through Collaboration
2. Time Allocation & Goal Disagreements
3. Leader Coaching
4. Non-Traditional Authority Roles
5. Higher Levels of Group Problem Solving Skills
6. Probability of Job Satisfaction
7. Cultural Tensions between Hierarchical & Distributed Groups
8. Increased Professional Development for all Staff Members
9. Participative Decision-Making

In 2003 Camburn et al., in their article *Distributed Leadership in Schools: The Case of Elementary Schools Adopting Comprehensive School Reform Models* ask what tasks are being distributed among members of the school community and specifically which members are carrying out the distributed leadership tasks. Two data collection instruments were used: the School Leader Questionnaire that was completed by 374 elementary school leaders and the School characteristics Inventory that was completed by 100 principals for a total of 484 participants.

Results indicate that larger schools generally have more administrative staff members that include additional program and subject area coordinators whereas formal

leadership teams in elementary schools are typically very small. Schools in the midst of reform appear to structure leadership positions differently than schools not under reform initiatives. Specifically the schools under reform had more leadership positions than non-reform schools with a distribution of leadership tasks that spanned across positions that therefore suggested redundancy. In large part, principals were seen as generalists because they distributed their efforts across a range of leadership activities. Interestingly, the greater the amount of professional development that staff members received, the greater amount of leadership distribution could be seen within those schools. Apparently, professional development equipped staff members with skills that allowed them to implement and administer programs within the school, thereby carrying out distributed leadership tasks.

The authors point out that their conclusions are provisional in nature because the data collected was all based on participant self-reports. Additionally, they submit that the data would likely have yielded stronger results had the data been collected over time and not on a single occasion. The authors state that “as a result of these fundamental problems of causal inference, we stress that we are advancing our conclusions tentatively and more as hypotheses warranting additional investigation than as firm conclusions” (p. 367).

Distributed leadership symbolizes the ever-evolving model of leadership being recognized in many school environments in which various forms of influence and guidance are included (Harris, 2005; Margolin, 2013; May et al., 2013). However in 2013, Margolin found that establishing a platform for learning and experimenting with distributed leadership does not occur automatically because the opposing cultures of hierarchical organizations and communities of practice result in resistance. These data

were found through a qualitative ethnographic study of 48 participants that were taking part in an experimental school-based teacher education program. Formally, Margolin wanted to study if it was possible to create a distributed leadership framework within top-down and bottom-up groupings and networks and, if so, would they endure beyond the tenure of the leaders.

Hierarchical structures are, by their very nature, vertical in shape, and usually do not lend themselves to a dispersal of leadership activities. However a distributed leadership structure is flatter and therefore more horizontal. This type of organizational structure is needed to reach and maintain high levels of group problem-solving and subsequently higher rates of effective decisions (Bass, 1999; Leithwood, Hopkins, & Harris, 2008; May et al., 2013). To better understand distributed leadership is to realize that the work must be allocated "over" staff members and their educational environment so that leadership is subsequently derived holistically (Spillane et al., 2004). Faced with the complex features of instructional practice, leaders must afford staff members time to function within networks that pool expertise and skills (Elmore, 2002). Among the benefits of such a distribution of work is that staff members may become more effective, student engagement typically can be seen to increase, and subsequently improved student learning outcomes are often realized (Harris, 2007). However a disadvantage to sharing responsibility is that as the complexity of the work increases so, too, can disagreements regarding time allocation and goals (Hulpia & Devos, 2009). To offset this phenomenon, it is necessary to create relationships in the organization that are accepting of change and shared decision-making (Lashley, 2002). While the frequency of solo leaders becomes less frequent, it is through the use of distributed leadership that networked individuals

create a body of work that becomes greater than had they been working alone (Hulpia & Devos, 2009).

Hulpia and Devos (2009) explore whether defined distribution of leadership tasks among a leadership team has any impact on its empowerment and job satisfaction of the team members. The authors of the empirical research article, *Exploring the Link between Distributed Leadership and Job Satisfaction of School Leaders*, pose the following questions:

1. How do school leaders perceive the cooperation of the leadership team, the formal distribution of leadership functions amount the leadership team and the participative decision-making of teachers?
2. How satisfied are school leaders with their job?
3. What is the relation between school leaders' perceptions of the leadership variables and their job satisfaction?
4. What is the relation between demographical and structure school variables, and the job satisfaction of school leaders?

A total of 130 school leaders from 46 large secondary (600+ students) schools were each given a five-part self-report questionnaire. The authors constructed the questionnaire using commonly utilized scales that measure variables which were subsequently retested for reliability using factor analysis. Additionally, head teachers from each of the participating schools took part in an interview during which they were informed of the purpose of the study and asked to supply demographic information of the school along with a description of its overall management structure. The first four parts

(job satisfaction, cooperation, distribution of leadership functions, and participative decision-making) were represented by five-point Likert scales ranging from “0” to “4”. The fifth part (demographical and structural school variables) consisted of several questions including age, gender, years of job experience, seniority, school type, school size, and leadership team size.

Results showed that support was highly distributed amongst the members of the leadership teams whereas supervision was more centralized and “perceived as more of a one-man business” (p. 162). The leadership teams were also seen as very collaborative with a moderate amount of participative decision-making, while team members were highly satisfied with their jobs. However it should be noted that job satisfaction was tied to the cooperativeness of the leadership team while demographical variables, such as school size, had little effect on team member’s job satisfaction.

Limitations of the research study include its moderate sample size; the self-report questionnaire which does not allow for data triangulation; and the fact that the study did not take a thorough look at all factors associated with job satisfaction but rather considered job satisfaction as an overarching indicator. However, despite the limitations articulated by the authors, the study does show most importantly that “school leaders should work together with other leadership team members in an open and trustworthy way without conflict concerning their roles and with a clear view on the school goals” (p. 165). Such collaboration between school leaders is just one hallmark of distributed leadership.

Distributed leadership cannot be viewed as a trait of the single administrator but instead it is an important characteristic of the school organization as a whole - practices

molded by ongoing interactions amongst all staff members and administrators (Hulpia, Devos, & Rosseel, 2009). Distributed leadership can be seen as the interactions of multiple leaders - additive rather than all-inclusive if you will - and certainly more than the mere sum of its parts (Gronn, 2002; Margolin, 2013; May et al., 2013; Woods & Gronn, 2009). MacBeath, Oduro, and Waterhouse (2004) assert that distributed leadership is not merely the delegation of authority but rather the manufacturing of an environment where staff members are able to grow into leadership and understand that there are multiple leaders in the organization and that leadership activities are broadly shared within and between members, including themselves (Margolin, 2013; Spillane & Harris, 2008). It is the interactions of the staff members working amongst themselves that are important and take precedence over decision-making actions of formal leaders (Spillane & Harris, 2008). As staff members interact with each other within their environment, natural distribution will emerge (Spillane et al., 2004).

MacBeath (2005) asked how distributed leadership looks like in practice and how is it seen by head teachers and teachers in schools. Using a mixed-methods approach that included semi-structured interviews, MacBeath had 302 staff member participants from 11 different schools. What he found is that distributed leadership is a developing process that is formal, pragmatic, strategic, incremental, opportunistic, and cultural. It is a construct where consensus is sought and valued, and distribution is premised on trust and accountability wherein the ability to relinquish one's role as ultimate decision-maker and trusting others to make the right decisions are paramount.

"Distributed leadership presents the likelihood that followers may actually be co-producers of leadership through their interactions with leaders and others and raises the possibility that followers have a greater influence

over leadership practice than those in formal leadership roles"(Harris, 2005, p. 257).

Gronn (2000) argues for continued leadership versus anti-leadership movements but "in a form which accords more with the realities of the flow of influence in organizations, and which disentangles it from any presumed automatic connection to headship (p. 334). Leadership must be looked at as fluid and ever developing over time instead of motionless (Gronn, 2011; Woods & Gronn, 2009). One component of effective leadership is the ability to be flexible by modifying ones behavior as myriad organizational climates occur over time (Lashley, 2002). Another is to be able to change leadership style based on both internal and external perceptions (Lashley, 2002). When the lens of distributed leadership is looked through, what is in the forefront is how and by whom leadership is distributed (Harris, 2005).

As mentioned previously, a key influence in effective school improvement and redesign of the organization comes from the distribution of responsibilities across the school community (Gronn, 2002; Woods & Gronn, 2009). It is therefore essential to create collaborative organizational cultures (Leithwood et al., 2008) in which the thinking of staff members is distributed in an effort to complete higher order tasks (Spillane et al., 2004). Distributed leadership allows for leaders to have either informal or formal roles because the work they do is not dependent upon where they sit in the organization but rather on what skills and expertise they bring to the proverbial table (Hulpia et al., 2009; Margolin, 2013).

"Distributed leadership is crucial for improving an organization's performance because it requires a deep understanding of the cognitive and affective skills needed to do the work and of the ways in which the school's organization enables or undermines learning" (Elmore, 2002, p. 25).

Nevertheless, implementing distributed leadership with fidelity is difficult because where distributed leadership is non-hierarchical, most school models are hierarchical and have steadfast power constructs and traditional authority roles (Hulpia & Devos, 2009; Margolin, 2013; May et al., 2013). Additionally, and often overlooked, is how the overarching group dynamics of the organization must change in order to usher in leadership that is distributed (Hulpia et al., 2009).

What must not be overlooked is that much of the literature that is written on change and school reform strongly supports the use of distributed leadership when improved student learning outcomes is desired (Harris, 2005; May et al., 2013). As Leithwood et al. (2008) found, when leadership of the school is widely distributed among its members, there is a stronger impact on school improvement. Consequently, effective leaders need to focus on the creation of distributed leadership skills with an emphasis on the combined knowledge, skills, and proficiencies of the staff in order to improve the learning environment for all students (DiPaola & Walther-Thomas, 2003).

In her qualitative ethnographic study titled *Nurturing Opportunities for Educational Leadership: How Affordance and Leadership Interconnect* (2013), Margolin focused on leadership perspectives and development of superintendents, teacher-educators, teacher-mentors, and graduates. As Margolin states “a top priority is developing and investing in the next generation of system leaders by nurturing and expanding capabilities and talents across all levels of the educational system in order to achieve and sustain success” (p. 1).

While the research for this article only focused on one aspect of a three-stage longitudinal research project that involved both a large teacher preparation college and a

large school district, it is pertinent to briefly describe the three stages of the project here that led to this study. Stage one (2002-2006) successfully created a novel school-based teacher education program by preparing future teachers collaboratively. This was accomplished by the establishment of partnerships between district schools and a teacher preparation college. Stage two (2006-2010) took the work accomplished in stage one and implemented it across the entire college through the use of a core leadership team that consisted of many of the same participants – mainly teacher-educators – from the first stage. Throughout the second stage, the relationships created in the first stage between the school district and college grew in depth and breadth to become both deep and rich. Plagued by poor policy implementation and low academic scores, the District Head asked if the college would be willing to collaboratively help the district initiate a national level educational reform. Therefore, the final stage, which overlapped stage two, expanded the first two stages to involve superintendents, teacher-educators, teacher-mentors, principals, and teachers.

This study, comprised of 48 participants from stage one (2002-2006) sought to glean the participant's perspectives on leadership and leadership development by analyzing their daily norms, actions, and routines through group discussions, observations, and semi-structured interviews. The author's findings illuminate the fact that while participants all worked hard to practice distributed leadership and shift their perceptions and behaviors to a more holistic approach, their ability to alter the hierarchical foundations of the college and school district proved difficult but not impossible. Many participants embraced distributed leadership by increasing their collaboration on a daily basis and by not being "soloists" anymore. This was achieved

through their acceptance of co-leadership activities that would subsequently help in the development of new leaders. Nurturing distributed leadership in educational settings may help to ensure sustainability of leaders regardless of the length of their tenure within the system.

While sparse evidence currently exists to support the model of distributed leadership as an alternative to the prevailing single-person school leadership model, (Hulpia et al., 2009; Margolin, 2013; Woods & Gronn, 2009), what cannot be diminished is the fact that current educational settings are increasingly complex and filled with leadership work that can no longer be handled by one "heroic" person. As such, it is necessary to put aside the outmoded single-person leadership style in favor of practice that focuses on the distribution of leadership within the school team (Hulpia et al., 2009; Margolin, 2013). While Spillane et al., (2004) acknowledge that there will always be individual school leaders, the focus must be on the interactions of the actors within schools, versus individual actions. As the actors within an educational environment interact, the network of their combined resources increases and may lead to greater success for students.

"Distributed leadership...reflects current changes in leadership practice in schools...represents the alternative approaches to leadership that have arisen because of increased external demands and pressures on schools...[and] makes a positive difference to organisational outcomes and student learning" (Spillane & Harris, 2008, p. 31).

By communicating and working with other administrators with regards to planning, effective leaders foster a climate of shared decision-making that involves multiple stakeholders within the school community (Lashley, 2002). It is then important

for those leaders to highlight quality teaching and learning through actions such as distributing leadership responsibilities and accountabilities (Day et al., 2008).

Despite the fact that Harris (2005) pointed to a paucity of empirical evidence to support distributed leadership despite its powerful upsurge in popularity, it appears to have staying power as a leading model of leadership. Since the character and influence of distributed leadership has, for a while, been the focus of examination by researchers (Leithwood, 2004) an increasing the body of evidence to support its influence is being established. As such it is, and continues to be, an idea that is growing in popularity (Spillane & Harris, 2008).

“The meaning of distributed leadership is comprehensive; it is re-created and activated differently in each specific context and is explored in each environment with its new realities. Leaders have to explore and learn not only what works but what works in their specific contexts. (Margolin, 2013, p. 3)

Leithwood et al. (2009) state that many organizations are attracted to increasing the distribution of leadership as a possible strategy for school improvement through the use of shared, democratic, or dispersed work. It relies on the use of social, material, and cultural resources necessary for teaching and learning (Boscardin, 2005). Others see the dispersal of work as giving the organization a better understanding of the meaning and nature of leadership in schools through collaborative problem-solving that translated into academic success (Boscardin, 2005; Lashley & Boscardin, 2003). Of late there has been what some might call a substantial paradigm shift from hierarchical organizational constructs to sources of leadership practices (Leithwood et al., 2009). This suggests that a certain amount of disillusionment exists with the status quo in typical organizational

structures. It is not known whether such disillusionment can be attributed to the frustration felt by lagging student outcomes or the realization that the capacities of those at the proverbial top of an organization have been overshadowed by the complexities of the challenges now faced. (Boscardin, 2005). Whatever the reason, no longer can leadership be seen as singular and top-down, but instead distributed over multiple people, roles. It is necessary that school organizations implement structures that emphasize widespread, high-quality collaboration and ensure that it occurs at all levels for ultimate efficacy (Gajda & Koliba, 2008). When a leader uses an organization's network to its fullest, it is likely that there will be a reduction in errors, a true division of labor, improved retention and job satisfaction, and improved organization stability (Fullan, 2004).

Distributed leadership has the ability to reduce errors because incoming information and its analysis are not limited to one person that can result in incorrect outputs and faulty solutions to challenges faced by the organization (Firestone & Martinez, 2009; Leithwood et al., 2009; MacBeath, 2009). Such models may also alter the process for determining district and school goals and involve staff members who assume various leadership roles (Boscardin, 2005). A true division of leadership creates opportunities for the organization to capitalize on multiple inputs from a variety of stakeholders that, in turn, strengthens the organization as a whole and increases the chances of correct outputs. A distributed system of school-based leadership that collaboratively supports the use of proven practices to achieve school-wide improvement for students with disabilities should be the emphasis of school districts because this approach exemplifies a professional level of caring where ownership and commitment for student learning and instruction is spread across numerous staff members (Boscardin, 2005). By sharing in the organization's decision-making, stakeholders are more likely to

be satisfied in their day to day work and subsequently less likely to leave for other, more fulfilling, positions. Distributed leadership also lessens the chance of the organization struggling to maintain stability when vacancies do occur. Stakeholders who have shared in the work and most often participated in cross-training, can temporarily assume the additional work with little down-time (DiPaola & Walther-Thomas, 2003).

This type of leadership can also:

1. Negatively impact an organization's clarity of purpose,
2. Increase the burden of stakeholders without an appropriate increase in power,

While distributing leadership activities to multiple stakeholders may dilute the effectiveness of decisions, it is imperative that leadership duties not fall to one person (Camburn et al., 2003; Spillane et al., 2004). MacBeath (2009) goes so far as to quote the counsel to Moses in Exodus 18: 17 – 18 in which it is said that “This is too heavy for thou cannot bear it alone”. Leithwood et al. (2009) allude to the fact that while many studies extoll the merits of distributed leadership, few studies actually have looked at the effects of distributed leadership on students and their outcomes. One concern raised by Leithwood et al. (2009) is that when a leader distributes leadership to many stakeholders, the mission/vision of the organization could become diluted and lose clarity of purpose. However when distributed leadership is diffused throughout the educational network of the school or district as a whole, clarity of purpose is likely to become more pronounced because the same message is being spread – like a contagion – through the organization. Another concern is the unequal distribution of power despite the equal distribution of work. Distributed leadership cannot simply be the equal division of work since that also occurs in a hierarchical organizational structure (MacBeath, 2009). Distributed leadership

is just that – an equal distribution of leadership and the work each of those individual leaders accomplish. Leithwood et al. (2009) suggest that,

“distributed leadership then, lies at the extreme end of what is typically thought of as a continuum of degrees of participatory leadership [and that] in the complex and changing world of schools, that things are rarely that simple, and leadership activity, whether individual or shared, has to be responsive to prevailing cultural conditions... in the pursuit of school improvement goals” (pgs. 7, 9, 10).

Firestone and Martinez (2009) suggest interest in distributed leadership has grown in recent years because of the need to rethink school organization, school leadership, and how that leadership can best be dispersed throughout the organization in order to change instructional practice. However they assert there is emerging consensus among researchers that successful distributed leadership has more to do about the series of tasks/activities that are being implemented rather than how the work is dispersed within the organization (Firestone & Martinez, 2009). What is interesting is that while Firestone and Martinez contend distributed leadership is less about who does the work and more about the work itself, their conceptual framework is through the lens of teacher leaders and how distributed leadership can positively affect teaching.

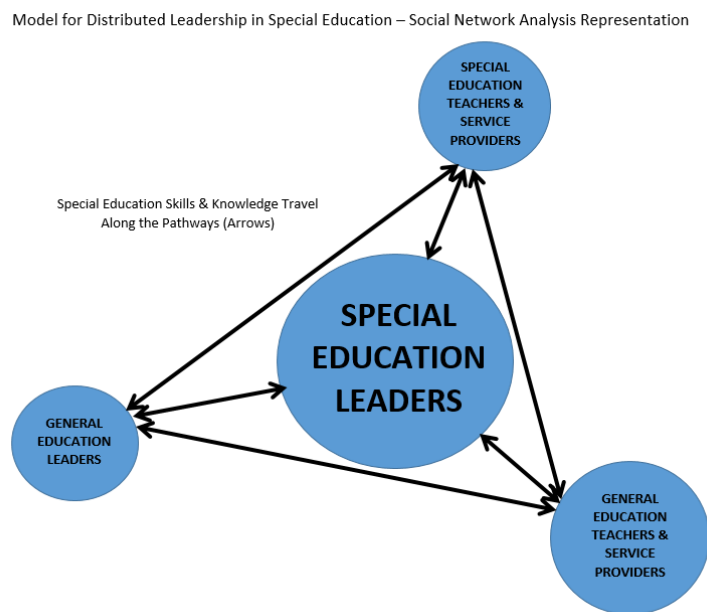
While there is a body of empirical work that has focused on school restructuring, there is little known about the distribution of leadership tasks and activities as they related to special education (Boscardin, 2005). Research in leadership preparation has focused on principals and superintendents despite the fact that district-level administrators make critical programmatic and organizational decisions (DiPaola & Walther-Thomas, 2003; Lashley & Boscardin, 2003). According to Lashley and Boscardin (2003), special education administration is located at the intersection of the

tenets of special education, general education, and educational leadership. Perhaps, as a result of this intersection, collaboration was part of the work that occurred when PL 94-142 was being written. However when the role of the special education administrator originated, collaboration with various stakeholders such as teachers, parents, school administrators, and policy-makers failed to occur. Instead, special education administrators most often worked independently of their general education peers to create programming for students with disabilities even in the midst of today's diverse, complex, and high-stakes educational environment (DiPaola & Walther-Thomas, 2003; Lashley & Boscardin, 2003). Lack of effective collaboration between staff members does not lead to successful student outcomes, therefore it is essential to look toward distributed leadership as the model that brings together all stakeholders in order to ensure effective leadership practices and improved outcomes for all students.

Derived from many models of leadership, distributed leadership represents a well-rounded approach to leadership in an educational environment fraught with reforms and greater accountability (Bass & Avolio, 2002). This is especially true for leaders in special education. In 2010, Boscardin et al. (2010) posited that administrators of special education are considered to be essential to ensuring the delivery of high quality evidence-based special education programs in increasingly inclusive schools and in a field that demands proficiency in the laws and regulations particularly laws that require accountability for student progress. Therefore it can be argued that distributed leadership practices give all leaders, including special education administrators, an advantage over other non-distributed leadership practices allowing for greater accountability and better outcomes for all students. Below, figure 3 represents a conceptual model for distributed

leadership in special education – a social network analysis representation. Special education and general education can no longer stand on parallel roads. Rather, they need to form a collaborative network of ties through which special education skills and knowledge travel reciprocally as depicted below. Only then will student outcomes and school performance be positively affected especially for those students with disabilities.

Figure 3. Model for Distributed Leadership in Special Education



Summary

Special education administration is indeed special (Boscardin, 2007). The administrators of special education are acknowledged to fulfill a role that is critical to the provision of first-rate, evidence-based programs in settings that are more and more inclusive and in an environment fraught with laws and regulations – specifically recent laws that demand greater accountability for student advancement (Boscardin et al., 2010). Special education administrators cannot work independently from general education

administrators (Boscardin & Lashley, 2003; DiPaola & Walther-Thomas, 2003) and instead must engage in meaningful collaboration with one another that furthers the educational pathways for all children. Hierarchical leadership may have worked well historically but now lacks the capacity to meet the needs of complex, fast-paced, educational systems. Presently, “[t]he ultimate goal is to create distributive leadership in which the practice of leadership is shared and realized within extended formal top-down and informal bottom-up groupings and networks, and endures beyond a few leaders’ tenure” (Margolin, 2013, p.1) so that students may successfully gain the skills necessary to achieve positive outcomes in school and beyond. The distributed leadership model offers special education administrators more comprehensive opportunities to meet the needs of students with disabilities.

CHAPTER 3
METHODOLOGY

Introduction

Effective collaboration between special education administrators and their general education counterparts is imperative because according to Lashley and Boscardin (2003) the decisions of special education administrators significantly impact not only student programming but the organization as a whole. Previously discussed was the importance of employing a distributed leadership style versus a hierarchical leadership style in order to facilitate such effective collaboration. However previous research on distributed leadership and special education has not focused on administrators of special education and their relationships enjoyed throughout the whole school. Instead, research has primarily focused on the perceptions of special education administrators and special education teacher leaders (Tudryn, 2012) and on the importance of principals as leaders of special education by way of their perceptions on leadership (Schulze, 2014). As such there is a need for further inquiry into the subject of special education administrators and their relationships with both general and special education staff members within the whole school. This logical next step of investigation will be to look at the networks of the special education administrators to determine patterns that support the distribution of leadership and the effects of such distribution on special education knowledge acquisition and potentially school performance.

While a principal plays an integral role in the delivery of special education services to students with special needs, the communication network that a principal has with the special education administrator can define whether those services are delivered effectively throughout the school's network (DiPaola et al., 2004; Margolin, 2014). This is becoming especially true as schools are leaning towards more inclusive practices for special education students necessitating the need for increased collaboration between administrators of both general and special education (Billingsley, 2007; Boscardin, 2007; Lashley & Boscardin, 2003). Subsequently as inclusion of special education students increases, so does the need for more information on how to best meet the needs their needs. This includes determining the most effective communication practices between general and special education administrators that leads to both increase knowledge diffusion and enhance knowledge acquisition. In this chapter, the rationale for the study, participant selection, procedure, and data analysis will be presented.

Rationale

The effective provision of special education services presents a challenge for both special education school leaders and general education school leaders in light of ongoing school reforms that are calling for the improvement of instruction and achievement for all students (Billingsly, 2007; DiPaola & Walther-Thomas, 2003; Elmore, 2002; Fullan, 2009). Since no single person can successfully lead a school or district, effective leadership necessitates multiple staff members collaborating and employing myriad skills while giving particular attention to leadership practice in a distributed manner (Spillane, 2005).

Hierarchical leadership still has strengths in certain circumstances, but in order to effectively meet the leadership needs of present-day school leaders whether they be general or special education leaders, literature suggests that distributed leadership has the ability to possibly deliver more (Jones, Lefoe, Harvey, & Ryland, 2012; Margolin, 2014). Distributed leadership has become recognized as a leadership model that has an emerging relevancy in the educational field (Jones et al., 2012). Instead of simply focusing on traits and behaviors of individual leaders, distributed leadership underscores the need to be more collaborative and inclusive (Jones et al., 2012). A form of shared leadership, distributed leadership offers special education administrators a pathway to supply general education leaders with special education knowledge and skills by promoting the flow of information throughout the organization. Applied in an educational environment, specifically when educating students with disabilities, leadership is “stretched over” to include general education and special education leaders alike. As a result, special education skills and knowledge are distributed to general education leaders and ensure that students with disabilities have both equal access to rigorous curriculum and equal opportunities to make effective progress.

The primary purpose of this study is to explore and analyze the relationships that exist between a special education leadership team and the schools within which they work through the lens of distributed leadership by using a mixed-methods approach. It is anticipated that this study will contribute to the relatively small but growing body of research on special education leadership while at the same time prompting further research into distributed leadership, the role of social networks of special education

administrators, and subsequently lead to a positive impact on the field of special education administration.

Social Network Analysis Methodology

When turning to social network analysis (SNA), a methodological framework, a decentralized network can be thought of one whose actor's or nodes are dispersed or distributed throughout the network and one in which power and control are held by many of the actors (Carolan, 2014). On the contrary, centralized networks are similar to hierarchical models of organizational structure – the task network so to speak. When special education administrators are embedded in centralized networks, it can be asserted that their leadership practices are not distributed and the capacity to influence regular education leaders regarding special education is constrained. However, when special education administrators are embedded within a decentralized network where their power and control are diffused or distributed to general education leaders, it is more likely that outcomes for special education students will improve (Leithwood & Riehl, 2003). Distributed leadership typically provides more opportunities to meet the needs of students including those with disabilities (Harris, 2007) when all educational stakeholders engage in meaningful collaboration that further the educational pathways and outcomes for all children. Following in Table 4 below a list and definitions of the most common SNA terminology is provided.

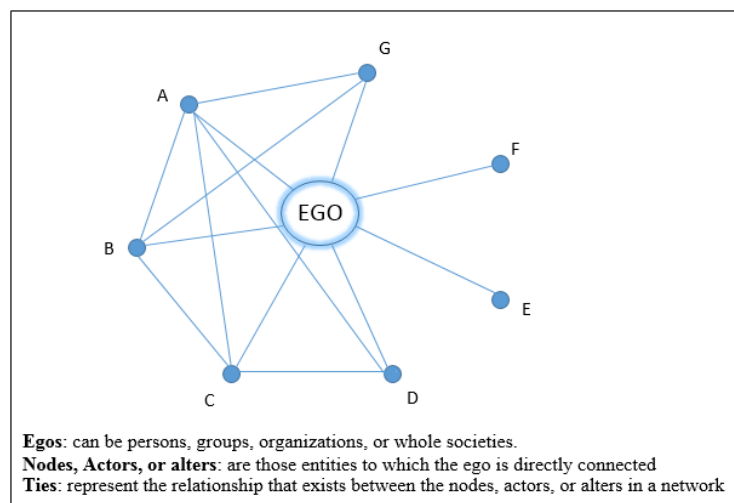
Table 4. Definitions of Terms

Actors	Represent individual people or groups or organizations - some defined unit for the purpose of the study. Such as students in a classroom or school departments.
Node	Represents a single actor or group on a graph

Ties	Connect a pair of actors to each another and depending on what your area of interest is, the type of tie will change.
Paths	The pipes through which information and resources flow through nodes.
Attributes	Descriptors given to actors such as sex, age, SES, marital status, level of education, etc.
Whole Network	First you select a set of nodes to study and then measure the ties between all of the nodes in the sample.
Egocentric Network	Focuses on one node in the network - the ego - and the relations the ego has with their alters in the network.
Stars	The popular people or actors that everyone seems to go to for resources. Another word would be a hub and new nodes are twice as likely to attach to a hub as a non-hub thus increasing the star power of the star.
Bridges	Also called boundary spanners, are nodes within a particular subgroup that connect the group they are in to another subgroup. They are often the gatekeepers of information and ideas for their groups. They want to connect people with one another.
Isolates	Are either not connected at all to anyone else or are connected to other isolates in the network on the periphery.

Figure 4 below is a simple depiction of an ego-centric network in which the ego, or the main actor, is identified along with his/her actors that are labeled A through G. While actors E and F are connected to the network with one tie, their flow of information is constrained along one path.

Figure 4. Simple Depiction of Ego-centric Network



This study sought to better understand how distributed leadership can be effective. It was posited that when distributed leadership is successfully utilized it will produce a decentralized network of leaders who will have the expertise to provide effective programs and services for all students, including those with disabilities. The data from this study provides current and future special education administrators the critical knowledge needed to become leaders who effectively distribute leadership to special education teachers and service providers along with general education leaders and service providers. Through the distribution of leadership, the necessary skills and knowledge to effectively educate students with disabilities will be diffused throughout the educational network and ultimately affect, even if indirectly, their academic outcomes.

SNA has clear and extraordinary implications for this line of inquiry. Not only is it uncommon for SNA to be utilized in the educational leadership field, it is even less common for it to be seen in use in the special education leadership field. But regardless of how uncommon SNA is to the field of special education leadership, what is more important is its utility in better understanding and visualizing the networks that exist between special education leaders and general education leaders. Ultimately the goal is for educators to improve the outcomes for all students including those with disabilities. This study has indicated that the use of SNA to reach this goal is reflective of good timing.

Research Questions

The study sought to determine and map the network relations existing between the district-level special education leadership team and the staff members at each of the district's 4 elementary programs through the lens of network centralization. Particularly,

the study determined if there was a link between a network's centralization and its distributedness of leadership. It was posited that when a network is decentralized, one cause can be that leadership has been distributed which may result in improved knowledge and skills between members of the network. It was further posited that if there is a link between a district's distributedness of special education knowledge and skills, improved school performance, albeit indirectly, will be seen. The following research questions were posed:

1. What were the properties of the social networks around special education advice giving and advice receiving within the schools examined?
2. To what extent did advice giving and advice receiving affect the special education knowledge of staff members within the social networks?
3. Was there a relationship between network properties and school performance?

Research Design

This study was grounded in the theory of network centralization and decentralization. According to Deal et al. (2009), "the point of examining centrality within a network...is to see where people are getting their influence" (p. 28). Network centralization has to do with whether or not the relations/ties that exist between actors are concentrated on one actor, a small group of actors, or distributed throughout the network (Carolan, 2014). The more centralized a network is, the fewer the number of actors there are that have relations with one another. According to Carolan (2014),

"networks that are centralized, regardless of their density, are ones in which only a small and exclusive set of actors hold positions of power and control [whereas] decentralized networks, conversely, are those in which power and control are diffuse and spread over a number of actors" (p. 107).

One drawback to a decentralized network is while the influence is dispersed throughout the network, it can be less predictable in terms of flow of information (Deal et al., (2009). Therefore it is also necessary to determine the type of information that is being dispersed throughout the network.

Distributed leadership is a practice of interactions among/between people and their situations wherein multiple individuals take responsibility of the organization and its work (Margolin, 2013; Spillane et al., 2004). When general education leaders are given the opportunity to make decisions typically made by their special education leader counterparts, their special education skills and knowledge will perceptibly expand. This expansion of knowledge will afford students with disabilities more opportunities to be educated within inclusive environments with their non-disabled peers.

A distributed organizational structure is needed to reach and maintain high levels of group problem-solving and subsequently higher rates of effective decisions (Leithwood et al., 2008; May et al., 2013). To better understand distributed leadership is to realize that the work must be dispersed throughout the organization to as many staff members as possible within the educational environment so that leadership is subsequently derived holistically (Spillane et al., 2004). Through the use of SNA, this researcher was given the opportunity to holistically observe the network under review and truly see the individual actors, alters, breadth/depth of ties, and of greatest importance, the flow of information.

Hierarchical (centralized) networks often do not lend themselves as well to a dispersal of leadership activities because the flow of information is typically constrained by not being supported by reciprocal communication and limited to a few central actors

(see Figure 5). Conversely, distributed (decentralized) networks spread the influence and power to most, if not all, of the actors (see Figure 6).

Figure 5. Centralized Network/Hierarchical

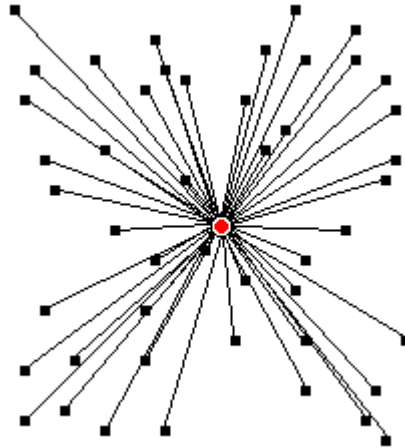
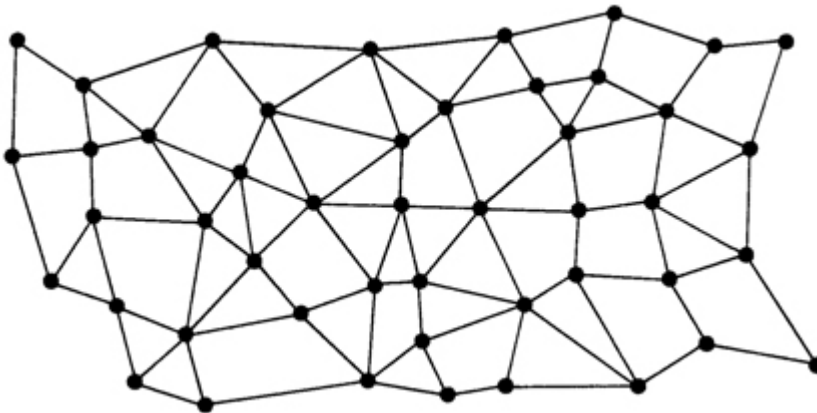


Figure 6. Decentralized Network/Distributed



Deal et al., (2009) describe social network analysis (SNA) as a “distinctive blend of conceptual construct and method” (p. viii) that has primarily been used by researchers in the social/behavioral realm. Although the educational field has been somewhat slow in utilizing the strength of SNA in unlocking the inner workings of a school or district’s networks, it is a methodology that is gaining ground (Daly, 2010) because it does not treat individuals as independent and astructural (Whitcomb, Woodland, & Barry, 2014)

as do other methodologies. While much of the research in the field of education has focused on the principal or superintendent, or perhaps even the school as a whole, as the unit of change, SNA allows researchers to study the linkages between individuals (actors) within the organization (network). Specifically, SNA reveals the web of relations that makes up an organization's network and how those relations move ideas, resources, information, and influence throughout the organization. Understanding how information is either constrained or diffused in a network will help leaders determine how to successfully initiate an innovation or reform (Daly, 2010). Researchers, both past and current day, do focus on the existing relationships within an organization because those relationships matter, however it is through SNA methodology that the relationships and their influences can be appropriately accounted for that many other methods have failed to fully accomplish (Carolan, 2014).

According to Woodland, Barry, and Crofts Roohr (2014), SNA is “predicated on a relational way of thinking in which individuals and groups are seen as structured, embedded, and active social networks [that] can be used for predictive purposes” (p. 115). SNA can be used to map how an organization, such as a school district, collaborates. By mathematically displaying the actual network structures of the organization, a researcher can determine how rapidly newly introduced ideas or practices are being diffused throughout the organization and what paths are being taken as the information flows (Woodland & Hutton, 2012). Additionally, SNA identifies principal network actors, which can be groups or individuals, who may bridge or bottleneck the transfer of knowledge within the organization (Woodland & Hutton, 2012).

To map the network of an organization, relational information about network actors must be collected and organized into matrices such as the examples depicted below (see Tables 5 and 6). The two tables are considered square matrices because the columns and rows consist of the same actors and depict how each actor relates to the other on a particular measurement such as friendship (see Tables 5 and 6). For example, if both actors are friends with each other the relationship is symmetrical versus if one actor is a friend with another but that friendship is not returned, the relationship would be considered asymmetrical. In the first example table 2, the Advice Seeking square matrix, there are 8 actors represented as A through H along both the top and left-side of the matrix. A zero (0) indicates that advice is not sought; a one (1) indicates that advice is sought; and a two (2) indicates that the advice sought is reciprocal. For example, actor A seeks advice from actor C however actor C does not seek advice from actor A. Therefore this is a non-reciprocal relationship/tie.

Table 5. Advice Seeking Matrix Example

	A	B	C	D	E	F	G	H
A	0	2	1	1	2	2	2	2
B	1	0	1	1	2	2	2	2
C	0	0	0	0	0	0	0	2
D	0	0	0	0	0	0	0	2
E	1	1	1	1	0	2	2	2
F	1	1	1	1	1	0	2	2
G	1	1	1	1	1	1	0	2
H	1	1	1	1	1	1	1	0

0 = Does not seek advice
 1 = Does seek advice
 2 = Reciprocal Tie

Table 6 below depicts the frequency of advice seeking that the actors experience with one another. Actor A has a reciprocal relationship with actor H in which they frequently seek the advice of one another.

Table 6. Frequency of Advice Seeking Matrix Example

	A	B	C	D	E	F	G	H
A	0	1	1	1	1	1	1	4
B	1	0	1	1	1	1	1	3
C	0	0	0	0	0	0	0	3
D	0	0	0	0	0	0	0	4
E	1	1	1	1	0	1	1	2
F	1	1	2	4	2	0	2	4
G	1	1	2	4	2	2	0	4
H	4	2	4	4	4	4	3	0

Never = 0
 Rarely (over 1 month) = 1
 Occasionally (within 1 month) = 2
 Somewhat Frequently (within 2 weeks) = 3
 Frequently (within 1 week) = 4
 Shaded Boxes = Reciprocal Ties

From the data in the matrices, maps/sociograms are drawn either by hand or through the use of SNA computer software such as UCINET (Borgatti, Everett, & Freeman, 2002). SNA computer software manipulates the data and produces accompanying sociograms that represent various patterns of connections between nodes. Nodes are individual actors, groups, or any other unit that is able to form a relationship with another unit while ties (lines or paths) that connect the nodes indicate if a relationship exists (Deal et al., 2009; Woodland et al., 2014). Ties can be thin, indicating a weak tie, or thick, indicating a strong tie – or relationship. Ties also indicate the directionality of the relationship using arrowheads to illustrate if the relationship is reciprocated between actors or not (Penuel, Sussex, Korbak, & Hoadley, 2006; Woodland et al., 2014).

UCINET (Borgatti et al., 2002) mathematically reveals which nodes function as stars/hubs, bridges, bottlenecks, and isolates (Deal et al., 2009). A star (also known as a hub) is a node that enjoys a great deal of attention in the network as compared to the other nodes, whereas an isolate is only connected to other isolates on the network periphery or not connected to any other node at all (Deal et al., 2009; Woodland et al., 2014). Unlike isolates that reside on the edge of the network, stars are at the center of the

sociogram because they have the largest number of connections among network actors (Woodland et al., 2014).

Another network actor is called a bridge or boundary spanner. These types of nodes, as their name implies, act as a bridge for the flow of information by connecting groups to other groups either within or outside of the network (Deal et al., 2009). Bridges or boundary spanners, according to Deal et al. (2009) are “critical people in a network; their interpretation of events, for example, carries great weight as they may be the only source of information for certain groups on those events” (p. 24). Interestingly a bottleneck, the next and final actor in a network to be discussed, can be either a star or a bridge. If the actor is a bottleneck bridge – either purposefully or not – the flow of information is often constrained because as explained by Woodland et al., (2014) the bottleneck “controls the flow of information [by] deciding what information passes through to the rest of the organization” (p. 116). A star who is also a bottleneck constrains the flow of information similar to that of a bottleneck bridge. An example of a bottleneck star would be a leader who micro-manages even the smallest detail in his or her organization. As a result, information is either slow to move throughout the organization or simply never passes to any other person or group within the network (Deal et al., 2009).

According to Carolan (2014), lower reciprocity of ties means the network is likely to be more hierarchical in nature. Conversely, networks with higher reciprocity are considered to be more distributed, have higher rates of problem solving abilities, and the capacity to exchange complex knowledge. Reciprocity, like density, is reported as a

proportion thus values that are closer to 1.0 indicate a higher rate of reciprocity. Another network-level structural measure is centrality which is discussed next.

Centrality “captures the extent to which a focal actor occupies an important position of prestige and visibility” (Carolan, 2014, p. 155). Having an actor at the center of the network could be seen as beneficial as long as that actor does not act as a bottleneck for the flow of information. Degree centrality, which is the number of ties to and from an ego (Carolan, 2014), has a score that varies between 0 and 1 with 1 representing the highest degree of centrality and therefore a network that is heavily dependent on one or two actors. Conversely, a network with a low degree of centrality will be noticeably decentralized and not solely dependent on a few actors.

According to Deal et al. (2009), “If new – possibly important – information were to enter the denser network via an individual, there is a good chance that it would be conveyed to others” (p. 30). Density reflects how the actors in a network are connected or not connected to one another (Carolan, 2014). However it is also important for a network not to be overly dense because a highly dense network is at risk for a slower flow of information rate. As density intensifies in a network, information can slow down as it travels from actor to actor throughout the network. This can result in some actors not receiving critical information in a timely manner. On the contrary, when a network is very small, a higher level of density is desirable because there will be a very high rate of information exchange. Since special education leaders can use SNA findings on centralization and density to make decisions about how to better distribute leadership, it is theorized that general education leaders will become more connected to special

education leaders within the network and allow for the sharing of critical special education knowledge with one another.

Setting

This study took place in a Title I, Pre-K-12 school district in Massachusetts with approximately 2,700 students that offers school choice. There are four elementary schools in the district and each one was analyzed based on how participants interacted with the district's special education administration team (team) using a whole network approach. Each school network and the team represented one individual network for a total of four whole networks. The special education team's network, in relation to each school's network, was analyzed to determine their respective centrality, reciprocity, and density by using SNA. Ultimately, the study sought to determine if distribution of leadership affected a network's centrality, reciprocity, and density and, to what extent, school performance. Additionally, the study modestly established that SNA can be used to effectively study and make sense of how special education information flows between a special education leadership team and the staff members within each network. Through SNA, a special education leadership team can determine if they distribute leadership to both special and general education staff members and, if not, accurately pinpoint where work needs to be done in order to improve leadership distribution and ultimately school performance.

Table 7 represents the district schools that were studied by grade and school enrollment. Each elementary school is in a stand-alone building scattered throughout the school district.

Table 7. Elementary School Enrollment by Grade

ENROLLMENT BY GRADE (2014-2015)								
	PK	K	1	2	3	4	5	TOTAL
Banker Elementary	0	31	33	40	38	40	45	227
John Elementary	0	48	59	57	43	61	48	316
Connors Elementary	0	47	55	54	56	63	60	335
Jasper Lake Elementary	0	33	36	42	39	43	42	235
TOTAL	80	159	183	193	176	207	195	1193

Table 8 represents the race and ethnicity percentages of the district’s students in comparison to the percentages across the state as a whole.

Table 8. District Enrollment by Race/Ethnicity

Enrollment by Race/Ethnicity (2014-15)		
Race	% of District	% of State
African American	2.6	8.7
Asian	4.0	6.3
Hispanic	16.9	17.9
Native American	0.3	0.2
White	71.3	63.7
Multi-Race, Non-Hispanic	4.9	3.1

The Early Childhood Center, situated at the Banker Elementary School, offers a half-day integrated preschool program that meets four days per week for 3 and 4-year old children. The program includes children who are typically developing as well as those with disabilities. The integrated preschool setting allows all children to participate to their fullest capacities in a mainstream educational setting where special support services are provided within the classroom as needed.

The remaining three elementary schools, John Elementary, Connors Elementary, and Jasper Lake Elementary schools serve grades K-5. John Elementary, Jasper Lake Elementary, and Connors Elementary schools have been designated by the Massachusetts Department of Elementary & Secondary Education (DESE) as level 2 schools which means their cumulative Progress and Performance Index (PPI) for the “all students” and high needs group was not 75 or higher. Whereas Banker Elementary is a level 3 school. Schools are classified into Level 3 if they are among the lowest 20 percent relative to other schools in the same school type category statewide, if one or more subgroups in the school are among the lowest performing 20% of subgroups relative to all subgroups statewide, if they have persistently low graduation rates (less than 60% for any subgroup over a four-year period), or if they have very low MCAS participation rates for any group (less than 90%). As a result of the district having a school in level 3 status, the district as a whole is classified as a level 3 district and has therefore met the assistance level of NTA (Needing Technical Assistance) from the DESE. The following two sections explain in greater details how the DESE designates a school’s accountability and assistance levels.

Schools with one or more subgroups that are among the lowest performing subgroups statewide are classified into Level 3 with these schools being referred to as Level 3 Focus schools. For a subgroup to be low performing, it must meet two criteria: (1) the subgroup must place in the lowest performing 20 percent of like subgroups within the school type category statewide, and (2) the subgroup must place in the lowest performing 20 percent of all subgroups statewide within the same school type.

Rationale for Using Social Networking

A whole social network study was used as opposed to an ego-centric approach. While an ego-centric method studies the network of a particular actor (ego) and what type of relations that ego has with the other actors (alters) in the network's boundary, a whole social network study analyzes the set of ties among all pairs of actors in a given bounded sample (Borgatti et al., 2013). According to Carolan (2014) there are two key benefits to studying a network at the whole level. First, when a whole network is studied, the network data allows the researcher to study individual actors, groups of actors, and/or the entire network. Data are often rich, comprehensive, extensive, and therefore ultimately mineable on several levels. Secondly, because of this richness and expansiveness of the data, subsequent analyses can be completed as additional questions arise from the same researcher or other researchers. A foremost limitation of whole network studies is the very real possibility of missing data from lack of response to surveys which is the data collection tool of choice. SNA researchers (Borgatti et al., 2013; Daly, 2010) suggest that for data to be considered valid, there must be at least an 80% response rate by network participants. The need for such a high response rate leads the researcher to seriously consider the use of monetary incentives to increase respondents' willingness to fully participate in the study (Deal et al., 2009).

Boundary Specification

When collecting data for SNA, the researcher must specify the boundary of the network under study (Carolan, 2014). When boundary specification is unclear, the researcher will likely collect data that will not accurately reflect the problem statement and subsequently be unable to answer the specific research questions with any certainty. Therefore bounding the network is a critical first step in any study using SNA. For this

study, a relational approach was used to specify the network's boundary because it is based on the researcher's current knowledge of the network, the actors within the network, and their potential relations with one another. According to Carolan (2014) there are many procedures that can be employed using a relational approach to boundary specification such as reputational, snowball sampling, fixed list selections, etc. Whether one procedure is chosen over another is dependent on the population being studied and the data that are hoped to be elicited, analyzed, and interpreted. This study relied on a fixed-list selection whereby each participant was asked to report on their relations/frequency of relations with each of the actors on the fixed list – in this instance the special education leadership team and the staff members of each individual school. A limitation of using a fixed list selection approach is its non-randomness. Since the researcher only included those actors that he/she perceived as important to the network study, other actors that may have been critical to the network's structure may have been unintentionally left out (Carolan, 2014). However by having provided a roster of possible network alters to each respondent, memory issues typically associated with free-recall was reduced.

Participants

The overarching purpose of the study was to analyze the relationships that exist between the district's special education leadership team and its 4 elementary school programs – more specifically the distributedness of leadership within each of the four district's networks being analyzed. Therefore the study only included participants that were members of the district-level special education leadership team and the staff members at each school participating in the study. Participants included all teaching staff

members along with special education personnel including school psychologists, and related service providers. Ancillary staff members such as custodians, clerks, and cafeteria staff were excluded as participants.

Prior to entering into the process of participant recruitment and data collection, it was necessary to first protect and ensure participant confidentiality to the maximum extent possible. To this end, the researcher has completed the Collaborative Institutional Training Initiative (CITI) as part of the University of Massachusetts Amherst Institutional Review Board (University IRB) policy in an effort to protect human subjects in research. Additionally, the study was approved by the University IRB and a written and verbal summary of the research project and procedures was provided to the research review committee of the district for approval. Once the research project was approved by the district, the researcher worked with the special education administrator to identify the members of her special education leadership team and the staff members at each elementary school along with the email addresses and position titles.

Once the participants of each of the 4 networks were identified, the researcher created a one-page flyer (Appendix E) that provided a written overview of the research project and explained how the data were going to be collected including a \$25.00 gift card for each participant who completed the survey in its entirety. Individual name labels were created and attached to each flyer, sorted by school, and hand-delivered to the principal of each school for distribution. Because the data were collected utilizing an on-line survey software program, informed consent was embedded within the introduction of the survey. The purpose of informed consent was to introduce the researcher, explain the purpose of the research project, and inform the participant of his/her rights as a participant.

Specifically, informed consent details how the data would be collected and with whom the data would be shared. Most importantly participants understood that participation was strictly voluntary, could be stopped at any time during the process, and participant identities would remain anonymous to protect confidentiality. Given an on-line survey platform, the participant could not continue with the survey until they gave their electronic informed consent. Additionally, if the participant decided to withdraw their consent during any part of the on-line survey, they simply exited the survey and that survey was recorded as incomplete. However, participants could also change their mind and return to the survey at a later date to finish their survey since the survey did not have an expiration date and remained open until the researcher closed the survey. This feature was especially helpful since the researcher sent subsequent reminder emails over a 5-month period to participants requesting them to complete the survey. It should be noted that reminder emails were only sent to those participants who had not yet completed the survey.

Data Collection

In order to accurately calculate network density, centrality, and frequency of communication exchanges, the survey questions were designed to determine who the participants gave special education advice to and from whom did they receive special education advice. Specifically the questions were:

1. During this school year, who among your colleagues listed below have you given advice to regarding special education knowledge or information?
2. During this school year, who among your colleagues listed below have you received advice from regarding special education knowledge or information?

Participants were then asked to indicate how often advice was given or received with the choices being rarely (1-2 times per month), often (3-4 times per month) or frequently (5+ times per month). The last question

Additionally, the survey asked each participant to rate their advice giving and receiving frequency and identify from a list of 5 options, what type of advice giving or receiving occurred most often. The five options participants could choose from were behavior, instruction, assessment, programming, and compliance. The last question asked the participants to rate their increase of special education knowledge/information as a result of their advice giving and receiving by indicating if their knowledge had no increase, a minor increase, a large increase, or a significant increase.

The questions also collected attribute data on several variables (see Table 9 below).

Table 9. Characteristics of Participants

Background Information	Group	Data Source
Name		Demographic Questionnaire
Current Position	District Sped Leadership Team	Demographic Questionnaire
	Principal/Assistant Principal	Demographic Questionnaire
	Sped Teacher	Demographic Questionnaire
	GenEd Teacher	Demographic Questionnaire
	Para (Classroom or 1:1)	Demographic Questionnaire
	Related Service Provider	Demographic Questionnaire
Gender	Male	Demographic Questionnaire
	Female	Demographic Questionnaire
Years in Current Position	0-3 Years	Demographic Questionnaire
	4-6 Years	Demographic Questionnaire
	7-9 Years	Demographic Questionnaire
	10+ Years	Demographic Questionnaire
Level of Education	Master	Demographic Questionnaire
	Master +30	Demographic Questionnaire
	Doctorate	Demographic Questionnaire
Teaching Experience	Elementary	Demographic Questionnaire
	Secondary	Demographic Questionnaire

	Both Elementary and Secondary	Demographic Questionnaire
Age	20-30	Demographic Questionnaire
	31-40	Demographic Questionnaire
	41-50	Demographic Questionnaire
	51-60	Demographic Questionnaire
	61-70	Demographic Questionnaire
	71+	Demographic Questionnaire
Ethnicity	African American/Black	Demographic Questionnaire
	Asian	Demographic Questionnaire
	Hispanic/Latino	Demographic Questionnaire
	Multi-Race/Non-Hispanic	Demographic Questionnaire
	Native American	Demographic Questionnaire
	Native Hawaiian/Other Pacific Islander	Demographic Questionnaire
	White/Caucasian	Demographic Questionnaire
District Type	Urban	DESE Website
	Suburban	DESE Website
	Number of Sped Students	DESE Website
Expenditures	Per Pupil Expenditures	DESE Website
	Per Pupil Special Education Expenditures	DESE Website
Free and Reduced Lunch	Non Free and Reduced	DESE Website
	Free and Reduced	DESE Website
Student Achievement	AYP Schools	DESE Website
	Non-AYP Schools	DESE Website

Data Analysis

Prior to analyzing the results, it was first necessary to export the electronic survey data into an Excel spreadsheet. This raw dataset then needed to be cleaned and organized into myriad smaller spreadsheets in preparation for loading these individual spreadsheets into UCINET for analysis.

The methodological framework approach for this study was SNA. Based on the data collected, individual networks were created for each network in the study. To illustrate the networks, sociograms or network maps, as described previously, were created from myriad square matrices assembled from the electronic sociometric survey

using UCINET (Borgatti et al., 2002). Visually analyzing the sociograms provided the researcher with an initial analysis of the distributedness of the network from a visual perspective.

Further computer program computation produced mathematical data on density, reciprocity, and centrality. Density represents the number of ties present in the network divided by the total number of ties possible and indicates how actors are linked together (Carolan, 2014). The closer the number is to 1.0, meaning all possible relations are present, the denser the network. Preferably network density should be sufficient to allow for communication to be accessed efficiently by actors thus indicating robust group cohesion (Deal, et al., 2009). However, if the network is too dense, network information may be slowed and, according to Deal et al. (2009) may “discourage people from venturing out for advice, ideas, or friendship...[therefore] something between the two networks probably is best: dense enough to exert personal-level accountability and to encourage knowledge flow, loose enough to keep the group from becoming isolated” (p. 32).

Similarly to density, reciprocity is measured from 0 to 1 with a number of 1.0 indicating high reciprocity. Reciprocity is an important measure because it illuminates the direction through which network resources – in the case of this study special education knowledge and skills – flow (Carolan, 2014). A second implication of reciprocity is the fact that ties that are reciprocated are stronger and therefore are more likely to endure over time (Carolan, 2014). Finally, and of great important to this study, is that when there is a high degree of reciprocity, the network is considered less hierarchical and thus more distributed in nature (Carolan, 2014).

Centrality is also measured on a scale from 0 to 1 with 1.0 being a highly centralized network and, according to Carolan (2014) “one in which relations are focused on one or a small set of actors [whereas] decentralized networks...are those in which power and control are diffuse and spread over a number of actors”, (p. 107). This measure, like reciprocity, is important to this study with regards to network distributedness. For a network to be distributed, there should be a high degree of reciprocity and a low degree of centrality signifying resources are highly reciprocated and utilized by a large number of network actors.

Summary

This network study sought to determine if there was a link between network measures and the distributedness of leadership. Specifically it was suggested that the more a network is decentralized along with a high degree of reciprocity, the more it reflects distribution of leadership which could lead to enriched knowledge and skills between network members. To accomplish this task, the relationships between the Team and Staff Members of each elementary program was studied using SNA.

The findings suggest that when a network is both decentralized with a high degree of reciprocity, the network will also reflect a high degree of leadership distribution. Ultimately, the totality of findings indicated that the staff members in one school network considerably exchanged special education skills and knowledge with one another through a distributed leadership process which indirectly, but positively, effected overall school performance.

Furthermore, the study modestly established that SNA can be used to effectively study and make sense of how special education information flowed between a special education leadership team and the staff members of the district's elementary schools.

CHAPTER 4

RESULTS

Introduction

The purpose of this study was to investigate the relationship between the special education leadership team and the principal, special education teachers, and general education teachers at each of our elementary schools through the lens of distributed leadership. Specifically the study sought to answer the following research questions:

1. What were the properties of the social networks around special education advice giving and advice receiving within the schools examined?
2. To what extent did advice giving and advice receiving affect the special education knowledge of staff members within the social networks?
3. Was there a relationship between network properties and school performance?

The results were achieved through the analysis of the advice giving/receiving networks using SNA as the primary methodological and analytic approach.

At the commencement of the study, staff members at each of the four elementary schools, along with the special education leadership team, were requested to complete an on-line survey for their particular school. Since some staff members worked as itinerant service providers at multiple schools, they were asked to complete a survey for each school at which they provided services. In the case of the special education leadership team based at the central office, because they interacted with the staff members at all of the elementary schools, they each completed all 4 surveys. Unfortunately, despite several attempts to secure participation, only two elementary schools had a sufficient response rate to go forward with the analysis.

Table 10. Summary of Survey Responses

	Number Emailed	Number Completed	% Completed
Connors Elementary	55	49	89.10%
Jasper Lake Elementary	55	49	89.10%
John Elementary	70	47	67.10%
Banker Elementary	81	61	75.30%

Both Connors Elementary School (Connors) and Jasper Lake Elementary School (Jasper Lake) reported identical results with 49 out of 55 surveys completed for a response rate of 89.1%. These two elementary schools, while not reaching a response rate of 90%, which is typically considered an acceptable percentage with regards to fidelity of data (Fredericks & Carman, 2013), a response rate of 89.1% was still deemed to be statistically reliable. Clearly the remaining two elementary schools, John and Banker at 67.1% and 75.3% respectively for response rates, did not meet the percentage rate threshold and therefore could not be analyzed with any confidence. Table 11 summarizes the demographic profiles of the staff members for each of the schools that were included in the analyzation.

Table 11. Staff Demographic Profiles

	Connors Elementary N=49	Jasper Lake Elementary N=49
Years in Current Position		
0-3 Years	42%	46%
4-9 Years	20%	22%
10+ Years	38%	32%
Years in District		
0-3 Years	30%	42%
4-9 Years	26%	22%
10+ Years	44%	36%
Years in Educational Field		
0-3 Years	2%	12%
4-9 Years	18%	20%

	Connors Elementary N=49	Jasper Lake Elementary N=49
10+ Years	80%	68%
Highest Level of Education		
High School	10%	8%
Associate	4%	4%
Bachelor	18%	36%
Master+	68%	52%
Age		
18-24 Years Old	0%	4%
25-34 Years Old	6%	12%
35-44 Years Old	24%	22%
45+	70%	62%
Gender		
Male	10%	10%
Female	90%	90%
Ethnicity		
Hispanic or African-American	8%	2%
Caucasian	92%	98%

In the demographic section of the on-line survey, the information provided by the participants helped to illustrate the composition of each school under study. In comparing the two schools, Connors was distinguishable from Jasper Lake in 5 out of the 7 categories extracted and analyzed. Specifically, Connors had higher percentage rates of staff members with experience in the current position, years in the district, and years in the educational field as compared to Jasper Lake. Additionally, 68% of staff members at Connors held a master's degree or higher versus 52% at Jasper Lake. Data on age also highlighted Connors as having 70% of its staff members who were 45 years of age or older contrasted by 62% at Jasper Lake. Overall, the demographic data revealed that staff members at Connors were likely to be more seasoned, more experienced with regards to work and age, and more educated than their fellow staff members at Jasper Lake.

Social Network Analyses

To have a better understanding on whether or not leadership was distributed within the two school networks, the properties of the networks around advice giving and advice receiving needed to be examined. Part of the on-line survey asked social network based questions. Using a fixed list of staff members from each school that also included the central office based special education leadership team, participants were asked to rate how frequently they gave to and received advice from staff members over the past month. Answers ranged from none at all, occasionally (1-2 times per month), frequently (3-4 times per month), to daily. Participants were next asked to indicate which one special education topic did they give and receive the most advice on from a list of 5 choices that included behavior, instruction, assessment, programming, and compliance. Lastly, participants were asked about their special education knowledge as a result of their giving and receiving of special education advice. The ratings, of which they could only choose one, were no change at all, slightly increased, or greatly increased.

Visual Analyses

To get an overarching picture of each school's network, three sociograms were created that represented three different categories of sociograms for a total of six sociograms (Figures 7-12). The staff members included in each category were:

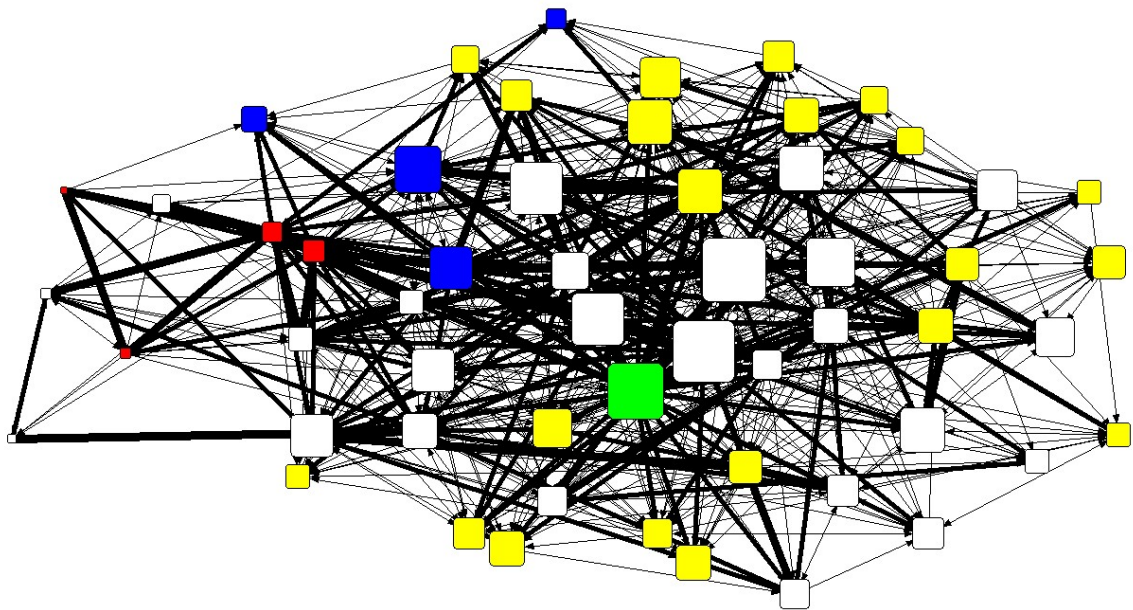
1. Principal, special education team, special education teachers, general education teachers, and related service providers
2. Principal, special education team, special education teachers
3. Principal, special education team, and general education teachers

In each of the sociograms, each node represents one staff member. The lines between nodes indicate ties between staff members. Specifically, if a line is present between two staff members,

it indicates the staff members are in communication with one another either in a reciprocal relationship or in one-way communication. Additionally, the length of lines and placement of the nodes within the sociogram indicate frequency of connections. Nodes – or staff members – that are in close proximity to one another with shorter lines connecting them represent staff members that have more frequent communications with one another and therefore have a stronger relationship as compared to staff members who are more distant to each other.

Sociograms were created within the special education teachers' network at each school to highlight the position of the special education team and the principal with their networks (Figures 9 & 10). Lastly, sociograms were created with the general education network at each school to see the position held in the respective networks by the special education team and the principal (Figures 11 & 12).

Figure 7. Connors Elementary School Whole Network

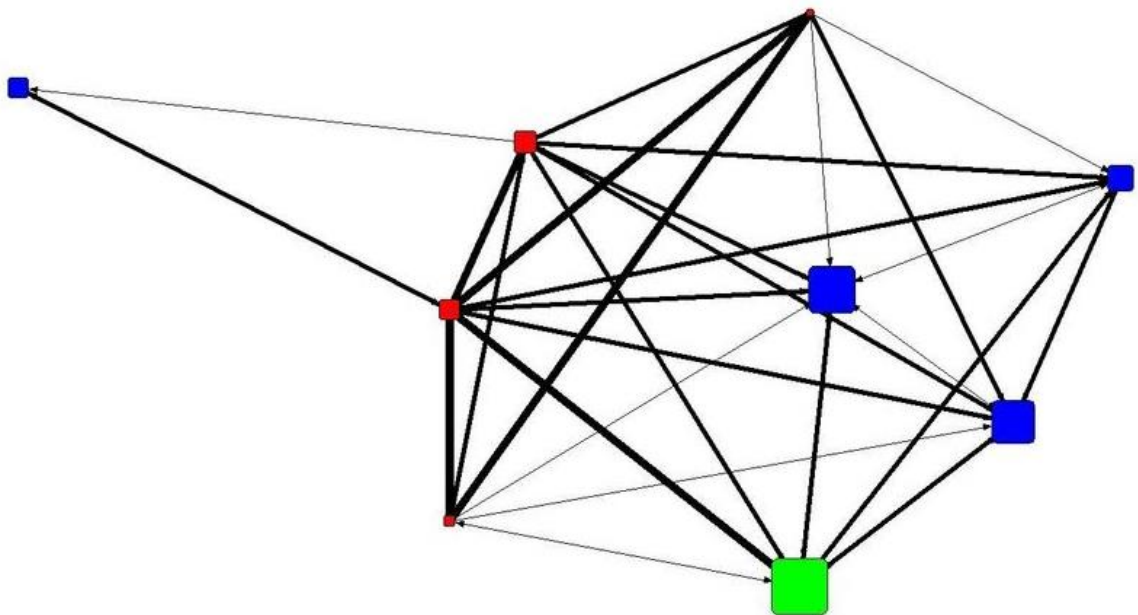


Special Education Team = Red
Special Education Teachers = Blue
Related Service Providers = White

Principal = Green
General Education Teachers = Yellow

Examination of the whole network at Connors revealed that the principal was a prominent member, or star, of the network because of their proximity to the center of the sociogram. Other stars in the network included three members of the related services group as they, too, were embedded in the center of the network along with the principal. Placed at the periphery of the network were the special education teachers, special education team, and itinerant related service providers. The peripheral location of these staff members demonstrates a lack of communication with the stars of the network, most notably the principal.

Figure 8. Connors – Sped Team, Sped Teachers, and Principal

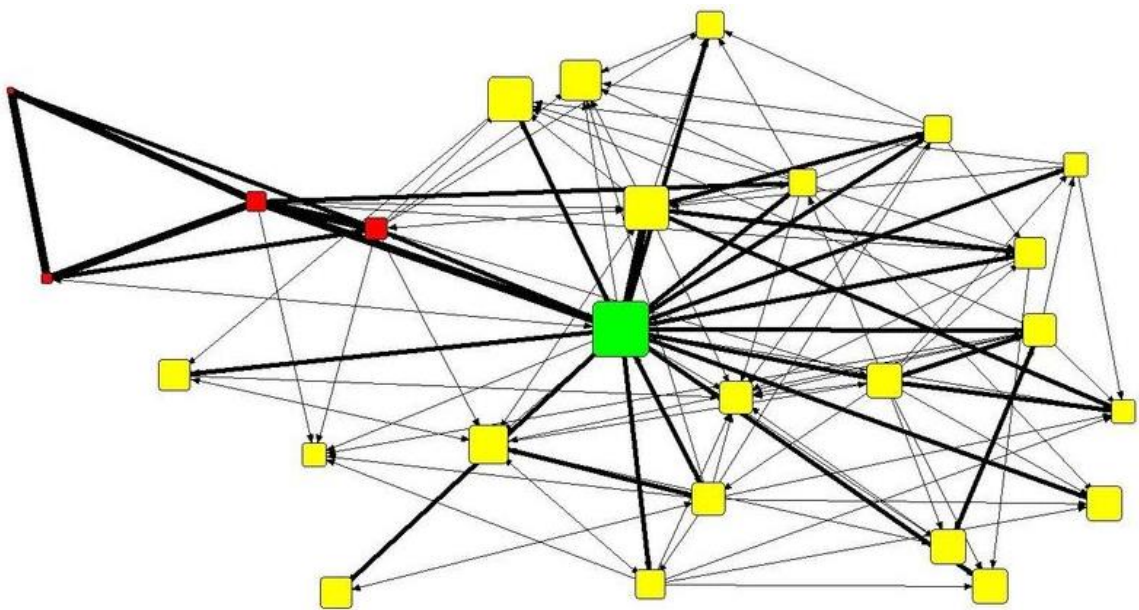


Special Education Team = Red
Principal = Green
Special Education Teachers = Blue

A visual analysis of the network comprised of the special education team, special education teachers, and principal showed the special education team had the greatest

volume of communications amongst its own team members. The principal is a peripheral member of this network while one special education teacher, who was at the center of the network and would be classified as a star. One special education teacher, while not an isolate, was not enjoying a great deal of connectivity and communication within the network. Overall, the special education team, while it experienced strong communication within itself, would not be considered stars within the network with a great deal of potential for influence.

Figure 9. Connors – Sped Team, GenEd Teachers, and Principal

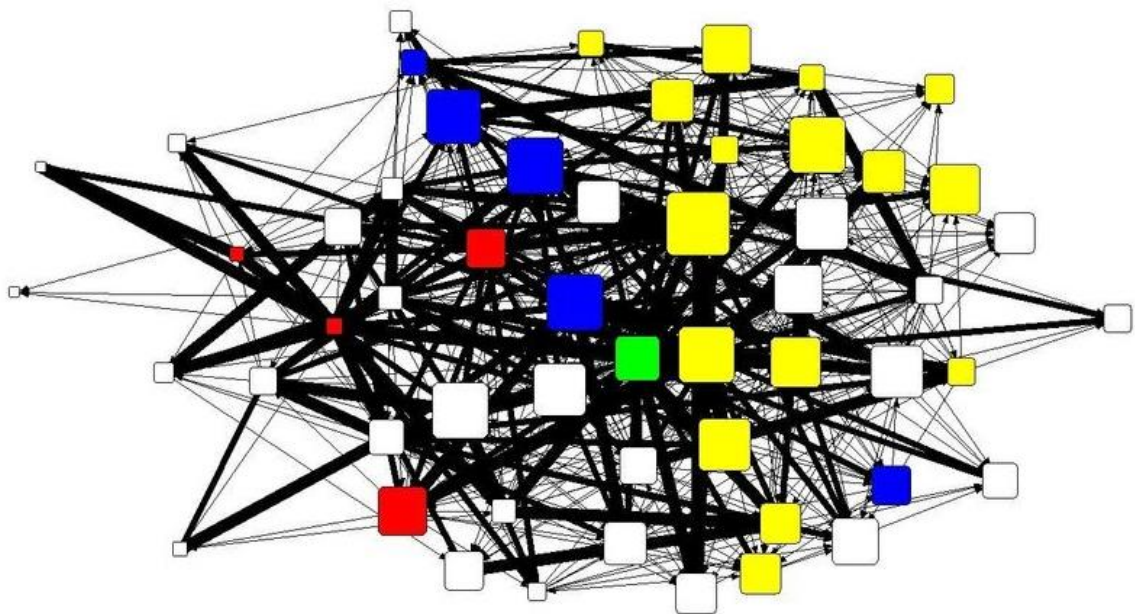


Special Education Team = Red
Principal = Green
General Education Teachers = Yellow

The principal of this network, additionally comprised of the general education teachers and special education team, was clearly the star of the network by their central location within the sociogram and size of their node which reflects density of

communication flow. Similarly to the previous sociogram, the special education team was on the periphery of the network but enjoyed a great deal of communication within the team itself with demonstrably less communication with the general education teachers as a whole. In general, if the special education team were to be removed from the network, the principal would still hold a position of great importance and experience a wealth of communication with the general education staff members. However such communication would be without the special education team and therefore would lack sharing of special education knowledge.

Figure 10. Jasper Lake Whole Network



Special Education Team = Red
Special Education Teachers = Blue
Related Service Providers = White

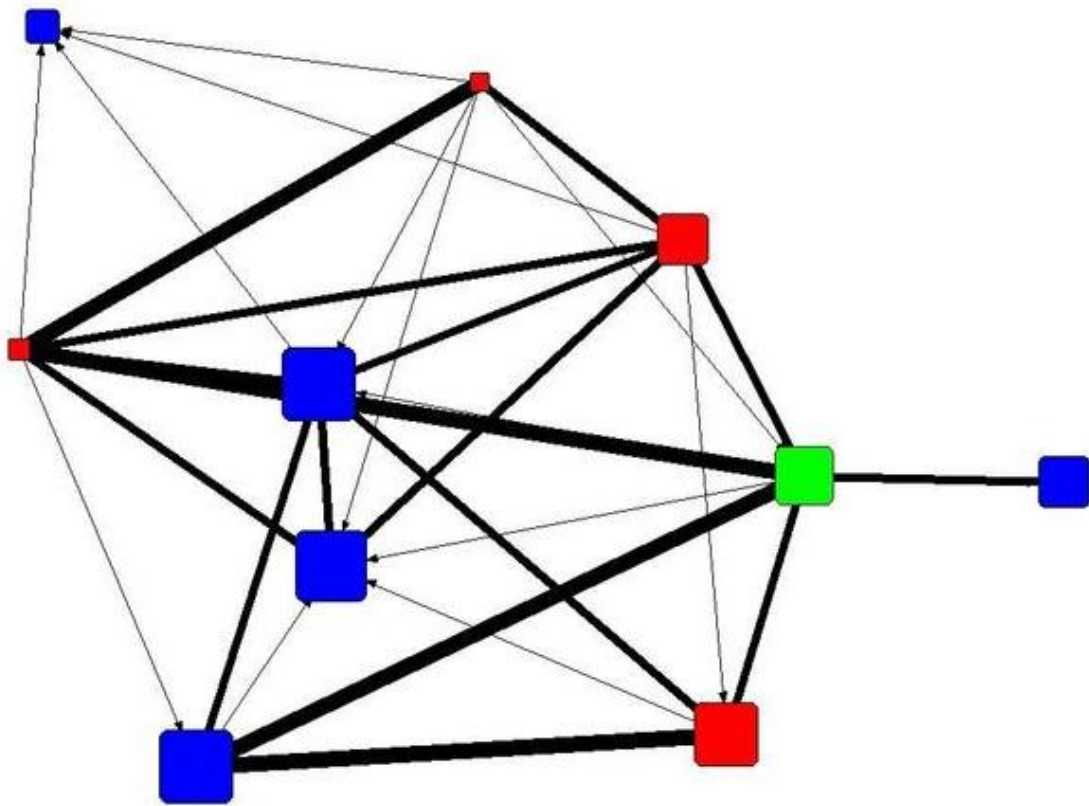
Principal = Green
General Education Teachers = Yellow

A visual analysis of Jasper Lake's whole network indicated the principal played a central role along with a special education teacher and two general education teachers.

The special education team was not on the periphery, as it was in the Connors whole

network, while two of its members experienced node strength in keeping with the principal. Further visual inspection highlighted that several general education teachers, special education teachers, and members of the related services group shared central positions in the network thus serving as a clique due to their many connections between them. Finally the whole network at Connors is very dense or benefiting from a high degree of connectedness given the overall closeness of the nodes and thick lines of reciprocal communications throughout the sociogram.

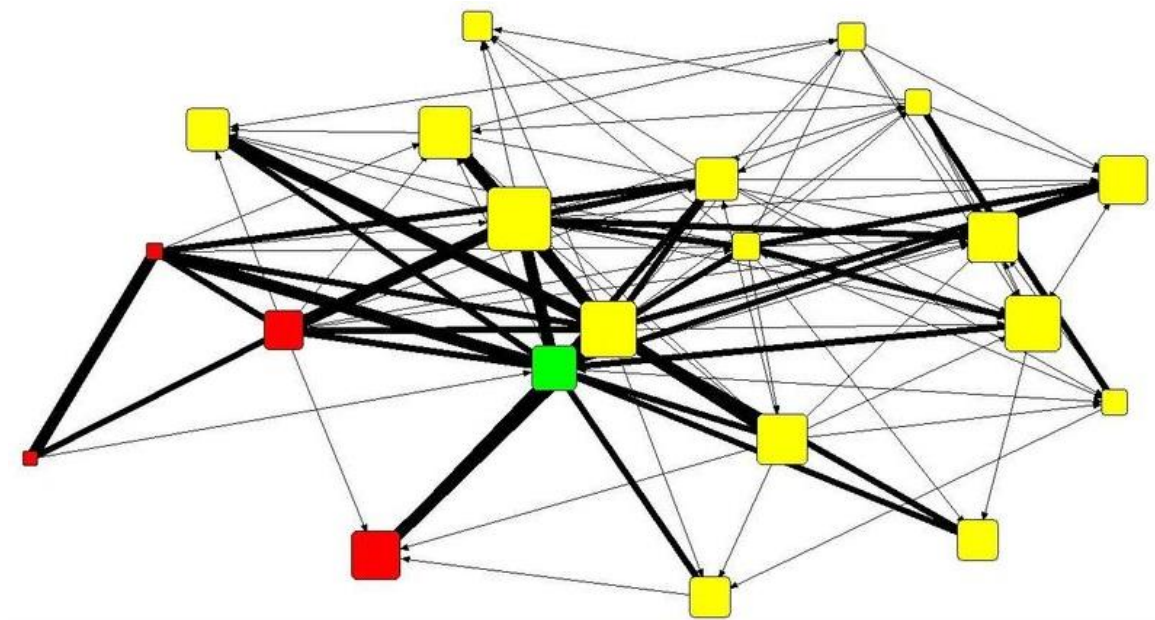
Figure 11. Jasper Lake – Sped Team, Sped Teachers, and Principal



Special Education Team = Red
Principal = Green
Special Education Teachers = Blue

A visual analysis of Jasper Lake’s network comprised of the special education team, special education teachers, and the principal indicated there was one special education teacher who received direct communication only from the principal and received non-direct communications from others in the network. While this position in the network is not necessarily negative, it would be perceived that the principal act as a bridge versus a bottleneck to the remaining network to ensure this special education teacher is not isolated and receiving limited information. Further visual inspection revealed a strong network where no one member, or node, was central but rather six nodes shared similar sized nodes and line thickness. Thus this network appeared to be more equally dispersed with regard to its direction and frequency of communication and therefore enjoyed a network of shared communication.

Figure 12. Jasper Lake – Sped Team, GenEd Teachers, and Principal



Special Education Team = Red
Principal = Green
General Education Teachers = Yellow

The network comprised of the special education team, general education teachers, and principal appeared to have moderately strong connections between the principal, two members of the special education team, and a few of the general education teachers. There was a subset of three general education teachers that while connected strongly to one another, were farther away from the center of the network. Therefore these teachers were likely benefiting from delayed communication as their ties were lengthier. In general this network had no isolated members, however members did not experience the same level of communication both in frequency and strength.

Centrality

Centrality is a measure of how one actor or one group dominated a network therefore indicating the extent to which that actor or group controlled power or influence within the network. In order to accurately calculate centrality within the networks, the Bonacich centrality method was used versus eigenvector centrality. Since the networks in this study were directed networks – meaning the ties were not necessarily reciprocated – the eigenvector method could not be utilized. Bonacich centrality was more applicable in this study given the need to analyze influence or status.

The numbers are expressed as *Z*-scores. *Z*-scores are standard scores within the network and are relative to the average member of the particular network. Therefore a perfectly average score on any of these variables would receive a *Z*-score of 0. A score above the network mean equals a positive *Z*-score whereas a score below the network mean equals a negative *Z*-score. In this context, the variables represent advice giving such that if the value were a positive number it would mean that the participant spoke to more people than the average person within the network or, in reverse, if the participant

value were a negative number, it would mean that the participant spoke to fewer people than the average person within the network.

Table 12. Centrality of Principal, Sped Team, Sped Teachers, and GenEd Teachers

<u>Connors</u>	In-Centrality	Out-Centrality	In 2-Step	Out 2-Step
Principal	1.804485943	2.564225242	0.774473173	0.091818898
Sped Team	-1.540136645	0.564381658	-1.504707816	-0.011001816
Sped Teachers	0.027964267	0.030165417	-0.234344642	-0.036706995
GenEd Teachers	-0.044012503	-0.378535333	0.155304567	-0.198690423
<u>Jasper Lake</u>	In-Centrality	Out-Centrality	In 2-Step	Out 2-Step
Principal	0.507471373	1.583169954	0.494092628	0.88249202
Sped Team	-0.546462393	0.801552218	-0.539697543	0.793829058
Sped Teachers	0.646456768	-0.303136687	0.494092628	-0.240572172
Gen Ed Teachers	0.088090485	-0.383304117	0.111850884	-1.008984514

In/out 2-step analyzed how many other actors an actor could reach within 2-steps along a path. The more actors able to be reached within 2-steps – a positive Z-score – denotes an actor who has more connections and therefore more power than another average actor within the same network.

Principals

Advice giving, in this study, expressed influence or status within the network. When examining the network, what was essentially seen was the status of certain groups within their network as it related to the status of the rest of the network. In-centrality represents those people that selected the same individual for advice-giving while out-centrality represented those people with whom that individual spoke. Within the networks, in/out centrality serves two key functions: 1) each group has a number that denotes the perceived influence by the group and 2) the influence the group is perceived to have by others within the network. For example, the principal at Connors had an in-centrality of 1.804485943 which meant other members of the staff indicated that they

gave/received advice to/from the principal more than they did as compared with an average member of the network. However the principal's out-centrality of 2.564225242 suggested the principal claimed to give/receive even more advice with others within the network. Considering the above average and the higher than above average status of who the principal saw themselves giving/receiving advice with, it seems like the principal saw themselves as only communicating with a concentrated set of others. The principal at Connors did not appear to see themselves as giving/receiving advice across the whole network but rather saw themselves as being more centralized and subsequently less distributed. This status is likely to mean that the Connors principal acted more of a bottleneck of information rather than a bridge that allowed the flow of information to course through the entire network.

However the principal at Jasper Lake enjoyed a different relationship with the other members of their staff. While both principals claimed to have given and received advice to and from more high status members of the network than did the average member within their networks (out-centrality), the Jasper Lake principal did so at a much lower rate than the Connors principal. This, coupled with the much lower in-centrality rate, the Jasper Lake principal saw themselves as communicating throughout the whole network leading to a decentralized relationship within the network and, therefore, more distributed with other members. In contrast to the Connors principal, the principal at Jasper Lake appeared to be a bridge that allowed for the flow of information throughout the network.

In the case of the Principal at Connors, with an out 2-step of 0.091818898, they only saw themselves as barely above average for being able to reach other members

within the network within 2-steps. However the other members of the network saw themselves as being able to reach the principal within 2-steps at a much higher rate of 0.774473173. This means that outside of the principals' direct sphere of high influence, the principal was very close to average and that there was a lot of staff members further away that could not be reached within 2-steps. This supports the premise that the Connors principal had fewer far-reaching connections and was thus much more centralized than their Jasper Lake counterpart.

Special Education Team

The special education team at each school had negative in-centrality scores (Connors = -1.540136645; Jasper Lake = -0.546462393). Due to this, average staff members indicated that they gave and received advice with the special education team less than they gave and received advice with other average members within their individual networks. This means the special education team in both networks was not influencing those staff members who influenced others. The reverse occurred regarding out-centrality scores. As a result of positive out-centrality scores at both schools (Connors = 0.564381658; Jasper Lake = 0.801552218), the special education team members believed that they gave and received advice to and from more high-status others than average members of the networks. In analyzing the out 2-step score for the special education team at Jasper Lake, the positive Z-score ($Z = 0.793829058$) indicated that the special education team was indirectly connected to more members of the network than an average member of the network was indirectly connected to while the opposite was found at Connors for both in 2-step (-1.504707816) and out 2-step (-0.011001816). What was especially noticeable at Connors was that the special education team gave advice to a

somewhat concentrated group of staff members resulting in the team being able to indirectly reach fewer members of the network than average. This was also true at Jasper Lake. Therefore while the special education team believed it was fairly connected throughout each network, they were not perceived to be as connected by the other staff members. This was especially true at Connors where the special education team was poorly connected throughout the network.

Special Education Teachers

The special education teachers in both networks essentially saw themselves as having been very average members of their networks with regards to having given and received advice based on their out-centrality scores. Connors out-centrality score (0.030165417) is considered very average influence whereas at Jasper Lake, the out-centrality score (-0.303136687) suggests that they saw themselves as having had less than average influence on the network. This translated into their perception that neither group saw themselves as being that influential on the rest of the network. However at Jasper Lake, others with higher status perceived themselves as having given and received advice with the special education teachers in their network meaning that the rest of the network obviously went to the special education teachers quite a bit. Therefore the special education teachers at Jasper Lake had more influence than they seemed to have realized. Interestingly at Connors, the opposite was true since the majority of the influence in their network went to the principal.

General Education Teachers

Out-centrality in both school networks received negative scores (Connors = -0.378535333; Jasper Lake = -0.383304117) indicating the general education teachers

claimed to have given and received advice to other staff members at a less than average rate as compared to other average coworkers. For in-centrality, Connors enjoyed slightly less than average centrality (-0.044012503) while Jasper Lake realized slightly higher than average centrality (0.088090485). However in looking at in 2-step, it is interesting that despite being very average with regards to how much advice both sets of general education teachers gave and received, they were indirectly connected to more staff members than the average members of each network. Overall, in both networks, general education teachers were being claimed by a fairly diverse set of average others and therefore ended up indirectly connected to an above average amount of others. This signifies that while both sets of general education teachers did not see themselves as being that influential, they were, in fact, connected to more of the network than was average albeit indirectly.

Density & Reciprocity

Table 13 provides a list of network measurements of both density and reciprocity for each school and the specific networks within each school that were analyzed. Density represents the proportion of total possible ties with total actual ties present within the network whereas reciprocity represents the degree to which actors in a network nominated one another for advice giving/receiving. Across the networks within Connors, density ranged from .181 to .750 indicating variability of connectedness from low (GenEd Teachers) to high (Sped Team). Similarly across the networks within Jasper Lake, density ranged from .223 to .750 also indicating variability of network connectedness from low to high.

Reciprocity across the networks within Connors ranged from the low of .316 (GenEd Teachers) to the maximum reciprocity possible of 1.00 (Sped Teachers) indicating inconsistency among the number of staff members that are giving/receiving advice with one another. However at Jasper Lake, reciprocity across the networks ranged from .415 to .667, indicating more consistency with advice giving/receiving by staff members.

Table 13. Density Properties

	Connors Elementary	Jasper Lake Elementary
Whole Network Density	0.270	0.223
Sped Team Density	0.750	0.750
Sped Teachers Density	0.500	0.400
GenEd Teachers Density	0.181	0.301
Whole Network Reciprocity	0.514	0.442
Sped Team Reciprocity	0.667	0.667
Sped Teachers Reciprocity	1.000	0.500
GenEd Teachers Reciprocity	0.316	0.415

Network Differences

By individually analyzing the descriptive network properties at both schools, specifically centrality, density, and reciprocity, it was then possible to study the differences in the two school networks. Overall network differences were examined through the perception of influence and what role it played within each school.

Connors

Respondents at Connors all saw themselves as sources of influence whether it was the principal, special education team, or special education teachers. They all claimed to have more influence than others claimed about them. The influence of the principal at Connors was centralized or hierarchical meaning that the principal, although they

perceived themselves as being in a powerful position in the network – a centralized position – their influence on the network was more than 2-steps away from a large portion of the rest of the network. Overall staff members at Connors gave high amounts of status to the principal, almost none to the special education team, and average amounts to the general education and special education teachers. Because this was especially true for the special education team where the staff members with high influence did not go to the special education team, their ability to influence the network was quite poor.

When looking at the overarching scores at Connors, they showed a great deal more variability and inconsistency with regards to influence being shared throughout the network. This speaks to a more centralized network that is dependent upon one or a few leaders who are disconnected to the rest of the network because their influence is not shared throughout.

Jasper Lake

At Jasper Lake, both general education teachers and special education teachers saw themselves as having below the average influence within the network while the remaining respondents felt that the special education and general education teachers had an above average influence within the network. This speaks to a more decentralized network where influence was fairly consistent through the network. While the special education teachers had more influence within the network than the principal did, they were all well connected throughout the network or again decentralized.

This phenomenon of staff members believing they have less influence within the network than they actually are perceived to have is a relatively good indicator of distributed leadership. In general, people who do not think of themselves as being leaders

or influential are, in fact, influential because their influence is being spread within the network and is not dependent upon one lone leader.

Advice Giving/Receiving Analyses

To determine the extent to which advice giving and advice receiving affected the special education knowledge of staff members within the social networks, it was first necessary to examine the advice giving/receiving networks themselves. Specifically it was necessary to study the type of advice being given and received between staff members and subsequently whether staff members' knowledge base remained the same or changed.

Overall, the properties of the special education team within each network appeared to positively affect the staff members who gave and received advice with the special education team. Specifically, the communication between the special education team and staff members in each school affected both the type of special education advice that was being given and received and the degree to which staff members indicated their knowledge based changed.

Participants were given five special education topics within the survey and asked to indicate which topic they gave or received the most advice on. The topics included instruction, assessment, programming, behavior, and compliance. When staff members said they were giving and receiving advice on the special education topic of behavior, they concurrently indicated that their special education knowledge base increased. This was true in both networks.

In reverse, when staff members were not giving and receiving information on behavior, they indicated their special education knowledge stayed the same and did not

increase. This was also true in both networks. Therefore a positive relationship was shown to exist between the special education topic of behavior and the knowledge base of staff members because the staff members who discussed behavior really did feel that their knowledge was being shared more. With regards to tenure, those staff members with more years in the field were more likely to indicate that their special education knowledge base improved as they gave and received advice but especially advice about behavior.

Diffusion of Special Education Knowledge

To determine if advice giving (out-degree) and receiving (in-degree) was diffused throughout the networks, a T-test was used to determine if the average number of reciprocated ties between networks was statistically significant. In-degree centrality is when an actor has many ties coming into them and subsequently seen as being important or prominent within the network. Specifically many other actors seek direct ties to them which indicates a higher level of standing. Whereas out-degree centrality is when an actor has many ties going out to many other actors within the network. That actor is often seen as being very influential. Specifically those actors with an unusually high out-degree centrality are actors who are able to exchange information with many others and/or make many other actors aware of their views and opinions. In/Out 2-Step indicates an actor who can reach or be reached by other actors within two steps subsequently signifying an actor who has more connections and therefore more power than another average actor within the same network.

Specifically the T-test was used to compare the mean of reciprocated ties in one network against the mean of reciprocated ties in the other network. The average in-degree

for Connors was statistically much higher than the average in-degree at Jasper Lake. This means that there was a statistically significant higher number of staff members receiving advice at Connors than there was at Jasper Lake. While out-degree – those people giving advice – was also a little higher at Connors as compared to Jasper Lake, the difference was less statistically significant. Therefore overall Connors had more people talking to more people than at Jasper Lake as a result of a greater number of reciprocated ties by nearly two times. Thus it appears that a relationship does exist between the number of reciprocated ties and the diffusion of advice giving and receiving throughout the network at Connors as compared to Jasper Lake.

This was also supported when examining the status of actors within each network. The status of an actor in a network is important with regards to their ability to reach other actors without relying on intermediaries and how quickly that reach takes. Such a high status actor could be seen as someone who readily distributes information throughout the network. At Connors, the high status participants or highly connected participants were not directly themselves connected to the special education team. This means that the special education team was not being nominated as often by other staff members within the network and therefore held a significantly lower in-status position within the Connors network. Subsequently the higher status actors were talking to each other while not enough of them were talking to the special education team who found themselves on the outside.

In the Jasper Lake network, the special education team enjoyed a higher status than it did at Connors with at least one member of the special education team holding quite a high status location in the network. Since high status actors help to quickly

distribute information throughout the network, it is significant that the special education team at Jasper Lake reported behavior as the most often given and received advice type. Interestingly, while Connors was a denser, more cohesive network, they were not able to focus on any one topic of advice giving or receiving such as Jasper Lake. However one disadvantage to a very dense network is that no new information can easily be introduced. This may explain why Jasper Lake, a less dense network, was able to settle on the common issue of behavior while Connors appeared to be fixed on instruction which could have been considered a safer or easier topic to discuss.

The type of special education advice that was given and received was different in both whole networks. Specifically Jasper Lake staff members predominantly discussed the topic of behavior as compared to staff members at Connors who discussed instruction more frequently. However while instruction was discussed frequently at Connors, so was assessment, programming, compliance, and behavior. Therefore although Connors enjoyed a greater volume of advice giving and receiving throughout the network than Jasper Lake due to a higher number of reciprocated ties, there appeared to be no consensus on what special education topic was of critical standing. It is important to note that while diffusion of information is necessary for improved communication, if there is not a commonality of information being shared, the network can be seen as working at cross purposes. Jasper Lake may have experienced a lower degree of diffusion of knowledge than Connors, however Jasper Lakes' staff members were discussing the common issue of behavior and therefore were likely collaborating on a shared solution. Thus Jasper Lake's network, while less diffused than Connors, would likely be able to resolve issues more effectively given its tendency to share and be collaborative.

School Performance

While it is not possible to draw direct conclusions between network properties and school performance within this particular small study, it is an important first step to at least contemplate school performance during the study's timeframe. Table 14 includes MCAS scores for the spring 2015 school year and the spring 2016 school year broken down by grade and subject matter. The table also includes a column indicating a change in scores. Overall, Connors realized declines in all areas except for grade 4 mathematics which increased by 0.6 from 81.7 in 2015 to 82.2 in 2016. Whereas declines in scores ranged from -0.9 in grade 3 reading to -7.1 in grade 5 mathematics between 2015 and 2016.

Largely, Jasper Lake realized significant improvement in 7 out of 10 areas ranging from +0.3 in grade 5 English language arts to +8.4 in grade 3 reading. Science and Tech/Eng was an area of weakness for both schools with a -5.1 decrease at Connors to a -6.6 decrease at Jasper Lake.

Table 14. MCAS School Performance Scores

MCAS Tests of Spring			
Connors Elementary	2015	2016	Change
Grade 3 Reading	81.8	80.9	-0.9
Grade 3 Mathematics	79.1	77.7	-1.4
Grade 4 English Language Arts	88.5	81.7	-6.8
Grade 4 Mathematics	81.7	82.2	+0.6
Grade 5 English Language Arts	94.0	90.9	-3.1
Grade 5 Mathematics	85.1	78.0	-7.1
Grade 5 Science & Tech/Eng	89.9	84.8	-5.1
Overall Elementary ELA	88.2	85.0	-3.2
Overall Elementary Math	82.0	79.2	-2.8
Overall Elementary Science	89.9	84.8	-5.1
MCAS Tests of Spring			
Jasper Lake Elementary	2015	2016	Change
Grade 3 Reading	84.0	92.4	+8.4

Grade 3 Mathematics	82.1	90.1	+8.0
Grade 4 English Language Arts	74.4	80.3	+5.9
Grade 4 Mathematics	72.6	76.3	+3.7
Grade 5 English Language Arts	88.1	88.4	+0.3
Grade 5 Mathematics	81.5	76.8	-4.7
Grade 5 Science & Tech/Eng	79.2	72.6	-6.6
All Elementary ELA	82.1	87.3	+5.2
All Elementary Math	78.7	81.3	+2.6
All Elementary Science	79.2	72.6	-6.6

Summary

Both Connors and Jasper Lake elementary schools met the threshold to be analyzed having enjoyed a survey response rate of 89.1%. Demographic data revealed that Connors' staff members were likely to be more seasoned/experienced with regards to work and age and more educated than those staff members at Jasper Lake.

Connors' principal was a prominent member or star of a very dense network and held a position of great importance while experiencing a wealth of communication with other staff members. However the principal was not able to connect across the whole network but rather had a more centralized relationship with a few high status staff members thus their influence and flow of information was constrained. At Connors, staff members were either one of the high status members of the principal's clique or sat on the periphery of the network and lacked sufficient communication with other staff members.

However at Jasper Lake the principal benefited from being able to communicate throughout the whole network. This led to a decentralized relationship within the network and an increased ability to diffuse special education knowledge to more staff members. In contrast to many of the staff members at Connors who were not central with the principal,

the staff members at Jasper Lake had the benefit of a decentralized network where their advice giving and receiving flowed throughout a network that was not constrained. Whether this contributed to the Jasper Lake outperforming Connors on state-wide assessments cannot be determined by this study but certainly begs the question on whether a decentralized network could in any way positively effect, albeit indirectly, school performance.

CHAPTER 5

DISCUSSION

Introduction

This investigation was founded on the principles of distributed leadership, SNA, and diffusion of knowledge which together promote the importance of collaboration through social interaction and relationship building to ensure knowledge exchange and effective problem solving (Camburn et al., 2003; Elmore, 2002; Harris, 2007). The study also followed the theory that when leadership is distributed more consistently throughout a network, communication is not constrained and will, in fact, support the effective transfer of knowledge and potentially, improved school performance (Hulpia & Devos, 2009; Hulpia et al., 2009; Leithwood et al., 2008). The study used SNA as the primary methodological and analytic approach to reveal the structural dimensions of the advice giving/receiving networks within the two schools in order to delve more deeply into network relationships, collaboration, knowledge impact, and school performance.

The primary purpose of this study was to analyze the relationships that existed between the district-level special education leadership team and two elementary schools. Specifically, the study mapped the existing network relationships through the lens of network centralization, reciprocity, and density in relationship to positions within the organization, participant backgrounds, and school outcomes/performance. Particularly, the study sought to analyze what, if any, link existed between the network properties and the extent to which leadership was distributed. The study also examined the extent to which advice giving/receiving affected the knowledge of participants and whether a

relationship could be seen between network properties and school performance, albeit indirectly.

The broad contexts presented in the literature, information gathered from participant surveys, and an exploration into the possible reasons for the findings will inform the discussion. This chapter culminated in conclusions and implications for future practice.

Properties of the Social Networks around Special Education Advice Giving/Receiving

Understanding that certain network properties can either constrain or support the exchange of information, and therefore knowledge, is consistent with both the findings of the study and SNA literature (Borgatti et al., 2013; Carolan, 2014; Daly, 2010).

According to Deal et al. (2009), “If new – possibly important – information were to enter the denser network via an individual, there is a good chance that it would be conveyed to others” (p. 30). Density reflects how the actors in a network are connected or not connected to one another (Carolan, 2014). Density in the Connors and Jasper Lake networks were very similar and therefore could not be used in isolation to understand differences between the networks but rather combined with other network measures to determine network similarities/dissimilarities. While it is important for a network not to be overly dense because such a network would be at risk for a slower flow of information rate (Carolan, 2014), both of the Connors and Jasper Lake networks in the study were very small. As such a higher rate of density would be anticipated and advantageous because it would ensure a very high rate of information exchange (Borgatti et al., 2013; Carolan, 2014; Daly, 2010). Although there was some variability in density measures within the network teams, for example the special education leadership team enjoyed a

high rate of density at .75 in both networks, overall the information exchange rate was on the lower end indicating not enough special education advice was being given and received amongst participants.

Ties that are reciprocated are stronger and therefore are more likely to endure over time (Carolan, 2014; Daly, 2010). When there is a high degree of reciprocity, the network is considered less hierarchical and thus more distributed in nature (Carolan, 2014). Reciprocity measures in the networks at both schools were far stronger than their density measures with the exception of the general education teacher network at Connors that had a reciprocity of .316. This suggests that while participants were seeking each other out within the network, their exchange rate of special education information was not as high as expected given the amount of reciprocated ties. While it is clear that reciprocity was strong in both networks, participants' discussions appear to have fallen outside of special education advice giving/receiving given the lower density rates.

The relationships that existed at each of the schools were fairly strong and were more likely to continue over time given their rates of reciprocity (Daly, 2010; Margolin, 2013). However the strength of the relationships were not centered on the transfer of special education advice topics outlined in the survey but rather on other, non-special education, issues given the network density measures. However given that moderately strong advice relationships did exist within each network, a critical foundational piece for effective collaboration and knowledge sharing existed because in order to have effective collaboration, relationships between people must first be present in an organization (DiPaola & Walther-Thomas, 2003; May et al., 2013). This means that while the networks were not necessarily exchanging advice on special education issues, there was a

great deal of information exchange occurring thus indicating a strength in the networks that could be capitalized on in the future with regards to diffusion of information (Borgatti et al., 2013; Camburn et al., 2003; Margolin 2013; May et al., 2013).

For a network to be distributed, there should be a high degree of reciprocity and a low degree of centrality signifying resources are highly reciprocated and utilized by a large number of network actors (Carolan, 2014). While we saw the networks as both enjoying moderate reciprocity, centrality was the measure that noticeably distinguished the two networks overall. At Jasper Lake, no one staff member, or group of staff members, was central in the network. Rather staff members experienced fairly equal status throughout the network allowing for quick distribution of information. This, coupled with the fact that staff members were predominantly giving and receiving special education advice on behavior, effectively positioned the network to address this issue through collaboration and knowledge sharing.

Whereas at Connors, the network was centralized around the principal and there was no agreement on the type of special education advice that was being given and received. Principals or leaders that position themselves this way within an organization are not capitalizing on the combined knowledge of the other staff members and therefore are more hierarchical in terms of leadership style (Bass & Avolio 2002; Spillane, 2006; Northouse 2012). Hierarchical leaders typically see themselves as being in charge of the work and instead of the leadership style being power-with their staff members, they immerse themselves in a task-oriented type of leadership style (Spillane, 2006; Northouse 2012). This left the Connors' network, ostensibly a slighter denser and more cohesive network than its counterpart at Jasper Lake, unable to effectively collaborate or problem

solve with any effectiveness. Thus the staff members at Jasper Lake, as compared to Connors, were situated in networks that supported the flow of similar special education knowledge, promoted collaboration, and consequently allowed members more opportunities to problem solve around issues.

Advice Giving/Receiving Effects on Special Education Knowledge of Participants

As indicated by participant survey responses, of the special education topics being discussed within both schools, the topic that appeared to have the most impact on the acquisition of knowledge was that of behavior. When staff members indicated on the survey that they were giving and receiving advice on behavior to one another, they concomitantly answered that their special education knowledge was enhanced. It can only be surmised that at the time the survey was completed by participants, their overarching concern at their respective schools was around the issue of student behavior.

Conversely, for those staff members in both schools who were not giving and receiving advice on behavior, they indicated that their special education knowledge remained the same and did not increase. While it is not known why there was link between advice giving/receiving on behavior and a perceived improvement in special education knowledge, the study did reveal a modest connection between type of advice being given and received and its impact on special education knowledge

Relationships between Network Properties and School Performance

The current findings support the literature that suggests school performance can be linked to how well staff members are connected to one another in a decentralized network whereas schools that perform less well are typically less connected in a

centralized network (Borgatti et al., 2013; Camburn et al., 2003; Margolin 2013; May et al., 2013).

While a relationship cannot be directly linked between network properties and school performance, it is possible to argue that the networks at Jasper Lake which had dense and strong ties appeared to have supported staff members' problem solving capacity around the advice topic of behavior. Findings suggest, but should be cautiously interpreted, that given a decentralized network at Jasper Lake that allowed for a distribution of information, school performance improved. Whereas at Connors, where the network was more centralized around the principal and information did not flow as freely as it did at Jasper Lake, school performance declined.

A Model for Future Practice

One objective of this study was to determine the diffusion of advice giving and receiving at both a whole network level and team network level through the analyzation of network properties. Another objective of the study sought to discover a relationship between the network properties of advice giving and receiving and the special education knowledge of staff members. It lastly pursued what, if any, relationship existed between network properties and school performance albeit indirectly. Overall findings of this study resulted in moderate implications for educational practice and research. Specifically findings support the premise that special education leaders can use SNA to make informed decisions on how to effectively distribute leadership and diffuse knowledge through a school's network. This then provides general education staff members the opportunity to become more connected to special education leaders within

the network and maintain the sharing of critical special education knowledge with one another.

Schedule Time to Collaborate

The investigation results suggested that the extent to which staff members were giving and receiving advice affected their knowledge base positively. In both schools, reciprocated relationships were strong, leading one to the conclusion that, over time, these collaborative relationships would allow for greater information sharing and improved lines of communication. Speaking in general terms, networks with fewer lines of communication may not have the ability to be flexible during times of widespread change, therefore constraining the flow of information through the network. When a network is constrained due to limited open lines of communication, new lines of inquiry may be effectively closed off leading to less collaboration, ineffective problem-solving, and potentially decreased school performance.

Interestingly, both schools had strong reciprocated ties leading one to believe that they were also collaborating at the same level. However, this was not the case, as discussed earlier, and left one school struggling to reach consensus and problem-solve collaboratively around a specific issue facing their students. Leaders that are forward thinking recognize the enormous significance of collaboration (DiPaola & Walther-Thomas, 2003; May et al., 2013). They stand out from those that are less effective because they encourage and make time for staff members to share the work and subsequently build foundations of knowledge (DiPaola & Walther-Thomas, 2003; May et al., 2013).

Unlike the principal at Connors who was not decentralized within the network, the principal at Jasper Lake was decentralized within the network which therefore suggests there was an acknowledgment and recognition of the interdependency of staff members and their work. Leaders who recognize that interdependency is critical to effective collaboration will likely afford fixed time to collaborate as teams on prescribed activities that support, rather than constrain, communication, thus likely realizing enhanced school-wide performance (Crockett et al., 2009; May et al., 2013). Moving forward, practices should include building time into the schedule to allow for substantive collaboration among staff members thereby reinforcing the significant importance of this work to the flow of information and acquisition of knowledge. Understanding that collaboration is not static but rather an ongoing process that ensures school teams achieve effectiveness, it is of utmost importance that leaders and staff members alike embrace this principle.

Discuss Common Issues

"Building vision and setting directions...it is about the establishment of shared purpose as a basic stimulant for one's work [and the] more specific practice in this category is building shared vision" (Leithwood, Harris, Hopkins 2008, p. 29). To ensure that time allotted to collaboration is being used effectively, it is important that there be a shared purpose. Collaboration without a common goal is merely socialization and will rarely move the network forward as a whole. Shared school-wide efforts to improve student achievement for all students must be supported by leaders through the creation of living and breathing learning communities and by focusing efforts on common issues (DiPaola et al 2004).

Staff members and leaders must draw on their myriad relationships – their reciprocated ties – within their school network in order to understand and develop a common understanding of what issues are facing their student population. At Connors, the school wrestled to determine what common issue was of greatest importance to first address. While behavior was of concern at both schools, Jasper Lake realized it was their primary concern given the volume of advice giving and receiving on that singular issue. This coordination of efforts with staff members all working towards the same common goal oftentimes leads to improved student outcomes (Gronn, 2008; Leithwood et al., 2007).

Distribute Knowledge through Distributed Leadership

Sharing or distributing knowledge with others may lead to stronger instruction and subsequently better outcomes for all students (Leithwood et al., 2007). However distributing knowledge must first be originated and supported by the school's leadership team so that knowledge sharing becomes a school-wide common sense of purpose (Hulpia et al., 2009). Results of this study suggest that district and school leaders should be thoughtful about what processes, procedures, and activities are in place that foster not only knowledge sharing but support distributing leadership throughout the network. One should think of distributed leadership as the ties that connect staff members together in the network and the diffusion of knowledge as that which travels along those ties. The more distributed a network is – the more it is decentralized – the greater the volume of information will flow throughout. Lack of diffusion of knowledge restricts the ability of the network to be flexible and respond to the demands of student and system needs.

Interestingly, hierarchical leadership structures are, by their very nature, vertical in shape, and do not lend themselves to a dispersal of leadership activities. However a distributed leadership structure is flatter and therefore more horizontal. This type of organizational structure is needed to reach and maintain high levels of group problem-solving and subsequently higher rates of effective decisions (Leithwood et al., 2008; May et al., 2013). Distributed leadership can support and lead to more inclusive practices for all students, including special education students. Because “[a]dministrators play a significant role by providing leadership that translates into academic success” Boscardin et al., 2011, p. 75, it will be important that the schools look toward distributed leadership to help accomplish this.

Limitations

While the process of social network analysis can be quite rigorous and this study did reveal informative results, there were limitations that negatively impacted its scope. As such, the findings of this study must be interpreted with caution. One limitation of the study had to do with its reduced sample size. Because the research had to be narrowed to two schools due to a lack of participant response rate at the third and fourth schools, a narrow population remained to be studied. Additionally, the two schools included in the study were both elementary schools within the same suburban district and therefore had the same socioeconomic and demographic indicators across the participants. Thus the generalizability of the findings to other settings is imperfect and must be restricted. Furthermore, the individual elementary schools presented themselves with small sample sizes and created the inability to compare the two school directly with each other. For example, the special education team consisted of only four members, or observations.

However in order to compare the special education team within each school's network, a minimum of 30 observations, versus four, would have been needed to make valid comparisons between the networks (Borgatti & Everett). The most that could be accomplished was to make indirect comparisons which limited the statistical power of the results. Had a broader sample size that included larger schools been utilized, the study would have likely realized more diverse perspectives regarding distributed leadership and its impact, if any, on school performance.

Measurement also served as a limitation with this study. Specifically the researcher used a fixed-list selection approach which was non-random. Since the researcher only included those actors that were perceived as important to the network study, other actors that may have been critical to the network's structure may have been unintentionally left out (Carolan, 2014). However by having provided a roster of possible network alters to each respondent, memory issues typically associated with free-recall were reduced. The measure used was an on-line survey instrument based on participant self-reports which did not allow for data triangulation and was based on participant perceptions. The question remains, therefore, whether the participants' perceptions were an accurate reflection of actual advice giving/receiving within the respective networks. Data was also collected on a single occasion, versus over time, which could have yielded stronger results causing a fundamental problem of causal inference. Therefore the conclusion are being advanced tentatively and more as hypotheses warranting additional investigation.

Finally this study defined the team as the method for participants to give and receive advice with each other. However social networks are formed around myriad

issues involving participants from groupings or pairings not able to be identified as a team. For example networks may form based on friendship, professional interests, social connections, skills, school gossip, and so on. It is quite possible that the results realized from this study were based on the formal teams participants were a part of, the naturally occurring informal relationships that arise in close knit environments, or some combination thereof.

Directions for Future Research

While the field of educational leadership is replete with volumes of literature, the narrower field of special education leadership continues to need bolstering in terms of research, analysis, and useful solutions for school practitioners. With regards to distributed leadership, a model premised on varying collaborations and networking that signifies a relatively complex approach to organization (Harris, 2005; Margolin, 2013), its practicality in a school setting has not yet been established. Therefore further inquiry is indicated in terms of distributed leadership within a special education concentration context.

Another line of inquiry is the use of SNA as a methodological and analytical approach to studying educational leadership – specifically special education leadership. Although it appears that SNA brings a level of understanding to a problem that is more than just novel, without further investigation to support its purported efficacy, SNA may fail to persist as a methodology in the educational leadership field.

A final thought for future research goes beyond diffusion of knowledge and onto the concept of social capital. It is not enough to know that a relationship exists between two staff members, it is also necessary to know why the relationship exists in the first

place. If one staff member helps another staff member on a project, does the relationship support additional interactions over time – an indicator of positive social capital – or is the relationship finite? Social capital research studies move beyond the relationship level and analyze how relationships can be sustained over time in order to facilitate the flow of information, the successful diffusion of innovation, and enhanced organizational knowledge.

Conclusion

The overarching purpose of this study was to determine if there was a relationship between school network properties and the distributedness of leadership at the school level. Specifically, through the use of SNA methodology, the study analyzed the relationships that existed between the district-level special education leadership team and two elementary schools in order to delve more deeply into network relationships, collaboration, and knowledge impact. It was suggested that the more a network is decentralized along with a high degree of reciprocity, the more it reflects distribution of leadership which could lead to enriched knowledge and skills between network members and, potentially, enhanced school performance. Moderate findings were found between network properties and the diffusion of special education knowledge. Results also indicated that the type of advice being given and received had a positive effect on the knowledge base of staff members. While indirect, a relationship was also found between network properties and school performance. Results suggest that school staff members, including leaders, need to have time to collaborate and problem solve around current issues facing the school and its students. The need to first make time to collaborate and next collectively address common issues is imperative to the effective diffusion and

expansion of knowledge throughout the network that, in turn, will allow for the implementation of effective solutions.

This study supplements the existing literature that exists on special education leadership through the lens of distributed leadership and the use of SNA as a methodology within an educational setting. While it is clear that additional research is needed to expand the literature base on the influence and effects of networks within schools, this study has established that, fundamentally, network relationships make a difference in the educational realm. Therefore it behooves practitioners and researchers alike to continue the study of network relationships in order to support and foster school improvement efforts that positively affect student outcomes for all students, including those with disabilities.

APPENDIX B

NETWORK SURVEY

1. During this school year, who among your colleagues listed below have you GIVEN ADVICE TO regarding special education knowledge or information?

If yes, how often?

- Rarely (1-2 times per month)
 Often (3-4 times per month)
 Frequently (5+ times per month)

2. During this school year, who among your colleagues listed below have RECEIVED ADVICE FROM regarding special education knowledge or information?

If yes, how often?

- Rarely (1-2 times per month)
 Often (3-4 times per month)
 Frequently (5+ times per month)

3. Of the special education topics listed below, which one did you most likely give advice on?

- Behavior
- Instruction
- Assessment
- Programming
- Compliance

4. Of the special education topics listed below, which one did you most likely receive advice on?

- Behavior
- Instruction
- Assessment
- Programming
- Compliance

5. As a result of the communication with this colleague, how would you rate the increase of your special education knowledge or information?

- 1 No Increase
 2 Minor Increase
 3 Neutral Increase
 4 Large Increase
 5 Significant Increase

APPENDIX C

INFORMED CONSENT

Consent Form for Participation in a Research Study
University of Massachusetts Amherst

Principal Investigator: Martha von Mering, Doctoral Candidate
Faculty Sponsor: Dr. Mary Lynn Boscardin

Study Title: Using Social Network Analysis to Investigate the Diffusion of Special Education Knowledge within a School District

Dear Participant,

You are being asked to participate in a doctoral research study about social networks, distributed leadership, and the diffusion of special education skills and knowledge between the special education leadership team and the schools included in the study. Primary participants include all professional staff in 4 elementary schools and the early childhood education center with each participant being compensated \$25.00 for their participation to ensure a participation rate of at least 80% or higher.

Your participation in this study is entirely voluntary, presents minimal risks, and you are free to discontinue or refuse participation at any time without penalty or prejudice by contacting the principal investigator at marthavonmering@gmail.com. You also have the right to review any materials used in this study and a copy of results will be made upon request.

Participation will entail completing one on-line survey that should take no more than thirty minutes to complete. Every effort to keep survey information strictly confidential will be utilized such as all of the study data will be kept on a password protected, stand-alone computer to prevent any unauthorized use. Additionally, participant identities will be protected by using pseudonyms and by altering the names of the schools and the school district. These safeguards will reduce the ability for identification should the study, or any portion thereof, be published at a later date.

Social network analysis (SNA) will be the methodology used to determine the amount of diffusion of special education skills and knowledge that occurs between special education leaders and their general education counterparts in a suburban school district. Data will be collected using an on-line survey instrument and given to all professional staff members in four elementary schools, one preschool, and the district's special education leaders. Data analysis will occur at the individual school level and determine the depth, breadth, and reciprocity of special education skills and knowledge diffused among the surveyed staff members.

If you have further questions about this study, please feel free to contact the principal investigator at the email address listed above or the faculty sponsor, Dr. Mary Lynn Boscardin, 413-545-1193, mlbosco@educ.umass.edu, or Dr. Linda Griffin, Associate Dean for Academic Affairs, 413-545-6985, lgriffin@educ.umass.edu.

You have been given two copies of this informed consent, both of which you should sign if you are willing to participate. One copy should be retained for your records and the other should be returned to me. Your signature below indicates that you:

- Have read and understand the information provided
- Willingly agree to participate
- May withdraw your consent at any time

Participant Printed Name

Signature

Date

Martha H. von Mering
Principal Researcher Printed Name

Signature

Date

APPENDIX D

SURVEY INTEREST FLYER

UMASS AMHERST

February 2016

Dear Staff Member –

Your school, along with several other Pleasantville district schools, has been chosen to participate in a research study analyzing social networks, distributed leadership, and how special education advice is diffused throughout a school. The data collection process has been vetted and approved by the district's Superintendent and the Administrative Leadership Team. Your participation in this study is invaluable and will help improve our knowledge of the role social networks play in education.

Since your time is valuable and a critical aspect to this study, you will be **compensated \$25.00** to complete a 30-minute on-line survey. You will also be entered into a raffle to win a new iPad to be drawn on March 30, 2016. Please note that participation in this study is entirely voluntary and may be discontinued at any time. An email will be sent to your work address in the next couple of weeks that contains a link to the survey.

If you have any questions about the study, please feel free to speak to your school's principal and/or Martha von Mering, Principal Investigator at either 774-364-1857 or mvonmeri@educ.umass.edu

Thank you in advance for your help in making this research study a success!

Sincerely,
Martha von Mering
Principal Investigator

Martha von Mering | College of Education | UMass Amherst
774-364-1857 | mvonmeri@educ.umass.edu
99 Chapin Terrace | Springfield MA | 01107

APPENDIX E

THANK YOU FLYER

UMASS AMHERST

March 2016

Dear Staff Member –

Thank you very much for your invaluable participation in this research study that is helping to improve our knowledge of the role that social networks play in education.

Enclosed, please find an American Express \$25.00 gift card for your time. You have also been entered into a raffle to win a new iPad to be drawn once all of the surveys have been completed by the remaining staff members. If you get a chance, please gently remind your colleagues to complete the survey so they too can receive a gift card and be entered to win the new iPad.

If you have any questions about the study, please feel free to speak to your school's principal and/or Martha von Mering, Principal Investigator at either 774-364-1857 or mvonmeri@educ.umass.edu

Thank you again for your help in making this research study a success!

Sincerely,

Martha von Mering
Principal Investigator

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