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FUEL OR FIZZLE: THE ROLE OF COLLABORATION NETWORK CENTRALITY ON TEACHER BURNOUT

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FUEL OR FIZZLE: THE ROLE OF COLLABORATION NETWORK CENTRALITY ON TEACHER BURNOUT

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DISSERTATION

A dissertation submitted in partial fulfillment of the requirements for the degree of Doctor of Philosophy in the College of Education at the University of Kentucky

By
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2018

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ABSTRACT OF DISSERTATION

FUEL OR FIZZLE: THE ROLE OF COLLABORATION NETWORK CENTRALITY ON TEACHER BURNOUT

Professional burnout refers to the development of negative emotions, cynical thoughts, and physical and mental exhaustion as a response to stressors associated with one’s career. Within the teaching profession, professional burnout has been associated with an increase in teacher attrition. In an effort to promote a positive school environment where teachers feel supported and committed to the profession, many administrators have implemented structured collaborative opportunities within their buildings.

While personal relationships within the school network can provide a mitigating effect against professional burnout, the possibility exists that teacher leaders can be overcentralized and negatively impacted by the maintained relationships. By potentially forcing centralization on critical team members and emphasizing them as the “go-to” person for collaboration, schools may be inadvertently putting their best at risk for burnout.

Using a mixed-methods design, the following study investigates the perceived benefits and constraints of centrality within the school network on reported burnout. The social networks at four elementary schools were analyzed to determine the level of connectivity for each certified staff member. Participants were asked to identify the colleagues with whom they collaborate. Using Social Network Analysis, the level of centrality (as measured by number of network connections both received and directed) was calculated for each participant based on number of network ties both received and directed. Centrality scores were included with previously identified variables associated with teacher burnout including level of perceived stress, perception of school environment, principal support, and other demographic data in a series of hypothesis tests to assess the relationship between network connectivity and reported burnout. A series of semi-structured interviews were conducted with a selection of participants to further explore the impact of network connections on participant burnout.

The results of this exploratory study found that not all collegial relationships are beneficial. A significant positive relationship between number of collaborative ties directed toward a teacher and their depersonalization score on the Maslach Burnout Inventory was identified, indicating that individuals who are frequently identified as a
collaborator report higher burnout. The findings from this study produce a unique perspective on collaboration within the school network. As has been reported previously, level of connectivity within the school network as measured by the number of teachers one can identify as collaborators appears to mitigate (or not significantly increase) a teacher’s risk of professional burnout. However, being identified as a collaborator by a large number of teachers (in-degree) significantly increases one’s risk for depersonalization behaviors.

KEYWORDS: Teacher burnout, collaboration, social network analysis
FUEL OR FIZZLE: THE ROLE OF COLLABORATION NETWORK CENTRALITY ON TEACHER BURNOUT

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CHAPTER 1. INTRODUCTION

According to educational leader Dr. Todd Whitaker, “The best thing about being a teacher is that it matters. The hardest thing about being a teacher is that it matters every day” (Whitaker & Whitaker, 2013, viii). The incredible responsibility associated with the education profession can be simultaneously inspiring and terrifying. Teachers can find it difficult to articulate the complexity of the profession to those who have not experienced it first-hand. Finding a balance between the ever-growing set of administrative demands and a focus on high-quality instructional practice can be burdensome. Factor in a set of diverse and critical student needs, and the profession can become increasingly overwhelming. For many teachers, the challenge becomes too great, and they elect to leave the education field permanently. For others, the mounting stressors can erode their professional confidence and damage their emotional well-being.

The United States public education system is under increased scrutiny as policy makers and education leaders seek opportunities to enhance student-learning outcomes. Recent performance on assessments such as the PISA (Programme for International Student Assessment) and NAEP (National Assessment of Educational Progress) have highlighted areas for growth. Due to this focus, teachers are being evaluated with greater intensity. During this season of evaluation and analysis, rates for teacher job satisfaction have declined, and reported workplace stress has increased. According to a survey of American teachers conducted in 2012, only 39 percent of teachers reported being very satisfied with their job, a 23 percent decrease since 2008. Nearly 51 percent of the surveyed teachers reported feeling “great stress” several days per week (MetLife, Inc., 2013).
While those remaining in the profession are reporting concern, many teachers have opted to leave the field entirely resulting in a severe teacher shortage currently in the United States. The teacher attrition rate in the United States is nearly double that of other high-achieving countries such as Finland and Singapore. Historically, the teaching profession has experienced high levels of teacher attrition with nearly 50 percent of all teachers leaving the profession before their fifth year (Darling-Hammond, 2003; Ingersoll & Smith, 2004). More recent reports indicate a slightly less dramatic exodus, but teacher shortage remains a concern (Gray & Taie, 2015). Less than one-third of those leaving the profession in a given year are due to retirement. The remaining two-thirds cite dissatisfaction and administrative concerns including a “lack of input and control over teaching decisions; testing and accountability pressures; dissatisfaction with the teaching career; or unhappiness with various working conditions” as the motivators for leaving the profession (Sutcher, Darling-Hammond, & Carver-Thomas, 2016, p.4). Teacher turnover adversely affects student achievement and creates an unstable school environment (Ronfeldt, Loeb, & Wyckoff, 2013). Identifying and mitigating the causes of professional stress contributing to teacher turnover is critical to the success of the American educational system.

**Teachers and Professional Burnout**

Professional burnout refers to the development of physical and mental exhaustion, negative emotions, and cynicism as a response to stressors associated with one’s career (Maslach & Jackson, 1986). Teachers have repeatedly been shown to report the highest levels of burnout (Van Droogenbroeck, Spruyt, & Vanroelen, 2014) compared to others in service professions. Within the education profession, 46% of teachers feel stress on a
daily basis similar to that shared by doctors and lawyers with approximately one-third of teachers leaving the profession within five years (Farmer, 2017). Burnout is a significant predictor of teacher attrition (Dagli, 2012) and addressing the damaging effect of this psychological condition is critical to addressing the teacher shortage crisis.

Although many factors and experiences are associated with professional burnout for teachers such as time in the profession and self-efficacy, one of the most prominent risk factors is a weak professional community. The interpersonal relationships developed within the professional community can be positive sources of support mitigating the potential for burnout (Lim & Eo, 2014; Van Droogrenbroeck, Spruyt, & Vanroelen, 2014). Thus, educators who view their school community as supportive and collaborative report reduced levels of professional burnout (Langher, Caputo, & Ricci, 2017).

**Collaboration**

Research indicates the majority of teachers leave the field because they do not become assimilated to the profession (Dewert, Babinski, & Jones, 2003; Wong, 2004). In an effort to aid in this assimilation and foster a positive school environment where teachers feel supported and committed to the profession, many administrators have implemented structured collaborative opportunities within their buildings. Collaboration is a “deceptively simple” concept that has been applied to a wide-ranging set of practices (Powell, 2004). Activities including mentoring, induction, workshops, and shared planning periods have all been labeled as collaborative (Miller & Burden, 2007). For the purposes of this study, the term collaboration will be used “in a descriptive sense as referring to teachers’ cooperative actions (their actual doing things together) for job-related purposes” (Kelchtermans, 2006, p.220).
Teachers that feel connected to the profession show increased dedication to the job as well as improved instruction when compared to their peers (Hudson & Beutel, 2007; Wong, Britton, & Ganser, 2005). The socialization of teachers, therefore, appears to be a critical component in teacher retention. The relationships among faculty members and their colleagues are some of the most impactful in the socialization process (Clarke, Triggs, & Nielsen, 2014; Ingersoll & Strong, 2012). Unfortunately, the socialization process can promote the adoption of positive or negative workplace associations based upon the individuals with whom one interacts. Therefore, many school administrators have implemented structured collaborative opportunities to promulgate a positive school culture through collegial interactions.

Formalized interactions for teachers are the direct result of administrative actions through assigned mentors or structured collaboration at staff meetings or common planning time (Alhija & Fresko, 2010; Youngs, 2007). Experts are identified to provide guidance and can be utilized in the co-planning of lessons, collaborative co-teaching or more general daily support and encouragement. This model of onsite, job-embedded support has shown to successfully increase the implementation of high-quality practices, teacher efficacy, and improve reported job satisfaction (Cornett & Knight, 2009; Taylor, Yates, Meyer, & Kinsella, 2011). Sun, Wilhelm, Larson, and Frank (2014) found that teachers benefit from interactions with close colleagues and content-focused coaches.

Another form of administratively facilitated collaboration, professional learning communities (PLCs), has gained great traction through the educational field. In a PLC, learning occurs as a collective, shared experience with colleagues supporting each other’s development of knowledge for teaching. “Through collaborative inquiry, teachers explore
new ideas, current practice, and evidence of student learning using processes that respect them as the experts on what is needed to improve their own practice and increase student learning (Vescio, Ross, & Adams, 2008, p.89).

While PLCs can be implemented through formal, administrative channels, PLCs can be created informally when individual teachers with shared interests or concerns band together to learn as a community (Avalos, 2011). Informal interactions can occur within peer groups at the school or through everyday encounters. These interactions are often as powerful as the interaction occurring in structured, administratively mandated collaborative opportunities (Pogodzinski, 2012).

As has been supported by the research, interactions with colleagues have the greatest impact on teacher satisfaction and can influence the decision to remain in the profession. According to Bullough (2012):

Long term, teacher retention and improved teaching is less a matter of helping a beginning teacher find a comfortable place in a school than it is a matter of creating a role and set of relationships that allow and support the full investment of the self in teaching (p.71).

**Teacher Leadership**

In any school, the administration plays a pivotal role in the establishment of a culture and climate. Once set, the school culture (and associated norms) are difficult to modify (MacNeil, Prater, & Busch, 2009). The administrator can create a school environment conducive or detrimental to the development of a supportive school community. Ketterlin-Geller, Baumer, & Lichon (2015) state, “Administrators are
responsible for actively building a school culture that values and nurtures collaboration. Through the organization structures and behaviors an administrator implements, a culture takes shape that can either support or discourage collaboration” (p.51). To support the development of a positive and collaborative school culture and climate, formal building administrators often rely on the identification and utilization of teacher leaders. The use of teacher leaders can positively influence collaborative teaching and learning resulting in improved educational practice and commitment to the profession (e.g., Ankrum, 2016; Katzenmeyer & Moller, 2001).

Within the literature, a common definition for teacher leadership is challenging to identify (Cosenza, 2015). Unlike formal school administrators, informal teacher leaders often maintain their teaching responsibilities while supporting other school wide efforts. Although teacher leadership has different definitions and applications, one commonly agreed upon distinction is that teacher leaders are individuals who provide leadership and guidance to their colleagues. In the current study, teacher leaders are identified utilizing a phenomenological perspective in that those individuals who are sought out by their colleagues for advice or guidance are the de facto teacher leaders within the building (Hill & Martin, 2014). Using Social Network Analysis (explained in detail below), teacher leaders were identified as those individuals with the most relational (e.g., collaboration) connections within the school network. Additionally, an individual was assumed to be a teacher leader if they self-identified with the role.

In a profession marked with limited upward mobility, assuming a leadership role in one’s building allows teachers an opportunity for professional growth. When teachers, particularly experienced teachers, are given the opportunity to grow through leadership, a
renewed commitment to the teaching profession can occur (Margolis, 2008; Margolis & Deuel, 2009; Taylor, Yates, Meyer & Kinsella, 2011). While there are tangible benefits to administrators providing leadership opportunities for teachers, the additional responsibilities can produce unintended stress. The adoption of a leadership role can require that teachers be both peer and mentor as many teachers maintain full classroom responsibilities while fulfilling leadership obligations. Teachers acting in these dual roles often feel isolated as they are no longer fully accepted as a member of the teaching team nor fully connected to the other leaders in the building (Struyve, Meredith, & Gielen, 2014). This isolation, in addition to the increased workload associated with leadership responsibilities, can lead to professional burnout.

**A Social Network Theory of Teacher Burnout**

Social network analysis (SNA) is a set of research methods and theories by which the relationships between individuals can be explored. While SNA has been used in the social sciences for decades, the method has only recently been applied within the field of education as a tool through which the complex networks of schools, districts, and the larger educational community can be explored (Borgatti & Ofem, 2010).

The relationships sustained within a school comprise the school’s social network. SNA provides a unique and important lens through which to view collaboration within the school social network by identifying “the patterns of social relationships among teachers that result from their interactions in practice” (Moolenaar, 2012, p.8). Within the school network, administrators play an important role in determining the use of resources and can influence the network structure at a given school (Coburn & Russell, 2008). Formal building leaders such as principals can shape the degree to which individual
teachers interact within the school network by providing opportunities for relational interactions or withholding these opportunities (Coburn, 2005). This type of behavior, referred to as brokering, can substantially influence the network structure through the formation of new ties (Resnick & Scherrer, 2012; Spillane & Kim, 2012).

When implementing administratively mandated collaborative opportunities (e.g., professional learning communities), principals act as relationship brokers creating opportunities for teachers to form collegial ties. “If networks are well-facilitated, they can connect teachers and encourage collaboration. Networks also reduce teacher isolation while elevating teachers’ capacity to serve in any number of formal and informal leadership roles, which can greatly reduce teacher attrition from the classroom” (Berry & Shields, 2017, p.6). Within these well-facilitated communities, teachers support each other’s professional growth and provide instructional guidance and advice. Access to this expertise is only made available through interaction with the community members (Risser & Bottoms, 2014).

However, while the intention to foster collaborative opportunities among staff members may be present, the reality of the relationships that develop as a result of these administrative mandates can be difficult to capture. Through SNA, the true collaborative relationships occurring within each school can be identified. This “invisible” network can be surprising to administrators as the individuals identified as leaders within the school network may not be those with formal leadership roles within the building (Cross, Borgatti, & Parker, 2002, p.26). While prior research has touted the benefits of a supportive school network, this benefit can be put at risk if actors (e.g., teachers) become burdened by the relationships they sustain. Overcentralization is theorized to occur when
actors (e.g., teachers) are inundated with individuals seeking support, advice, or collaboration (Baker-Doyle & Yoon, 2010). The concept of overcentralization has roots in utility theory which describes the concessions individuals make in the use of time and resources to achieve a given utility or function. It is theorized that individuals seek equilibrium by which the goal is achieved through the minimum output of one’s own resources (Frank, Kim, & Belman, 2010). Individuals who view administratively-mandated collaborative activities as invasive or burdensome may elect to minimally engage with the activity through superficial means in order to fulfill the administrative requirement rather than fully commit to the experience. Teacher leaders who receive the majority of collaborative ties within the school network may be even more at risk to exhibit these dismissive behaviors.

**Research Questions**

In order to explore the potential benefits or consequences of a highly connected position within the school network, an exploratory study was conducted focusing on two research questions.

*Research Question 1:* To what extent is network connectivity associated with symptoms of teacher burnout?

*Research Question 2:* What are the perceived benefits or constraints associated with network centrality on the collaboration relationship?

It is hypothesized that collaborative relationships within the school network can be positive supports mitigating the risk of burnout until those relationships become overly burdensome. When individuals, often teacher leaders, are highly connected in the
network and become overwhelmed by the responsibility associated with the position, the risk of burnout increases.

Using a mixed-methods design, the following study investigates the perceived benefits and constraints of network centrality on reported burnout. The social networks within each of four Kentucky elementary schools were analyzed to determine the level of connectivity for each certified (i.e., faculty members holding a teaching certificate recognized by the Kentucky Educational Professional Standards Board) staff member. Participants were asked to identify the colleagues fulfilling three school-based relationships: collaborator, friend, and math-advice provider. Within social network research, it is common to collect data on more than one relationship to allow for comparisons across the different relational dimensions. School-based social network research often includes the relationships of friendship, advice, and collaboration. Therefore, the social network survey for this study included all three relationships. Due to the potentially protective role a strong collaborative school community can have on the effects of professional burnout, the focus of the study was the collaboration relationship. The friendship relationship within the school networks was used for comparison only. The math advice seeking relationship was reviewed and used for comparative purposes during the initial exploratory phase of the analysis. It was determined that the content focus (i.e., mathematics) was too specific for this particular study as the study population included all certified teachers including those not responsible for instruction in general subject areas (e.g., special area teachers). Future studies may explore the impact of content-based relationships (i.e., math advice seeking).
The level of centrality (as measured by number of network connections both received and directed) was calculated for each participant based on number of network ties both received and directed. Centrality scores were included with previously identified variables associated with teacher burnout including level of perceived stress, perception of school environment, principal support, and other demographic data in a series of hypothesis tests to assess the relationship between network connectivity and reported burnout. A series of semi-structured interviews were conducted with a selection of participants to further explore the impact of network connections on participant burnout.

While opportunities to interact can lead to increased density (Atteberry & Bryk, 2010), the development of a successful community of practice cannot be forced. Although referencing the business sector, Wenger and Snyder (2000) provide a worthwhile suggestion for administrators to consider when attempting to foster communities of practice. They posit that administrators (managers) should “bring the right people together, provide an infrastructure in which communities can thrive, and measure the community’s value in nontraditional ways” (Wenger & Snyder, 2000, p.144). Providing structural support for the development of a community cannot ensure that group members develop trusting relationships or that the interactions occurring are productive (Coburn & Russell, 2008).

The current burnout literature has yet to investigate the potential implications of overcentralization within a school network. Exploration of the potential ramifications of an overly connected role within the school community is an important addition to the educational community and may inform the actions of both administrators and policy makers. Much of the existing literature advocates for the formation of collegial ties as a
method to reduce the risk of burnout. For building principals acting as brokers of connections within the school network, the study may inform the process by which relationships are fostered and encouraged. Pursuing the development of a strong, collegial culture in which teachers are supported both personally and professionally is an admirable goal. However, teachers may feel overwhelmed by the required collegial interactions. Key network members, such as teacher leaders, may be burdened by the role of “go-to” collaborator and mentor and in response may develop a negative outlook manifesting in professional burnout.

For social network researchers, the study challenges the definition of relational ties calling into question the true reciprocity of a given connection. If a relationship between two actors is perceived to exist by one of the actors, is it to be understood that the relationship is mutual? Within friendship relationships, ties are generally treated as mutual. However, the study explores whether collaborative relationships, unlike friendships, should be treated differently.

**Rationale**

Nationally, costs associated with teacher attrition range from $2.1 billion to over $7 billion annually (Muller, Dodd, & Fiala, 2014; Synar & Maiden, 2012). By 2020, it is estimated that 300,000 new teachers will be needed per year (Sutcher, Darling-Hammond, & Carver-Thomas, 2016). Aside from the exorbitant financial implications, the negative impact on student achievement and school stability caused by teacher attrition make the issue a key educational policy priority.

This topic is particularly relevant as more schools are looking to advance their strongest team members into leadership roles within the building. By potentially forcing
centralization on critical team members and emphasizing them as the “go-to” person for collaboration, schools may be inadvertently putting their best at risk for burnout. When teachers are burned out, schools are directly impacted through a decrease in collegial knowledge sharing (Zhang, Zhou, & Zhang, 2016) and ineffective teacher performance (Farmer, 2017; O’Brennan, Pas, & Bradshaw, 2017) which in turn affects student learning outcomes and behavior (Arens & Morin, 2016; Farmer, 2017). Learning how teacher leaders impact from their position in the school network can provide an important perspective on how best to support teachers to help them flourish through leadership rather than potentially burnout and abandon their profession.

Although it is a goal to develop a positive school environment through collaboration, this endeavor can overwhelm teachers, particularly the teacher leaders who are the recipients of many collegial interactions. Rienties and Kinchin (2014) found that sharing knowledge and expertise with other teachers comes at an implicit cost to the sharer. The focus of the following study is the exploration of this cost and its impact on the professional outlook and possible burnout of teachers.

**Organization of the Dissertation**

The following dissertation explores the associations between level of connectivity within the collaboration relationship in a school network and professional burnout. Chapter two provides a review of the literature on professional burnout and the factors associated with the phenomenon. The three components of professional burnout are discussed in detail and examples of the associated symptoms characteristic of the condition are provided. The benefits and challenges associated with collaboration are evaluated with particular attention paid to the role of administrators in facilitating
collaborative opportunities. Finally, the chapter concludes with an overview on the use of Social Network Analysis in educational research and a discussion on centrality with the school network. Chapter three discusses the research methodology and analytical tools used in the study. The rationale for participant selection and research sites is provided as well as demographic information about the study population. Study measures are discussed in-depth and the process for conducting the semi-structured interviews is outlined. The chapter concludes with the analytical plan for the analysis of both the quantitative data as well as the thematic analysis of the interview transcripts. Chapter four reports the findings from study. The social networks at each school are analyzed independently and visual representations of the networks on the collaboration relationship are provided. The results of the hypothesis tests on both the school-level data as well as the full data set are discussed. A review and interpretation of the themes from the semi-structured interviews concludes the chapter. The final chapter, chapter five, provides an overview of the key findings from the study. Implications for practice and study limitations are discussed. Finally, recommendations are made for future research.
CHAPTER 2. REVIEW OF THE LITERATURE

Addressing the phenomenon of teacher burnout in an effort to retain and support high-quality teachers is an educational policy priority. As professional collaboration has been shown to mitigate the propensity for burnout within the educational field, many schools have implemented initiatives to foster the development of professional relationships. Having a supportive work environment can help educators navigate the inevitable vicissitudes associated with the career. However, contrived relationships, such as those formed through structured collaborative settings, may not provide the desired buffering effect. In some school settings, teachers in leadership positions, such as those viewed as subject experts, may be overwhelmed by the additional responsibility associated with peer mentorship. The following literature review provides an overview of the research associated with teacher burnout and school-level collaboration. The review concludes with a network approach to explore the potential benefits and constraints of various positions within the network in regards to teacher burnout.

Professional Burnout

Professional burnout refers to the development of negative emotions, cynical thoughts, and physical and mental exhaustion as a response to stressors associated with one’s career (Maslach & Jackson, 1986). A widely accepted model of burnout describes the syndrome as a process beginning with emotional exhaustion. To address the feelings of exhaustion, professionals psychologically withdraw from others, which in turn leads to depersonalized contact. Finally, the individual develops a diminished sense of personal accomplishment and becomes more dissatisfied with any work successes. The three
dimensions of burnout and symptoms associated with each manifestation are outlined below in Figure 2.1.

![Figure 2.1. Dimensions of Burnout (Adapted from Maslach & Leiter, 2016)](image)

Burnout is not the result of a single event rather it is a combination of experiences and interactions (O’Brennan, Pas, & Bradshaw, 2017). Individuals working within service professions are among the most vulnerable to burnout. Burnout has been explored in a variety of service professions due to the stressors placed on individuals working with high-demand clients. For example, individuals in the medical field often find themselves in high-stress environments. A systematic review of 25 years of burnout research in nursing revealed that, on average, more than 25% of emergency nurses exhibited indicators of burnout. Professional autonomy, team support, and high-quality leadership were shown to mitigate burnout risk while exposure to traumatic events was positively associated with reported burnout (Adriaenssens, De Gucht, & Maes, 2015). Nurses working in neo-natal intensive care units with high patient volume also reported high burnout (Tawfik, Phibbs, Sexton, Kan, Sharek, Nisbet,…Profit, 2017). Although indicators of burnout were high within the health profession, a sense of belonging through a well-connected professional team was found to buffer the impact. Conversely,
High stress environments such as intensive care units contributed to a greater risk for burnout amongst nurses.

Doctors are also vulnerable to burnout. Pediatric residents reported high levels of burnout which were associated with self-reported negative patient care attitudes and behaviors (Baer, Feraco, Sagalow, Williams, Litman, & Vinci, 2017). Yet, the experience of burnout among this population appears to be contingent on a variety of factors. For instance, practicing pediatricians who reported feeling sad or depressed also exhibit burnout indicators, while doctors who reported to be in good health with a solid support system were less prone to burnout (Starmer, Frintner, & Freed, 2016). A study on burnout in social workers found that individuals with high burnout reported physical health complaints, which worsened over time (Kim, Ji, & Kao, 2011). Meanwhile, counselors and psychologists with positive work-life balance and adaptive personality have been shown to be successful protective maneuvers for individuals in the counseling profession (Moate, Gnilka, West, & Burns, 2016; Rupert, Miller, & Dorociak, 2015).

Although individuals in other service professions can be impacted by burnout, the teaching profession has also been a focus of extensive burnout studies due to the ever-increasing demands associated with the profession and the high reported levels of burnout exceeding other service fields (Van Droogenbroeck, Spruyt, & Vanroelen, 2014). Teaching demands complex teacher-student relationships, which can provide opportunities for a broad range of emotions from joy and pride to frustration and disappointment. The “emotional labor” required of teachers can lead to professional exhaustion (Chang, 2009, p. 203). The effects of burnout, therefore, affect not only teachers, but the students as well.
Impact of teacher burnout

Burnout can contribute to teacher attrition and drive individuals to leave the profession prematurely (Dundar, 2014; Lim & Eo, 2014). Although all types of contact professions are susceptible to burnout, teachers have repeatedly been shown to report the highest levels of burnout (Van Droogenbroeck, Spruyt, & Vanroelen, 2014). With nearly half of all teachers experiencing daily stress levels similar to those of attorney and physicians and one third leaving the profession within five years, teacher retention is a legitimate concern (Farmer, 2017). Currently, the United States teacher attrition rate is nearly double that of other high-achieving countries such as Finland and Singapore (Sutcher, Darling Hammond, & Carver-Thomas, 2016). Burnout is a significant predictor of teacher attrition (Dagli, 2012) and addressing the damaging effect of this psychological condition is critical to addressing the teacher shortage crisis.

Additionally, burnout can have negative effects on the academic environment in schools. Teacher burnout can impact teacher job performance and has been shown to negatively affect student learning and has been associated with reduced student achievement and undesirable student behavior (Arens & Morin, 2016; Farmer, 2017). A study of more than 1,100 German teachers and students found a statistically significant association between teachers’ emotional exhaustion and students’ achievement test scores (Klusmann, Richter, & Ludtke, 2016).

Factors associated with teacher burnout

The impact of burnout is pronounced and severe. Many factors have been associated with burnout within the teaching population.
**Personality and Stress.** Global stress has been shown to be a main predictor of teacher burnout (Bianchi, Boffy, & Laurent, 2015). Within the classroom, stress associated with the teaching role can positively predict burnout (Richards, Levesque-Bristol, Templin, & Graber, 2016). In particular, how an individual responds to work-related stress and overall work conditions is also associated with burnout (Zhang, Zhou, & Zhang, 2016). Teachers who are reflective and have a tendency to ruminate on issues are more likely to burnout whereas less reflection may be an adaptive strategy to cope with job-related stress (Kosir, Tement, Licardo, & Habe, 2015). Individual personality differences have been shown to be important variables to include when exploring the propensity for burnout (Kokkinos, 2007).

**Teacher Self-Efficacy.** Teacher self-efficacy “is the teacher’s belief in his or her capability to organize and execute courses of action required to successfully accomplish a specific teaching task in a particular context” (Tschannen-Moran, Woolfolk Hoy, & Hoy, 1998, p.233). A longitudinal survey of 806 Canadian teachers found that a teacher’s perception of efficacy over time is associated with reduced scores on all burnout dimension including emotional exhaustion (Fernet, Guay, Sencal, & Austin, 2012). A general perception of self-efficacy can protect against burnout as well (Brudnik, 2009). Self-efficacy and the associated confidence in one’s ability to successful navigate the demands of the teaching profession is an important protection against burnout but can take many years to develop. Teachers with stronger beliefs in their abilities to effectively engage students and manage behavior have been associated with higher job satisfaction and lower burnout (Wang, Hall, & Rahimi, 2015). In their study of Korean middle school teachers, Lim & Eo (2014) found that collective efficacy was significantly correlated
negative with emotional exhaustion, lack of accomplishment, and depersonalization. Additionally, confidence in teaching-related tasks including pedagogical knowledge has been shown to be a protective factor against burnout (Lauermann, & Konig, 2016). Conversely, lower teacher self-efficacy in student behavior management is associated with increased burnout and reduced job satisfaction (Malinen & Savolainen, 2016).

**Early Career Teachers.** Teachers new to the profession are particularly vulnerable to burnout. For many early career teachers, there is a disconnect between the idealistic view of teaching and the reality of the daily demands of maintaining a classroom (Hong, 2010). Dan Lortie (1977) analyzed how this plays out within the teaching population. In what he termed the “apprenticeship of observation,” teachers entering the profession reference their previous experiences as pupils in the formation of their definition of teacher. These experiences, he discovered, often provide a one-sided view of the job as many of the aspects associated with the role of teacher are not viewed directly by the pupil. New teachers can experience a reality shock when faced with the challenges associated with teaching which can lead to burnout (Hoiggard, Giske, & Sundsli, 2012). A relationship with a mentor can provide a buffer against potential burnout (Schlichte, Yssel, & Merbler, 2005), but early career teachers can also be influenced toward negative feelings about the profession by their more tenured colleagues (Kim, Youngs, & Frank, 2017).

**Role of Administrator and the School Environment.** Faculty perceptions of the school environment have been found to be predictive of burnout (Foley & Murphy, 2015). For instance, a perceived innovative teaching environment has a significant negative association with burnout (Goddard, O’Brien, & Goddard, 2006). However,
when teachers felt the school environment was restrictive and did not allow for teacher input, the risk of burnout increased (Friedman, 1991). Schools that provided teachers with job resources such as supervisory support, a positive social climate and innovative atmosphere were associated with less teacher burnout (Hakanen, Bakker, & Schaufeli, 2006). The primary pacesetter for school environment is the building administrator. When teachers feel supported by their principal, stress is reduced and less burnout is reported (Fore, Marin, & Bender, 2002). Yet, when teachers reported feeling unsupported by their principal burnout can increase. In their analysis of the state of teacher retention in the United States, Sutcher, Darling-Hammond, & Carver-Thomas (2016) reported that teachers who feel their administrator is unsupportive are twice as likely to leave the profession as those who feel well-supported. Additionally, the perception of the principal is related to changes in self-efficacy, which in turn buffers against burnout (Fernet, Guay, Senecal, & Austin, 2012). When teachers perceive mutual trust and respect, a strengthened commitment to the school can be developed (Runhaar, Konerman, & Sanders, 2013).

**Career Motivation.** The motivation behind why an individual elects to become a teacher can contribute to their risk for burnout. In a study of more than 170 Turkish preservice teachers, those who indicated their rationale for entering the profession was based on their abilities or the intrinsic value of the profession reported lower scores on both the exhaustion and depersonalization dimensions of burnout. Conversely, individuals who reported selected the teaching profession as a fallback career or for extrinsic factors such as job security, time for family, and transferability reported higher scores on both the emotional exhaustion and depersonalization subscales than those who
identified other motivations for entering the field (Dundar, 2014). Once in the profession, teachers who are dissatisfied with their career choice are also more likely to report burnout (Akbaba, 2014). In a survey of more than 200 in-service physical education teachers, Van den Berghe et al. (2014) found that teachers who identify with the value of teaching children exhibited lower emotional exhaustion and depersonalization scores and higher personal accomplishment scores. Teachers lacking intrinsic motivation displayed the least favorable burnout profile, indicating high emotional exhaustion scores.

**Individual Characteristics.** Various individual characteristics have been shown to impact reported burnout. Age has been shown to be negatively related to burnout meaning older teachers may be protected against burnout (Brewer & Shapard, 2004; Hultell, Melin, & Gustavsson, 2013). Although reported burnout is higher in younger employees, this may be due to survival bias. Those who burnout early leave the profession leaving behind their colleagues with lower levels of burnout (Maslach, Schaufeli, & Leiter, 2001). The impact of gender on teacher burnout has been inconsistently reported with one study reporting that burnout significantly varied by gender. A survey of 162 Ohio teachers showed that males had significantly higher levels of depersonalization than that of their female counterparts. Additionally, males appeared to have a defense mechanism to protect against emotional exhaustion (Rumschlag, 2017). In a sample of 490 teachers, faculty in upper grades were more affected by burnout (Arvidsson, Hakansson, Karlson, Bjork, & Persson, 2016). Finally, tenure has also been shown to be associated with burnout. Teachers with more years in the field were less likely to report burnout (Brewer & Shapard, 2004).
Collegial Support. Interpersonal relationships play a critical role in preventing teacher burnout (e.g., De Stasion, Fiorilli, Benevene, Uusitalo-Malmivaara, & Di Chicacchio, 2017). In a study of more than 1,800 Finnish teachers, Van Droogenbroeck, Spruyt, & Vanroelen (2014) found that strong collegial support has a negative association with emotional exhaustion and cynical depersonalization. Staff members can feel less overwhelmed when connected with school communities. This connection can improve teacher efficacy which can provide protection against teacher burnout (O’Brennan, Pas, & Bradshaw, 2017; Pas, Bradshaw, & Hershfeldt, 2012). Perceived community support and collaboration, especially in high-need schools, can also mitigate burnout (Langher, Caputo, & Ricci, 2017). In particular, communicating with other staff members about work-related problems can develop a sense of solidarity and empathy which can act as a buffer against burnout (Van Droogenbroeck, Spruyt, & Vanroelen, 2014). Research indicates the majority of teachers leave the field because they do not become assimilated to the profession (Dewert, Babinski, & Jones, 2003; Wong, 2004). Alternatively, teachers that felt connected to the profession showed increased dedication to the job as well as improved instruction when compared to their peers (Hudson & Beutel, 2007; Wong, Britton, & Ganser, 2005).

Summary of Teacher Burnout Findings. Teachers are a particularly vulnerable population concerning professional burnout. A myriad of factors contribute to a teacher’s risk for burnout. Some factors such as personality and demographic characteristics are often invariable and cannot be addressed through administrative action. Others such as career motivation and perception of school environment are dependent on the individual. An increase in professional self-efficacy and professional experience can mitigate
burnout but require a long-term investment in professional growth and development. From an administrative support perspective, a focus on fostering collegial interaction may be the most prudent course of action in the battle against professional burnout. The development of interpersonal relationships amongst staff members can improve collective efficacy within a school and reduce the tendency toward burnout (Skaalvik & Skaalvik, 2010). Given the pronounced negative impact of burnout on student achievement and the increased risk of teacher attrition, an emphasis on developing a collaborative school environment is reasonable. However, the process by which the collaboration is established may affect the effectiveness of the efforts.

**Benefits of Collaboration**

Schools that foster collaborative opportunities for teachers have shown both an improvement in teaching practice and student achievement (Ronfeldt, Owens Farmer, McQueen, & Grissom, 2015). In a review of the Trends in International Mathematics and Science study data, Reeves, Pun, & Chung (2017) found that collaboration during planning was a significant positive predictor of student achievement. Literature supports that the relationships amongst faculty members and their colleagues are some of the most impactful in the development of a professional identity (Clarke, Triggs, & Nielsen, 2014; Ingersoll & Strong, 2012; Kyndt, Gijbels, Gromans, & Donche, 2016). Collaborative relationships can provide pedagogical and personal assistance and play an important role in assimilation to a school’s cultural norms (Alhija & Fresko, 2010). When teachers work within a collaborative environment they are shown to be more adjusted, innovative, and resilient (Conderman & Johnston-Rodriguez, 2009; Rigelman & Ruben, 2012).
Types of Collaboration

Interaction with peers can occur in formal and informal ways. Formalized interactions for teachers are often the direct result of programs including one-to-one mentoring or other professional development in the form of seminars and peer observation (Moore-Johnson, Berg, & Donaldson, 2005). Informal interactions can occur within peer groups at the school or through everyday encounters. These interactions are often as powerful as the interaction occurring in an official capacity (Pogodzinski, 2012).

Professional Learning Communities. In a professional learning community (PLC), learning occurs as a collective, shared experience with colleagues supporting the development of each other’s knowledge for teaching. The model can be implemented through formal, administrative channels with the establishment of mandatory grade level meetings or through more informal channels where individual teachers with shared interests or concerns band together to learn as a community (Avalos, 2011). Within these communities, teachers support each other’s professional growth and provide instructional guidance and advice. “In a collaborative learning network, the knowledge constructed by the community resides in the collective members and can only be accessed through engagement with others in the community” (Risser & Bottoms, 2014, p. 446).

Coaching and Mentoring Model. Another prevalent collaboration model, coaching or mentoring, involves sustained, onsite support for teachers. In this model, experts are identified to provide guidance as teachers make instructional decision. Coaches can be utilized in the co-planning of lessons, collaborative co-teaching or more general daily support and encouragement. This model of onsite, job-embedded support has shown to successfully increase the implementation of high-quality practices, teacher
efficacy, and improve reported job satisfaction (Cornett & Knight, 2009; Taylor, Yates, Meyer, & Kinsella, 2011). Sun, Wilhelm, Larson, and Frank (2014) found that teachers benefit from interactions with close colleagues and content-focused coaches. Coaching was also attributed to the development of pedagogical content knowledge and the increased use of cognitively demanding activities.

An additional benefit of the coaching model is the opportunity to develop teacher leaders within a building. When teachers, particular experienced teachers, are given the opportunities to grow through leadership opportunities a renewed commitment to the teaching profession can occur (Taylor, Yates, Meyer, & Kinsella, 2011; Margolis, 2008; Margolis & Deuel, 2009).

**Informal Collaboration.** Interactions between colleagues that occur in stolen moments throughout the school day can be important opportunities for professional growth. In a study of Chilean teachers, researchers found that teachers valued opportunities to talk informally with colleagues about teaching problems more than formalized classroom observations and feedback (Avalos-Bevan & Bascope, 2017). Conversations between colleagues about curriculum and instruction in relation to their students can provide opportunities for professional learning (Leko et al., 2015). Teachers who engage in reflective dialogue, dialogue where they engage in in-depth conversations about teaching and learning, are unlikely to burnout (Lim & Eo, 2014). In particular, teachers who engage in problem-focused coping strategies, such as speaking with a colleague to seek help, are less likely to experience burnout than their colleagues who do not seek collaborative conversations (Chang, 2013).
Although both formal and informal collaborative opportunities can directly affect the professional growth of the faculty, building administrators play a critical role in establishing a school environment that is conducive to collaboration (Grosemans, Boon, Verclairen, Dochy, & Kyndt, 2015).

**Administrative Actions.** In school, the building administrator (e.g., principal) is a key player in the establishment of a school culture and climate. Once the culture is set, it can be challenging to modify (MacNeil, Prater, & Busch, 2009). Administrators’ overdependence on mandates and rules can hinder the development of collaboration among teachers (Van Gasse, Vanlommel, Vanhoof, & Van Petegem, 2016). The administrator can create a school environment conducive or detrimental to the development of a collaborative environment. Ineffective leadership, isolating professional cultures and demoralized staff stifle thoughtful collaboration (Carver & Feiman-Nemser, 2009). In many situations, the administrator sets the guidelines concerning access to either programs or mentorship opportunities. Administrative support can significantly augment the mentor’s contributions and can promote teachers’ professional growth through direct interactions and by facilitating their work with mentors and other colleagues (Alhija & Fresko, 2010; Youngs, 2007).

**Challenges to Collaboration**

Although studies have shown an association between collaboration and student achievement, effects are often small or the results are limited (Prenger, Poortman, & Handelzalts, 2017). While school administrators may provide structural opportunities for collaboration, if they fail to foster a safe and trusting culture among teachers, collaborative relationships may not fully develop (Jurasaitė-Harbison & Rex, 2010). In
some instances, collaboration can fail to produce student-learning outcomes due to a lack of interdependence between the members of the school faculty. In these situations, teachers feel an individual responsibility for only their own students and use collaborative conversations to consult with peers but do not modify their professional practice (Van Gasse, Vanlommel, Vanhoof, & Van Petegem, 2016).

Formalized collaborative settings such as PLC meetings that lack a clear focus or agenda can also prove ineffective. While the benefits of the PLC model have been promoted, researchers and practitioners alike caution that simply gathering together educators will not necessarily promote the development of high-quality practices (DuFour 2004; Vescio, Ross, & Adams, 2008). It is critical that the content of group conversations and the intent of the interactions is focused on “the nature of intellectual work they are engaged in” (Kennedy, 2016, p.972). Teacher conversations around a set topic such as assessment can enhance professional knowledge while open-ended conversations on general topics such as instruction do not contribute to collective knowledge building and can frustrate participants (Popp & Goldman, 2016; Prenger, Poortman, & Handelzalts, 2017).

Interpersonal relationships with individuals experiencing burnout can have detrimental effects for the cooperating teachers. Burnout contagion, the concept that one’s interaction with other colleagues exhibiting burnout symptoms can increase one’s chances of developing burnout, has been shown in schools (Kim, Youngs, & Frank, 2017). While discussion on the positive aspects of the profession with one’s colleagues can mitigate the effects of burnout, engaging in conversations with peers that focus on the perceived negatives can exacerbate feelings of burnout and discontent (Kahn, Schneider,
Jenkins-Henkelman, & Moyle, 2006). With the strong potential for influence, associated with teacher leaders, exploring burnout within this population is important for the health of the school faculty.

Conceptual Framework: A Network Theory of Teacher Burnout

A movement within teacher professional development supports the formation of professional learning communities. Within these communities, teachers support each other’s professional growth and provide instructional guidance and advice. Subgroups are often formed by shared experience such as grade level or subject area (Yasumoto, Kazuaki, & Bidwell, 2001) and are influential in the flow of information within the school network (Frank, 1996; Spilane, Healey & Kim, 2010). Additionally, membership in a subgroup with strong ties has been shown to improve student achievement (Pil & Leana, 2009; Yasumoto, Kazuaki, & Bidwell, 2001). Actors can be members of multiple subgroups. Cross-membership can allow for the sharing of innovative practices and unique perspectives (Bidwell, 2001).

Within a social network, there are three levels of analysis: dyad, node, and network. The following study explores the collaborative relationships within four separate school networks at the node level. The node level explores the location or position of a given actor (node) within the network (Borgatti & Ofem, 2010). Whole or complete network data includes all actors within a defined network boundary (e.g., school). The position of network node (actor) can be analyzed on a variety of measures. Centralization indicates the degree to which the network is centered around one or more actors (Keuning, Van Geel, Visscher, Fox, & Moolenaar, 2016). In-degree centrality measures the proportion of directed ties that an individual could receive that were
realized while out-degree centrality measures the proportion of ties that an individual could direct toward others in the network that were realized (Atteberry & Bryk, 2010).

SNA has been used to explore how subgroups interact and evolve. Keuning, Van Geel, Visscher, Fox, & Mooleaar (2016) studied the impact a data-based decision making reform had on the social networks at 32 schools in the Netherlands. Regarding school subgroups (teams), they found that while team interactions during the reform did not impact the number of reported relationships, the reciprocity in existing relationships increased. Using an exploratory case study design, Daly, Moolenaar, Bolivar, and Burke (2010) studied reform-related interactions on three relationships: collaborative lesson planning, knowledge around reading comprehension and effort recognition. They found that grade levels with dense interactions between members were able to more deeply enact the reform than those grade level teams with less dense ties. Additionally, they found that the more densely connected grade level teams were associated with increased “collective action, grade level efficacy, and collective satisfaction” (Daly, Moolenaar, Bolivar, & Burke, 2010, p. 381).

Within the network literature, the impact of leaders (both formal and informal) on network structure as well as an exploration of various leadership structures is dominant. Leaders play an important role in determining the use of resources (e.g., professional development) and can influence the level of congruence at a given school (Coburn & Russell, 2008). Formal building leaders such as principals can have great influence over the social network within a school. Principals can shape the degree to which individual teachers interact on a given topic by providing opportunities for relational interactions or withholding these opportunities (Coburn, 2005). This type of behavior is referred to as
brokering and can substantially influence the network structure the formation of new ties (Resnick & Scherrer, 2012; Spillane & Kim, 2012).

The impact of centrality

The role of supportive relationships within the school building has been explored within the context of burnout, but the potential burden associated with being a central actor in the school’s network has yet to be investigated. It can be assumed that central actors within a network can be considered influential as they are interacting with the most significant number of individuals, whether directly or indirectly. The study of the relationships within a school network and the potential challenges for key actors is another area warranting further exploration.

While a goal of schools may be to introduce additional instructional experts within the building and increase interactions between these experts and their colleagues, it is important that this responsibility not become overly burdensome to the teacher leaders. “The goal in this case would not be to have the teachers with high content knowledge deluged by advice seekers (which would cause stress and overcentralization), but rather to find a balance in the network so that teachers seek advice from diverse others” (Baker-Doyle & Yoon, 2010, p.118). Resources made available through relationships, can be expendable. Therefore, it is important that team members not feel that their stores are overdrawn (Frank, Zhao, & Borman, 2004). Overcentralization is theorized to occur when actors are inundated with advice seekers (Baker-Doyle & Yoon, 2010). With roots in utility theory, which describes the concessions individuals make in the use of time and resources to achieve a given utility or function, overcentralization theory posits that individuals seek equilibrium in achieving a goal through the minimum
output of one’s own resources (Frank, Kim, & Belman, 2010). In practice, Rienties and Kinchin (2014) found that sharing knowledge and expertise with other colleagues has an implicit cost to the expert.

Teacher leaders can find themselves in conflict with their peers. Teacher leaders are often perceived as representing the agenda of the building and district administrators which can be in opposition to the direct interests of the teachers. This interpersonal stress can contribute to burnout. “Interpersonal stress comes from being in conflict with others or feeling that one must meet the demands or expectations of others” (Harms, Crede, Tynan, Leon & Jeung, 2017, p.179). Role stress has been shown to be a positive predictor of burnout (Richards, Levesque-Bristol, Templin, & Graber, 2016). Therefore, analyzing the impact of assuming a teacher leader role is an important endeavor. By exploring the school network and the relationships between actors, the impact of these interpersonal stressors can be analyzed. Understanding the power associated with leadership centrality and utilizing these individuals to support the flow of resources can be critical to the professional growth and innovation occurring within the building (Daly, Moolenaar, Bolivar, & Burke, 2010).

Chapter Conclusion

It is hypothesized that relationships within the school network can be positive supports mitigating the risk of burnout until those relationships become overly burdensome. In particular, when individuals central in the network, often teacher leaders, are overwhelmed by the responsibility associated with the position, the risk of burnout increases. Exploration of this topic is particularly relevant as more schools are looking to advance their strongest team members into leadership roles within the building. By
potentially forcing centralization on critical team members and emphasizing them as the “go-to” person on curricular and school related-matters, schools may be inadvertently putting their best at risk for burnout. When teachers are burned out, schools are directly impacted through a decrease in collegial knowledge sharing (Zhang, Zhou, & Zhang, 2016) and ineffective teacher performance (Farmer, 2017; O’Brennan, Pas, & Bradshaw, 2017) which in turn affects student learning outcomes and behavior (Arens & Morin, 2016; Farmer, 2017). Learning how teacher leaders are impacted by their position in the school network can provide an important perspective on how best to support teachers to help them flourish through leadership rather than potentially burnout and abandon their profession.

Teacher burnout has been empirically shown to be a legitimate and present concern in schools. This study will contribute to the knowledge base on this issue by using SNA to explore burnout and network position and the associated benefits and constraints of various roles within the whole school network. If central actors (teacher leaders) have higher levels of burnout, the exploration of the factors associated with this burnout can help policymakers identify strategies to support leaders’ development of critical coping mechanisms to handle stressors. If centrality and burnout are shown to not have a predictive relationship, the whole network data and collected measures will allow for exploration of what factors are associated with increased burnout.
CHAPTER 3. RESEARCH METHODOLOGY

Although many factors and experiences are associated with professional burnout for teachers including time in the profession and self-efficacy, one of the most prominent risk factors is a weak professional community. Within the school environment, interpersonal relationships can be positive sources of support mitigating the potential for burnout (Lim & Eo, 2014; Van Droogrenbroeck, Spruyt, & Vanroelen, 2014). The relationships sustained within the school environment comprise the school’s network. However, the benefits of a supportive network can be put at risk if actors become burdened by the relationships they sustain. It is this contrast between the potentially buffering effect of supportive school relationships and the possibly damaging impact of onerous associations that is worthy of further investigation.

To explore the impact of level of network connectivity on teacher burnout within the collaborative relationships at each school, a descriptive case study method was utilized (Yin, 2003). The case study, using a sequential explanatory mixed methods design, includes two analytic methods, SNA and identification of themes from a series of semi-structured interviews (Creswell, Plano Clark, Gutmann, & Hanson, 2003). Case studies are commonly used within the social network literature as a method to provide context for the relationships identified through the network analysis (e.g., Martinez, Dimitriadis, Rubia-Avi, Gomez-Sanchez, & De La Fuente, 2003; Penuel, Riel, Krause, & Frank, 2009). According to Crossley and Edwards (2016) quantitative methods allow for the explorations of patterns, statistical significance, as well as associations between the patterns. Qualitative methods allow for the exploration of the “mechanisms generating these patterns” and help the research look for explanations for the patterns (p.11).
Therefore, utilizing a mixed-methods approach to social network research allows for both a quantitative analysis of the various network relationships as well as a look at the network from the perspective of an insider (Jack, 2010).

**Site and Participant Selection**

For the case study, both convenience and purposeful sampling strategies were utilized to identify the case sites and participants (Marshall, 1996). Due to the geographical location of the primary researcher and to provide reasonable accessibility to the school site, schools within Kentucky were selected. The close proximity of the participant sites allowed the researcher opportunities for repeated follow-ups with the participating schools, which help to ensure a high survey response rate as well as a high participation rate in the interviews. This access added richness to the data. Although the use of convenience sampling may bias the results of the study, the exploratory nature of the research provided an opportunity to examine the impact of centralization within the case sites and identify topics for future empirical research.

Four elementary schools were identified to participate in the study. With whole network SNA, each school served as a unique case with a distinct social network. The use of purposeful selection allowed for identification of Title 1 schools with similar student and teacher demographics. By identifying schools with similar student and teacher populations, the data could reasonably be analyzed both as unique cases and in aggregate for the quantitative analysis. Once each school network was analyzed to determine centrality scores and other network specific statistics, the participant data was compiled to allow for hypothesis testing on the larger sample. The context-specific exploration of each case occurred through the semi-structured interviews and subsequent qualitative
analysis. Cases were compared to identify similarities and differences in the collaborative relationships occurring within the school networks and the reported professional burnout indicators.

More than 75 percent of Kentucky public schools are eligible for Title 1 funding (Blessing, 2018). Title 1 is a federal financial assistance program available to schools with at least 40 percent of the student population from low-income families. Previous studies have indicated a higher rate of teacher attrition in high-poverty schools, therefore the Title 1 schools identified for the study provided a unique opportunity to explore the impact of centrality when the risk for burnout is more pronounced (e.g., Darling-Hammond, 2003; Santoro, 2011).

The grade levels represented at each school ranged from preschool through fifth grade with one school housing sixth grade within the elementary building as well. According to the National Center for Education Statistics, during the 2015-16 academic year, the average elementary school enrollment in Kentucky was 481 students (U.S. Department of Education, 2016). Three of the participating schools reported enrollment below the state average and one school reported enrollment above the state average.

Main Street Elementary is a Title 1 school serving a predominately white student population of more than 400 students. Approximately seventy percent of the student body qualifies for free or reduced lunch. The reported student to teacher ratio is 16:1. On the 2018 KPREP standardized assessment, Main Street reported a school-wide reading proficiency slightly above the state average while the school-wide math proficiency was below the state average.
Greene Elementary is an average-sized, Title 1 school. The majority of students at the school (>80 percent) reported their race as White. The student to teacher ratio is lower than the state average at 13:1. On the 2018 KPREP standardized assessment, Greene reported school-wide reading and math proficiencies below the state average.

Southview Elementary is a Title 1 eligible school with a student population below 350. More than 95 percent of the student population’s reported race is white and nearly 40 percent of the students qualify for free or reduced lunch. On the 2018 KPREP standardized assessment, Southview reported school-wide reading and math proficiency scores above the state average.

Lakeside Elementary is the largest elementary school in the study with a student enrollment over 550. Approximately 85 percent of the students reported their race as White with nearly 60 percent of the students qualifying for free or reduced lunch. Lakeside is a Title 1 school with a student to teacher ratio is 16:1. On the 2018 KPREP standardized assessment, Main Street reported scores above the state average in both reading and mathematics.

The four schools in the study participated in the 2017 TELL Kentucky Survey conducted in March 2017. The survey, administered by the New Teacher Center, was designed to evaluate teaching conditions and included topics such as community engagement and support, teacher leadership, and professional development. Since the focus of the current study is on the collaborative relationships within school social networks, the questions pertaining to collaboration and peer interaction were analyzed for each school. Respondents from the four research sites overwhelmingly (>87 percent) indicated that professional learning communities exist within their buildings.
Additionally, the majority of survey respondents at all four schools (between approximately 70 and 100 percent) indicated that their schools provided ongoing professional learning opportunities for teachers to work with colleagues. The majority (between 68 and 89 percent) of teachers surveyed from the research sites also indicated that teachers have time to collaborate with their colleagues and more than 86 percent of respondents reported spending 1 to 5 hours per week in collaborative planning time.

The four schools reported similar teacher populations. The number of certified (i.e., faculty members holding a teaching certificate recognized by the Kentucky Educational Professional Standards Board) faculty between the four schools ranged from 20 to 40. More than 97 percent of the teachers reported their race as White and more than 89 percent of the teachers were female. Main Street Elementary reported the largest number of faculty members holding a Rank 1 status while nearly 70 percent of teachers at Southview Elementary held a master’s degree. The teacher turnover at Greene Elementary was the lowest with less than 4.5 percent of the staff exiting their positions as compared to more than 21 percent at Main Street Elementary during the 2017-18 academic year.

Following identification of the research sites, each school principal was contacted to secure permission to participate via signed letter. An Institutional Review Board application was filed with the University of Kentucky outlining the research plan. Upon approval, each principal was contacted to arrange an in-person meeting with the faculty to introduce the study and address any concerns. Due to the personal nature of social network questions, it was important to provide a face-to-face opportunity to reassure participants that all responses would remain confidential.
Data Collection

The whole school network for each of the four schools was mapped on three distinct relationships and a series of instruments were fielded to capture burnout levels as well as data on known variables associated with burnout.

Measures

A survey (Appendix A) was fielded to all participants at the start of the study. The electronic survey, administered via Qualtrics, was a combined survey containing all of the measures outlined below. The survey was sent to all participants by the building principal via email link (Appendix B). A QR code linking directly to the survey was shared with participants during the face-to-face meeting at the school. The principal encouraged staff members to complete the survey immediately following dismissal from the staff meeting. The researcher provided a meal for all certified staff members as a token of gratitude for their time. A follow-up email was sent to all certified teachers who had not completed the survey within two days of the initial email administration. Additionally, communication with all building principals was maintained to garner onsite support to encourage teacher participation. Estimated time to complete was approximately 20 minutes.

To allow for a whole network analysis, a minimum participation rate of at least 75 percent of the certified faculty was required. In order to capture a true representation of the network, it is vital that a large number of network members (actors) complete the survey. Low response rates risk producing a false picture of network connectivity and the
inaccurate identification of central (or isolated) actors. The response rates from each participating school are outlined in Table 3.1 below.

Table 3.1

<table>
<thead>
<tr>
<th>School Response Rates- Survey</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Response</td>
</tr>
<tr>
<td>------------</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

Securing the high response rates from the four schools in the study required careful planning and communication with school administrators. In a study of connectedness between tenth graders at a large high school, Maroulis & Gomez (2008) were able to secure a response rate of 88% by utilizing the school’s computer lab to complete the survey. Penuel, Riel, Krause, & Frank (2009) secured response rates of 79.1% and 84.6% for the two schools participating in their comparative case study by recruiting the support of the building principals. Both strategies were used in the current study to ensure high participation rates.

**Maslach Burnout Inventory- Educators Survey.** The (MBI-ES) Maslach Burnout Inventory-Educators Survey was fielded to all participants. The survey features 22 items and provides a score in each of the three dimensions of burnout: emotional exhaustion, depersonalization, and personal accomplishment. Raw scale scores were used for each burnout indicator. The instrument was tested by the measure designers for both internal and test-retest reliability. During instrument development, Cronbach’s alpha estimates were reported at .90 for emotional exhaustion, .76 for depersonalization, and .76 for personal accomplishment. Test-retest reliabilities were lower with a reported .60 for emotional exhaustion, .54 for depersonalization, and .57 for personal
accomplishment. The lower estimates may be expected due to the ever-changing work environments facing teachers (Maslach, Jackson, & Leiter, 2016). For the present study sample, Cronbach’s alpha for emotional exhaustion was .911, depersonalization was .610, and for personal accomplishment was .713.

**Teachers’ Sense of Efficacy Scale- Short Form.** The Teachers’ Sense of Efficacy Scale- Short Form is a 12-item inventory using a nine point Likert-scale designed to help researchers “gain a better understanding of the kinds of things that create difficulties for teachers in their school activities (Tschannen-Moran & Woolfolk Hoy, 2001). The instrument assesses a teachers’ self-reported competence in the areas of student engagement, instructional strategies, and classroom management. A review of the measure conducted by the measure designers indicated reasonable reliability and validity and was positively correlated with other measures of personal teaching efficacy. (Tschannen-Moran & Woolfolk, 2001). The Cronbach’s alpha for the study sample was .901.

**Perceived Stress Scale.** The Perceived Stress Scale is a 14-item instrument, featuring a subjective five point scale. The measure has shown adequate internal and test-retest reliability (Cohen, Kamarck, & Mermelstein, 1983). The scale uses a one month time frame for reflection since objective events affecting respondent stress levels are still affecting individuals within the given time frame. Cronbach’s alpha for the sample was .842.

**Principal Support Scale.** The Principal Support Scale is 16 item inventory, featuring a six-point scale. The scale captures perceptions of supportive behaviors from the school principal on the dimensions of emotional support, instrumental support,
professional support and appraisal support. The reliabilities of the measure were high. During instrument development, Cronbach’s alphas were .94 for emotional support, .93 for appraisal support, .88 for instrumental support, and .87 for professional support. All of the dimensions had factor validity (DiPaola, 2012). The Cronbach’s alpha for the sample was .959 across all dimensions.

**Ten Item Personality Inventory.** The Ten Item Personality Inventory is a reasonable proxy for other longer measures of the Big Five personality domains. The five domains include extraversion, agreeableness, conscientiousness, emotional stability, and openness to experiences. The brief survey uses a seven point Likert scale in which participants indicate the level of agreement on pairs of personality traits. An evaluation of the reliability and validity of the measure reported convergent validity (r=.77) and discriminant validity (r=.20), test-retest reliability (r=.72) and patterns of external correlates (.90) (Gosling, Rentfrow, & Swann, 2003).

**Revised School Level Environment Questionnaire.** The Revised School Level Environment Questionnaire is a 21-item measure addressing perceptions of school climate on a five point Likert scale. The questionnaire addresses school environment dimensions including collaboration, student relations, school resources, decision making and instructional innovation. During development, the instrument produced a strong reliability coefficient (.90) as well as factorial validity (Johnson, Stevens, & Zvoch, 2007). Cronbach alpha for the sample was .761.

**Demographic Data.** Demographic data was collected including current position, grade level taught, years of service at current school, years in education profession, highest degree attained, age, and gender.
**Social Network Survey.** Each school network was mapped on three relationships: advice-seeking pertaining to mathematics instruction, collaborative partnerships, and school-based friendships. All staff members were asked to select the names of individuals that satisfy the defined relationships from the prepopulated roster of school employees. If a relationship was identified, the respondent was prompted to provide the frequency of the relationship ranging from daily to once a year.

Mathematics instruction was used as a way to capture building experts in a particular content area. The identification of building experts provided an opportunity to explore advice-seeking for content-specific support. However, after the initial exploratory analysis, it was determined that the use of a specific content area (i.e., mathematics) was too restrictive for the study population given that all certified teachers were surveyed. Special area (e.g., art) teachers are not required or expected to provide instruction on subject areas such as mathematics. Therefore, the relationship ties were limited. Future studies may wish to explore this content-specific advice-seeking relationship.

**Semi-Structured Interviews**

A series of semi-structured interviews were arranged to allow for the collection of qualitative data to assist in the exploration of differences between individuals in the network (Creswell, Plano Clark, Gutmann, & Hanson, 2003). In particular, the interviews provided an opportunity to explore teachers with varying levels of network centrality and differing burnout indicator scores. While the quantitative analysis identified a significant relationship between centrality and the burnout indicator of depersonalization, the semi-structured interviews gathered the unique perspectives of the participants and provided context in which to interpret the findings. By identifying central actors (i.e., teachers)
with both low burnout risk and high burnout risk, the differences between their collaborative experiences and perspectives could be investigated. Unlike a focus group, semi-structured interviews allowed for one-on-one conversations with the participants and provided an environment in which individuals could share confidentially.

To identify participants for the semi-structured interviews, both the burnout indicator scores and centrality scores were reviewed. The degree centrality scores (discussed below) were reviewed and individuals representing different presentations of burnout and varying levels of centrality were targeted (e.g., central actor with high emotional exhaustion score, non-central actor with low depersonalization score). The targeted number of participants per school was three teachers. An invitation (Appendix B) was sent to each potential participant via email. An incentive of a $20 gift card was offered to those who volunteered to participate. Initially, three to seven teachers per school were invited. If an invited participant declined, additional teachers were invited. Table 3.2 outlines the percentage of individuals who agreed to participate in an interview for the four participating schools.

Table 3.2

<table>
<thead>
<tr>
<th>School Response Rates- Interviews</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Response</td>
</tr>
<tr>
<td>-----------</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

Potential participants were contacted by email up to three times prior to removing them from the invitation list. Greene Elementary was the most challenging school to recruit participants. Teachers at Greene indicated a concern that their school
administrators would view interview participation negatively. Potential participants were reassured that participation would be kept confidential and data would be shared anonymously. In total, 16 teachers were invited prior to securing three participants.

Given the sensitive topics of both teacher burnout and school relationships, it is possible that the individuals who agreed to participate in the interviews had a strong opinion (either positive or negative) about their professional experiences that they wished to share. This potential bias may have influenced the results by providing a skewed representation of the various school networks and the collaborative relationships occurring within. Due to the sample size of interviewees, this bias could result in extreme viewpoints being inappropriately interpreted as reflective of the larger school network. To account for this possibility, qualitative data was analyzed for potential themes and points of interest and not as a definitive representation of each school network as a whole.

Each interview was scheduled in a public location (e.g., library) of the participant’s choosing and on average were 45 minutes in length. The interview protocol (Appendix C) was designed to be adaptive based upon participant responses in order to allow or further inquiry about a given topic to provide context to the study. Major themes in the interview protocol included teacher motivation and career choice, collaboration, and reflection on the school community. In order to gather data from the interviews, all interviews were audio-recorded.

**Data Analysis**

As the case study was designed using a sequential explanatory mixed methods approach, the data analysis occurred in two parts. Initially, all quantitative data was analyzed and statistical tests were run including hypothesis testing using OLS regression.
The results of the quantitative analysis were used to inform the selection of the interview participants. The qualitative data generated from the semi-structured interview was then analyzed to provide context for the results from the quantitative analysis.

**Social Network Analysis**

A set of three square matrices were created for each school network based upon the survey responses. A second set of matrices were created using the weighted scores for each relationship, which were generated using the frequency of interaction reported by each participant. These matrices were then analyzed using UCINET (Borgatti, Everett, & Freeman, 2002) social networking software to calculate both the in-degree and out-degree centrality for each participant. Degree centrality was identified as the preferred measure of centrality for this study. Although centrality measures such as closeness and betweenness were considered, the premise of the study is that the simple number of ties received or directed may affect burnout levels. Symmetry was not forced on identified collegial connections in order to capture the distinction between collaborative relationships an individual felt they had available to them (out-degree) and those they received (in-degree) and possibly did not reciprocate.

In-degree centrality captures the number of ties directed toward a given actor while out-degree centrality captures the number of ties an actor directs toward other nodes in the network. For example, for the collaboration relationship, an in-degree of five for teacher $i$ indicates that five individuals identified teacher $i$ as a collaborator. The normalized degree scores rather than raw scores were recorded to allow for comparison across networks. Normalized degree is calculated by dividing the raw score by the total number of possible ties.
In addition to calculation of normalized in-degree and out-degree value for each actor in the four networks, network cohesion was also analyzed for each of the schools. Cohesion measures including density, average degree, arc reciprocity, and degree centralization were calculated. Network density calculates the number of actual ties divided by the number of potential (unrealized) ties. Average degree calculates the average number of ties across the relationship. Arc reciprocity calculates the number of ties that are reciprocated within the network meaning the number of ties where Teacher A identifies Teacher B as a collaborator and Teacher B identifies Teacher A. Degree centralization is a measure of the amount of ties centralized around a few key actors within the network. Additionally, homophily and heterophily were analyzed through the calculation of Yule’s Q scores. Yule’s Q measures the extent of which an actor’s ties are with other actors with the same trait (e.g. gender). This measure allows for the evaluation of patterns within network ties.

Using the scoring manual for each instrument, the participant scores were calculated. Table 3.3 outlines the instruments used for the study and includes the scoring guidelines.

Table 3.3

<table>
<thead>
<tr>
<th>Instruments</th>
<th>Number of Items</th>
<th>Scale</th>
<th>Scoring</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived Stress Scale (Cohen, Kamarch, &amp; Mermelstein, 1983)</td>
<td>14</td>
<td>0 (Never) to 4 (Very Often)</td>
<td>Sum total Reverse Score: 4,5,6,7,9,10,13</td>
</tr>
<tr>
<td>Teachers’ Sense of Efficacy Scale-Short Form (Tschannen-Moran, Woolfolk Hoy, &amp; Hoy, 1998)</td>
<td>12</td>
<td>1 (Nothing) to 9 (A Great Deal)</td>
<td>Sum scores and divide by total</td>
</tr>
</tbody>
</table>
Table 3.3 (continued)

<table>
<thead>
<tr>
<th>Survey</th>
<th>Items</th>
<th>Range</th>
<th>Scoring</th>
<th>Notes</th>
</tr>
</thead>
</table>
| Ten Item Personality Inventory (Gosling, Rentfrow, & Swann, 2003) | 10    | 1 (Disagree Strongly) to 7 (Agree Strongly) | Sum Total | Extraversion: 1, reverse score 6
Agreeableness: reverse score 2, 7
Conscientiousness: 3, reverse score 8
Emotional Stability: reverse score 4, 9
Openness to Experiences: 5, reverse score 10 |
| Principal Support Scale (DiPaola, 2012)   | 16    | 1 (Strongly Disagree) to 6 (Strongly Agree) | Sum Total |                                                                      |
| Revised School Level Environment Questionnaire (Johnson, Stevens, & Zvoch, 2007) | 21    | 1 (Strongly Disagree) to 5 (Strongly Agree) | Sum scores and divide by 21 | Reverse Score: 3, 9, 10, 14, 16, 18, 20, 21 |
| Maslach Burnout Inventory (Maslach, Johnson, & Leiter, 2016) | 22    | 0 (Never) to 6 (Every Day) | Scoring guide available via Mind Garden, Inc. |                                                                      |

Once calculated and compiled into a single dataset, OLS Regression Hypothesis tests were run using UCINET software to test whether individual centrality scores predicted variation in burnout scores net other covariates. Results from measures addressing other variables shown to be associated with burnout (i.e., principal support, school environment, personality, global stress, teacher self-efficacy and career motivation) were included in the hypothesis tests as well as demographic variables including gender and age. The regression equation for the final model is listed below.
Where $\hat{Y}_i$ refers to the burnout dimension for participant $i$

Three separate regression tests were conducted. The Maslach Burnout Inventory computes a participant’s level of burnout on three separate indicators: emotional exhaustion, depersonalization, and personal accomplishment. For each test, one indicator was included as the dependent variable. Initially, only participant out-degree centrality scores were included in the models. Participant in-degree centrality scores were then added. Additional explanatory variables such as level of perceived stress, level of agreement on key personality traits, perception of school environment, perception of principal support, and other demographic characteristics such as age and gender were included. Dummy variables for each school were also included to control for any unobserved characteristics of schools that may be driving differences in burnout.

Unlike OLS regression using standard datasets which assumes observations are independent and random, network data is, by definition, dependent upon the responses of other individuals in the dataset. To address this “failed” assumption, UCINET (Borgatti, Everett, & Freeman, 2002) computes the regression using the permutation method. The
permutation method analyzes the dataset repeatedly and in random combinations in order to mimic independence. The regression output was then analyzed to determine which variables reported statistically significant predictive relationships with the burnout indicators.

**Thematic Analysis**

In order to analyze the data collected through the semi-structured interviews, a coding framework was developed. To begin the analysis, all interviews were transcribed to allow for line by line review (Urquhart, 2013). Utilizing the phases of thematic analysis outlined by Braun and Clarke (2006) as described in Table 3.4, all interviews were coded and themes were identified. A hybrid approach of both deductive and inductive coding was used allowing for themes to be generated from existing research as well as directly from the data (Fereday & Muir-Cochrane, 2006). Although most codes were developed during the analysis of the interview transcripts, factors influencing a participant’s choice to enter the teaching profession were coded using the categorizations developed by Watt and Richardson (2007) in the Factors Influencing Teacher Choice (FIT-Choice) scale. These categorizations include prior teaching and learning experiences, intrinsic career value, personal utility value, social utility value, self-perceptions, and fallback career.

Table 3.4

<table>
<thead>
<tr>
<th>Phase</th>
<th>Description of the process</th>
</tr>
</thead>
<tbody>
<tr>
<td>Familiarizing with data</td>
<td>Transcribing data, reading and re-reading the data, noting down initial ideas</td>
</tr>
</tbody>
</table>
Table 3.4 (continued)

<table>
<thead>
<tr>
<th>Process</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Generating initial codes</td>
<td>Coding interesting features of the data in a systemic fashion across the entire data set, collating data relevant to each code</td>
</tr>
<tr>
<td>Searching for themes</td>
<td>Collating codes into potential themes, gathering all data relevant to each potential theme</td>
</tr>
<tr>
<td>Reviewing themes</td>
<td>Checking if the themes work in relation to the coded extracts and the entire data set, generating a thematic ‘map’ of the analysis</td>
</tr>
<tr>
<td>Defining and naming themes</td>
<td>Ongoing analysis to refine the specifics of each theme, and the overall story the analysis tells, generating clear definitions and names for each theme</td>
</tr>
<tr>
<td>Producing the report</td>
<td>The final opportunity for analysis. Selection of vivid, compelling extract examples, final analysis of selected extracts, relating back of the analysis to the research question and literature</td>
</tr>
</tbody>
</table>

*Note. Adapted from Braun & Clarke (2006, p.87)*

Descriptive codes were used for initial coding (Saldaña, 2009). Codes were then collated and reviewed to develop themes. Themes were identified for specific burnout profile types as well as across all interview participants. Themes were explored to provide context for a future empirical comparative case study rather than for the development of a proposed theory (Urquhart, 2013). In order to facilitate an organized coding process, QDA Miner Lite software was used to allow for color-coding and grouping of like-codes.

Once each interview transcript had been coded, the participating teachers were grouped based on burnout profile types. Since its creation in 1981 through the third edition of the manual published in 1996, the Maslach Burnout Inventory included a rationale for identifying low, moderate, and high cut scores. Cut scores were calculated by splitting the population into thirds. Upon further reflection and analysis, the
instruments designers deemed the cut scores “arbitrary” and removed cut scores (Leiter & Maslach, 2016). Although the instrument designers removed cut scores, formulas to determine critical boundaries were set by Leiter & Maslach (2016) utilizing statistics generated from a given dataset as shown in Table 3.5. The calculation provides only a threshold for high scores.

Table 3.5

Critical Boundary Formulas

<table>
<thead>
<tr>
<th>Emotional Exhaustion</th>
<th>Depersonalization</th>
<th>Personal Accomplishment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Z=Mean + (SD * 0.5)</td>
<td>Z=Mean + (SD * 1.25)</td>
<td>Z=Mean + (SD * 0.10)</td>
</tr>
<tr>
<td>Z=30.061</td>
<td>Z=10.340</td>
<td>Z=37.959</td>
</tr>
</tbody>
</table>

For this study, scores were deemed moderate and low based on an analysis of the score distribution. Standardized z values were calculated for each interview participant utilizing the formula developed by Leiter and Maslach (2016). As shown in Table 3.6, Leiter and Maslach (2016) identified five burnout profile types using the calculated threshold levels for each burnout indicator. The Engaged profile type represents individuals with low emotional exhaustion and depersonalization and high personal accomplishment. In contrast, the Burnout profile type represents individuals with high emotional exhaustion and depersonalization and low personal accomplishment.

Table 3.6

Burnout Profile Types

<table>
<thead>
<tr>
<th>Emotional Exhaustion</th>
<th>Depersonalization</th>
<th>Personal Accomplishment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engaged</td>
<td>Low</td>
<td>High</td>
</tr>
</tbody>
</table>
Table 3.6 (continued)

<table>
<thead>
<tr>
<th>Profile Type</th>
<th>Emotional Exhaustion</th>
<th>Depersonalization</th>
<th>Burnout</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ineffective</td>
<td>Low to Moderate</td>
<td>Low to Moderate</td>
<td>Low</td>
</tr>
<tr>
<td>Overextended</td>
<td>High</td>
<td>Low to Moderate</td>
<td>Low to Moderate</td>
</tr>
<tr>
<td>Disengaged</td>
<td>Low to Moderate</td>
<td>High</td>
<td>Low to Moderate</td>
</tr>
<tr>
<td>Burnout</td>
<td>High</td>
<td>High</td>
<td>Low</td>
</tr>
</tbody>
</table>

*Note.* Adapted from Leiter & Maslach (2016)

Themes were generated by profile type as well as across all interview participants.

**Burnout Indicator Scores- Comparison Population**

During analysis of the burnout indicator scores for the study population, it became apparent that the reported scores were inconsistent with the results from other similar populations included in the burnout literature. In order to confirm this difference statistically, the burnout indicator scores for the study population were compared to the scores of a sample population provided in the Maslach Burnout Inventory Manual. Maslach, Jackson, & Leiter (2016) provided the average score and standard deviation for a sample population of 4,163 primary and secondary teachers. Table 3.7 shows the descriptive statistics for the two populations.

Table 3.7

*Descriptive Statistics- Study Population v. Comparison Population*

<table>
<thead>
<tr>
<th></th>
<th>Study Population</th>
<th>Comparison Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>n</td>
<td>112</td>
<td>4163</td>
</tr>
<tr>
<td>Emotional Exhaustion</td>
<td>24.455 (11.212)</td>
<td>21.25 (11.01)</td>
</tr>
<tr>
<td>Depersonalization</td>
<td>5.107 (4.186)</td>
<td>11.00 (6.19)</td>
</tr>
</tbody>
</table>
Table 3.7 (continued)

<table>
<thead>
<tr>
<th>Personal Accomplishment Mean</th>
<th>37.384</th>
<th>33.54</th>
</tr>
</thead>
<tbody>
<tr>
<td>(5.747)</td>
<td>(6.89)</td>
<td></td>
</tr>
</tbody>
</table>

Note. Standard deviation in parentheses

In order to determine if the difference between this study’s population and the comparison population was statistically significant, a series of unpaired t-tests were conducted. Table 3.8 shows the results for the unpaired t-tests. The difference between the two populations on all three indicators was shown to be statistically significant with a \( p \) values well below the 0.05 significance threshold.

Table 3.8

\( T \)-Tests - Burnout Indicators

<table>
<thead>
<tr>
<th></th>
<th>Emotional Exhaustion</th>
<th>Depersonalization</th>
<th>Personal Accomplishment</th>
</tr>
</thead>
<tbody>
<tr>
<td>( p ) value</td>
<td>0.0024</td>
<td>0.0001</td>
<td>0.0001</td>
</tr>
<tr>
<td>( T )</td>
<td>3.0386</td>
<td>10.0132</td>
<td>5.850</td>
</tr>
<tr>
<td>Degrees of Freedom</td>
<td>4273</td>
<td>4273</td>
<td>4273</td>
</tr>
<tr>
<td>Standard Error of Difference</td>
<td>1.055</td>
<td>0.589</td>
<td>0.657</td>
</tr>
</tbody>
</table>

The study population had significantly different burnout scores than the comparison population. The teachers in the study reported higher levels of emotional exhaustion and personal accomplishment but lower depersonalization levels.

At the time of data collection in the spring of 2018, educators in Kentucky were confronted with a challenging political climate. Governor Bevin’s proposed budget for the 2018-2020 fiscal years cut critical funding for important educational programs and jeopardized funding for the state teacher retirement system. For many teachers, the
increased scrutiny and criticism of their profession was particularly challenging to manage. In a show of solidarity, many teachers were compelled to advocate for their profession and professional standing. The high emotional exhaustion scores reported by the study population appear reflective of this difficult time for teachers. The high personal accomplishment and low depersonalization scores are also reasonable given the concerted effort to highlight the competency of the teaching population in Kentucky. Since the critical threshold for burnout is determined by the sample and given that the manifestation of burnout is unique for each person, the difference was noted but did not directly affect interpretation.

Validity and Ethical Considerations

Although the researcher’s experiences as an elementary school teacher can threaten the validity of data analysis through a preexisting bias, the study strived for a valid data collection process. The first order concepts, such as the statements provided by the participants, as well as the second order concepts including the interpretation of the data informed the research. The data generated during the interviews was recorded to provide confidence that the first order concepts were accurately captured. The review of the literature in advance of the study provided additional confidence in the generation of the interpretations. Rather than attempting to learn “truths” about elementary teachers, the study strived to better understand how centralization may impact teachers’ propensity for burnout and how potential support structures may be formed. Personal and professional experiences certainly influenced the researcher’s perspective. However, this research topic provides an important context for future professional work while also enhancing the academic understanding of how teachers interact with one another.
While satisfactory response rates were secured in order to validly conduct the social network analysis, network data was missing for several actors. Missing data can be problematic in SNA since the network can be misrepresented due to the absence of potential ties from the non-responders. For the study, missing actors were included in the centrality calculations in order to allow for their identification by participating teachers. Removing the non-responders from the network would potentially misidentify a teacher as having no colleagues that satisfy the relationship. The dataset for the regression analysis included only those teachers who completed the full survey.

Given that SNA involves the exploration of relationships between individuals, it is critically important that participant privacy be maintained and respected. The development of trust between researcher and participants is a vital piece of social network analysis. To support the establishment of a trusting relationship, all study participants received an informed consent outlining the components of the study prior to any data collection. Additionally, participants were informed that they could withdraw from the study at any time. Finally, data will always be reported with honesty while maintaining privacy and confidentiality (Johnson & Christensen, 2012; Urquhart, 2013). Attention was paid to the reporting of findings to ensure anonymity for the research sites and participants.

**Chapter Conclusion**

While personal relationships within the school network can provide a mitigating effect against professional burnout, the possibility exists that an actor can be overcentralized and negatively impacted by the maintained relationships. Teacher leaders may become overstressed by the responsibilities associated with the role and may
experience symptoms of burnout from the position. Since teacher leaders have an elevated and visible position within the school, they can be extremely influential. With the risk for potential burnout within not only the teacher leaders but also other colleagues through burnout contagion, analyzing the impact of assuming a teacher leader role is an important endeavor.

The designed case study strives to provide context and insight into how to support teacher leaders and minimize the risk of professional burnout associated with overcentralization and associated stressors. At a time when the recruitment and retention of high-quality teachers is a concern for school districts across the nation due to an ever-increasing teacher shortage, addressing the negative impacts of professional burnout is a critical priority.
For more than three decades, educational experts have espoused the benefits of fostering a collaborative culture among school faculty. In an attempt to dismantle what was once viewed as an isolating profession associated with closed doors and complete autonomy, many schools have championed the development of professional relationships through administrative structures. Although the structures, which may include mandatory participation in professional learning communities and assigned peer mentors, can increase the number of perceived collegial connections, the sought after benefits to staff and students are not always associated with total number of ties. “The process of collegiality is likely to work only when a significant number of teaching personnel at a specific school becomes convinced that it will actually lead to improved teaching and learning” (Shah, 2012, p.1244). In some cases, members of the school community may be burdened by the administrative requirements to connect with colleagues.

To explore the perceived benefits or constraints associated with a high degree of network connectivity (ties) within a school’s collaboration network, two research methods were utilized. Initially, each school network was explored using Social Network Analysis. Then, fourteen semi-structured interviews were coded and themes were developed to provide further context for the findings.

**Social Network Analysis**

For each school network, three relationships were identified: math advice seeking, collaboration, and friendship. The focus of this study is on the impact of an individual’s position within the school’s collaboration network on their symptoms of burnout.
Therefore, the data analysis will focus on the collaboration relationship. The math advice relationship was not included in this study. However, the friendship relationship will be discussed as point of comparison. Prior to analysis of the full sample, each school network was reviewed independently. The results of the analysis on the collaboration relationship for each participating school are reflected in Table 4.1.

Table 4.1

*Network Cohesion- Collaboration Relationship*

<table>
<thead>
<tr>
<th></th>
<th>Main Street</th>
<th>Greene</th>
<th>Southview</th>
<th>Lakeside</th>
</tr>
</thead>
<tbody>
<tr>
<td>Density</td>
<td>0.168</td>
<td>0.199</td>
<td>0.147</td>
<td>0.201</td>
</tr>
<tr>
<td># of Ties</td>
<td>189</td>
<td>173</td>
<td>103</td>
<td>454</td>
</tr>
<tr>
<td>Average Degree</td>
<td>5.559</td>
<td>5.767</td>
<td>3.815</td>
<td>9.458</td>
</tr>
<tr>
<td>Arc Reciprocity</td>
<td>0.328</td>
<td>0.393</td>
<td>0.408</td>
<td>0.392</td>
</tr>
<tr>
<td>Degree Centralization</td>
<td>0.787</td>
<td>0.821</td>
<td>0.714</td>
<td>0.7</td>
</tr>
</tbody>
</table>

*Note.* Analysis on relationship with non-responders

**School A- Main Street Elementary**

On the collaboration relationship within the Main Street Elementary school network, 189 ties were reported with an average of 5.59 ties per actor. Of these ties, approximately a third (32.8%) were reciprocated. The collaboration relationship had a density of 0.168 meaning only roughly 17% of potential ties were realized within the network. In contrast, on the friendship relationship the reported density was 0.258 and 45% of ties were reciprocated. The difference in the reported relationships indicates that individuals in the school network are selective of individuals to satisfy each particular relationship. In other words, while a teacher may view someone as a friend in the building, they may not necessarily collaborate with the same individual. With a degree
A centralization score of 0.787, the ties within the collaboration relationship at Main Street are centered around a few key actors rather than dispersed across the network.

Table 4.2

*Homophily- Collaboration Relationship*

<table>
<thead>
<tr>
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<th>Main Street</th>
<th>Greene</th>
<th>Southview</th>
<th>Lakeside</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yule’s Q- Years in Profession</td>
<td>0.291</td>
<td>0.111</td>
<td>0.385</td>
<td>0.26</td>
</tr>
<tr>
<td>Yule’s Q- Years in Current School</td>
<td>0.024</td>
<td>0.189</td>
<td>0.09</td>
<td>0.049</td>
</tr>
<tr>
<td>Yule’s Q- Highest Degree Earned</td>
<td>0.081</td>
<td>0.249</td>
<td>0.286</td>
<td>0.246</td>
</tr>
<tr>
<td>Yule’s Q- Gender</td>
<td>0.347</td>
<td>-0.56</td>
<td>0.023</td>
<td>0.07</td>
</tr>
</tbody>
</table>

*Note.* Analysis on relationship without non-responders

According to the Yule’s Q values for the collaboration relationship (as shown in Table 4.2), ties had a slight tendency to coalesce around gender (0.347) and years in profession (0.291) with no pattern of homophily around highest degree earned (0.081) and years in current school (0.024). These results indicate that teachers of the same gender tended to collaborate together and that teachers with similar years of service in the profession collaborated together.
Figure 4.1. Main Street Elementary network with ties reflecting collaboration relationship. Green nodes identify interview participants.

Figure 4.1 shows the visual representation of the school network at Main Street Elementary on the collaboration relationship. Using out-degree and in-degree scores for each participant as well as each teacher’s burnout indicator scores, a series of hypothesis tests were conducted to determine if a predictive relationship existed within the Main Street Elementary network on the collaboration relationship. Both out-degree and in-degree scores were not significant predictors of emotional exhaustion, depersonalization, or personal accomplishment score. Due to the small sample size, significance was not expected. Although significance was not obtained, out-degree did produce a negative relationship with emotional exhaustion and depersonalization which indicated that individuals with more out-degree ties (individuals they identified collaborating with) had a reduction in the indicators associated with burnout. Additionally, out-degree produced a positive relationship with personal accomplishment score. Since high levels of personal accomplishment are associated with reduced burnout (the inverse of the other two
indicators), this relationship supports that the existence of a school community can mitigate the effects of burnout. However, in-degree score had the opposite relationship with the burnout indicators. In-degree value produced a positive relationship with both emotional exhaustion and depersonalization as well as a negative relationship with personal accomplishment indicating that with increase ties directed toward an individual, an individual’s risk of burnout increased.

School B- Greene Elementary

Greene Elementary reported 173 ties on the collaboration relationship with an average of 5.77 ties per actor. Nearly 40 percent (39.3%) were reciprocated which was slightly more than the same relationship at Main Street Elementary. The collaboration relationship had a density of 0.199 indicating that only 20 percent of the possible connections were realized within the network. Unlike Main Street Elementary, the friendship relationship was only slightly more dense than the collaboration relationship with a reported density of 0.214. With a degree centralization score of 0.821, the ties within the collaboration relationship at Greene are centralized around a few key teachers.

According to the Yule’s Q values for the collaboration relationship at Greene Elementary, teachers had a slight tendency to report collaborative ties with other teachers with similar number of years in profession (0.111), years in current school (0.189) and highest degree earned (0.249). Teachers at Greene also showed a moderate pattern (-0.56) toward heterophily on the basis of gender meaning that teachers showed a moderate tendency to form collaborative ties with teachers of the opposite gender.
Figure 4.2. Greene Elementary network with ties reflecting collaboration relationship. Green nodes identify interview participants.

Figure 4.2 shows the visual representation of the school network at Greene Elementary on the collaboration relationship. To test the relationship between network position (as measured by in-degree and out-degree) and scores on the burnout indicators, regression analysis was conducted. Both in-degree and out-degree scores were not significant predictors of emotional exhaustion and depersonalization scores. However, out-degree did show a significant relationship with personal accomplishment score. A one standard deviation increase in out closeness was associated with a 10.435 increase in personal accomplishment score with a reported significance of 0.02. Although the same size was small, this relationship indicates that at Greene Elementary centrally positioned teachers (as measured by out-degree score) report higher personal accomplishment scores. Within the burnout indicators, a higher personal accomplishment score is associated with a lower risk of burnout. Though not significant, in-degree produced a negative relationship with emotional exhaustion and a positive relationship with both
depersonalization and personal accomplishment. In addition to the significant relationship between out-degree and personal accomplishment score, the normalized value of ties an individual directed to others in the network (out-degree) produced a negative relationship with emotional exhaustion and depersonalization. As with Main Street Elementary, these findings indicate that out-degree ties are associated with a reduction in burnout risk while in-degree ties showed a slight increase in depersonalization score.

**School C- Southview Elementary**

With a reported density of 0.147, the collaboration relationship within the network at Southview Elementary was the least dense of the four collaboration relationships in the study. Although only 14 percent of the potential collaborative ties were formed, more than 40 percent (40.8%) were reciprocated which was the largest reported reciprocity of the four networks on collaboration. While the collaboration relationship was the least dense of this type of relationship between the four school networks, the friendship relationship at Southview was the most dense of the four friendship relationships. The average number of ties within the friendship relationship was 10.593 per teacher with a density of 0.407 indicating that more than 40% of the possible friendship ties in the network were identified. It is worth noting that, unlike Greene Elementary which reported similar densities on both friendship and collaboration, teachers at Southview do not identify all of their friends as collaborators. As with the other two schools, the collaboration relationship within the network at Southview Elementary is centralized around a few actors as shown by the reported degree centralization of 0.714.
Teachers at Southview Elementary had a slight tendency to report collaborative ties with other teachers with similar number of years in profession (0.385) and highest degree earned (0.286). There was not a strong pattern to the collaborative relationships at Southview Elementary in regard to gender (0.07) and years in current school (0.049).

*Figure 4.3.* Southview Elementary network with ties reflecting collaboration relationship. Green nodes identify interview participants.

The network at Southview Elementary on the collaboration relationship is represented in Figure 4.3 above. Node level regression analysis found no significant relationship between collaboration in-degree or out-degree score and the burnout indicators of emotional exhaustion, depersonalization, and personal accomplishment. Although not significant, out-degree and in-degree produced a negative relationship with both emotional exhaustion and depersonalization and a positive relationship with personal accomplishment. These findings indicate that at Southview Elementary, number of ties (both directed and received) were associated with reduced burnout risk.
School D- Lakeside Elementary

The final school in the study, Lakeside Elementary, was the largest of the four schools with a teaching staff of 38. Teachers at Lakeside reported 454 collaborative ties with an average of 9.458 ties per actor in the network. The density of the collaboration network was similar to the other three schools at 0.201 indicating that slightly more than 20 percent of possible ties were realized in the network. Unlike Southview Elementary, which reported a much denser network on the friendship relationship, the friendship relationship at Lakeside was only slightly more dense than the collaboration relationship at the school (0.272). Although, due to the large number of faculty members, the increased density was associated with 614 ties, 160 more ties than the collaboration relationship. Approximately 39 percent of the collaboration ties were reciprocated at Lakeside.

The Yule’s Q values indicated that collaborative relationships at Lakeside showed a slight tendency to coalesce around same tenure in the profession (0.26) and highest degree earned (0.246) while there was no clear pattern to the collaborative relationships by gender (0.07) or years in current school (0.049).
Figure 4.4 above depicts the ties within the Lakeside Elementary school network on the collaboration relationship. A series of hypothesis tests found no significant relationship between in-degree and out-degree and scores on the burnout indicators of emotional exhaustion and personal accomplishment. Out-degree reported a negative relationship with emotional exhaustion score and a positive relationship with both depersonalization and personal accomplishment scores. In-degree value reported a positive relationship with all three burnout indicators. Unlike the other three schools, a significant relationship was identified between in-degree values and depersonalization score. Based on this analysis, on average, a one standard deviation increase in in-degree value was associated with a 22.621 increase in depersonalization score with a significance level of 0.018. These findings, particularly the significant relationship between in-degree and depersonalization score, support the interpretation that number of ties directed to an individual can exacerbate an individual’s burnout risk.
As was shown in the school level analysis, collaborative ties existed within each building but many of the possible connections between staff members were not realized. In two of the schools, a significant relationship was identified between network position and burnout indicators, although due to a small sample size at each school, the associated coefficients should be scrutinized. To allow for additional hypothesis testing with a larger sample size (n=112), the data from all four schools was consolidated.

**OLS Regression Analysis**

To explore the relationship between network position and teacher burnout, OLS regression analysis was conducted. Each burnout dimension (i.e., emotional exhaustion, depersonalization, and personal accomplishment) was included in separate models as the dependent variable. Independent variables included normalized out-degree and in-degree centrality scores as well as other potential explanatory variables identified through prior research.

**Emotional Exhaustion**

Emotional exhaustion is the burnout indicator most often associated with the condition of professional burnout. Emotional exhaustion often presents as a loss of energy and increased fatigue (Maslach & Leiter, 2016). For educators, emotional exhaustion can cause teachers to feel they can no longer give of themselves to their students as they once could (Maslach, Jackson, & Leiter, 2016). Strong collegial support has previously been associated with reduced emotional exhaustion (Van Droogenbroeck, Spruyt, & Vanroelen, 2014) but the relationship between collegial connections within the school network and emotional exhaustion has not been explored.
Utilizing the combined data set from all four schools, no significant relationship was identified between network ties (as measured by out-degree and in-degree) and emotional exhaustion score. Table 4.3 reflects the results of the regression analysis. Although a significant relationship did not exist, out-degree reported a negative relationship with emotional exhaustion score while in-degree reported a positive relationship with emotional exhaustion score as shown in Models 1 and 2.

A significant positive relationship was identified with the inclusion of the Perceived Stress Scale and was maintained throughout all tested models. Given the measure’s focus on emotional stressors, the association is not surprising. The addition of the personality trait of agreeableness (measured as part of the TIPI) also produced a significant relationship that remained significant until the inclusion of demographic variables including years in current school and years in profession. Agreeableness was associated with a decrease in emotional exhaustion score. In Model 7 and 8, agreeableness was no longer statistically significant but Perceived Stress Scale remained a significant relationship. Although the adjusted $r^2$ was lower in Model 8 ($r^2$ of 0.493), the inclusion of the demographic variables was relevant to the study.
Table 4.3

**OLS Regression Results- Emotional Exhaustion**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
<th>Model 4</th>
<th>Model 5</th>
<th>Model 6</th>
<th>Model 7</th>
<th>Model 8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collaboration Out-degree (SD)</td>
<td>-4.676 (4.718)</td>
<td>-5.630 (4.814)</td>
<td>0.569 (3.629)</td>
<td>0.399 (3.682)</td>
<td>0.429 (3.697)</td>
<td>0.370 (3.736)</td>
<td>-0.475 (3.826)</td>
<td>-1.087 (3.869)</td>
</tr>
<tr>
<td>Collaboration In-degree</td>
<td>13.901 (13.953)</td>
<td>1.662 (10.114)</td>
<td>1.813 (10.261)</td>
<td>4.779 (10.509)</td>
<td>4.334 (10.636)</td>
<td>2.306 (10.879)</td>
<td>0.636 (11.200)</td>
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<tr>
<td>Self-efficacy</td>
<td>-1.784 (0.959)</td>
<td>-1.779 (0.966)</td>
<td>-1.771 (0.996)</td>
<td>-1.780 (1.008)</td>
<td>-1.753 (1.018)</td>
<td>-1.316 (1.092)</td>
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<tr>
<td>Perceived Stress Scale</td>
<td>1.092* (0.115)</td>
<td>1.038* (0.134)</td>
<td>1.058* (0.137)</td>
<td>1.068* (0.141)</td>
<td>1.126* (0.149)</td>
<td>1.071* (0.152)</td>
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<td>Extraversion</td>
<td>-0.219 (0.267)</td>
<td>-0.251 (0.271)</td>
<td>-0.239 (0.275)</td>
<td>-0.217 (0.280)</td>
<td>-0.228 (0.281)</td>
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<td>Agreeableness</td>
<td>-0.747* (0.343)</td>
<td>-0.702* (0.349)</td>
<td>-0.727* (0.358)</td>
<td>-0.677 (0.368)</td>
<td>-0.668 (0.368)</td>
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<td>Conscientiousness</td>
<td>0.450 (0.403)</td>
<td>0.404 (0.405)</td>
<td>0.380 (0.411)</td>
<td>0.398 (0.425)</td>
<td>0.428 (0.432)</td>
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<td>Table 4.3 (continued)</td>
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<td>Emotional Stability</td>
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<td></td>
<td>(0.353)</td>
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<td>Openness to Experiences</td>
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<td>(0.371)</td>
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<td>Principal Support</td>
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<td>(1.059)</td>
<td>(1.071)</td>
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<td>Gender Indicator</td>
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<td>Years in Current School</td>
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<td>Years in Profession Indicator</td>
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<td>(3.520)</td>
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Table 4.3 (continued)

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<td>(3.547)</td>
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<td>School C Indicator</td>
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<td></td>
<td>(2.504)</td>
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<tr>
<td>$r^2$</td>
<td>0.009</td>
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<td>0.508</td>
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<td>0.553</td>
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<td>Adjusted $r^2$</td>
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<td>-0.000</td>
<td>0.489</td>
<td>0.504</td>
<td>0.503</td>
<td>0.494</td>
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Notes. *$p \leq 0.05$; standard error of slopes in parentheses.
<table>
<thead>
<tr>
<th>Variable</th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
<th>Model 4</th>
<th>Model 5</th>
<th>Model 6</th>
<th>Model 7</th>
<th>Model 8</th>
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<tbody>
<tr>
<td>Collaboration Out-degree</td>
<td>0.310</td>
<td>-0.614</td>
<td>1.614</td>
<td>1.162</td>
<td>1.179</td>
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<td>1.341</td>
<td>1.038</td>
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<td>(SD)</td>
<td>(1.769)</td>
<td>(1.758)</td>
<td>(1.653)</td>
<td>(1.613)</td>
<td>(1.630)</td>
<td>(1.647)</td>
<td>(1.699)</td>
<td>(1.701)</td>
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<td>Self-efficacy</td>
<td>-1.183*</td>
<td>-1.089*</td>
<td>-1.080*</td>
<td>-1.096*</td>
<td>-1.098*</td>
<td>-0.971*</td>
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<tr>
<td></td>
<td>(0.437)</td>
<td>(0.423)</td>
<td>(0.439)</td>
<td>(0.444)</td>
<td>(0.452)</td>
<td>(0.480)</td>
<td></td>
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</tr>
<tr>
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Notes. *$p \leq 0.05$; standard error of slopes in parentheses.
Table 4.5

*OLS Regression Results - Personal Accomplishment*

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Notes: *p ≤ 0.05; standard error of slopes in parentheses
The regression equation for Model 8 is as follows:

\[
\text{Emotional Exhaustion} = \hat{\beta}_0 + \hat{\beta}_1 \text{outdegree}_i + \hat{\beta}_2 \text{indegree}_i + \hat{\beta}_3 \text{selfefficacy}_i \\
+ \hat{\beta}_4 \text{perceivedstress}_i + \hat{\beta}_5 \text{extraversion}_i + \hat{\beta}_6 \text{agreeableness}_i \\
+ \hat{\beta}_7 \text{conscientiousness}_i + \hat{\beta}_8 \text{emotionalstability}_i \\
+ \hat{\beta}_9 \text{opennessstoexperiences}_i + \hat{\beta}_{10} \text{schoollevelenviroment}_i \\
+ \hat{\beta}_{11} \text{principalsupport}_i + \hat{\beta}_{12} \text{gender}_i + \hat{\beta}_{13} \text{age}_i \\
+ \hat{\beta}_{14} \text{yearsincurrentschool}_i + \hat{\beta}_{15} \text{yearsinprofession}_i \\
+ \hat{\beta}_{16} \text{highestdegree}_i + \hat{\beta}_{17} \text{schoolA}_i + \hat{\beta}_{18} \text{schoolB}_i + \hat{\beta}_{19} \text{schoolC}_i
\]

Although a significant relationship between network centrality (as measured by out-degree and in-degree value) was not identified, collaboration in-degree maintained a positive relationship with emotional exhaustion throughout all tested models. This finding is contradictory to prior research and may indicate that some collegial relationships may exacerbate the symptoms of burnout.

**Depersonalization**

Depersonalization is characterized by symptoms of irritability, withdrawal, and a negative or inappropriate attitude toward the individuals with whom one works (Maslach & Leiter, 2016). As with emotional exhaustion, strong collegial relationships have been associated with a decrease in symptoms of depersonalization (Van Droogenbroeck, Spruyt, & Vanroelen, 2014).

An initial model to test the relationship between out-degree and depersonalization score did not produce any significance. When in-degree value was added in Model 2, a significant relationship was identified. On average, a one standard deviation increase in in-degree was associated with a 13.465 increase in depersonalization score. This relationship remained significant and positive in all remaining models. Aside from Model 2, the slope of the relationship between out-degree and depersonalization score remained
positive as well. This finding is surprising given that prior research has indicated that collegial interactions buffered individuals from the effects of burnout. Of particular interest to the study is the large coefficients associated with in-degree. As the number of ties within the network increased, so did the level of depersonalization. This association supports the hypothesis that network centrality, as represented by number of individuals perceiving a collaborative relationship, can result in increased feelings of cynicism and depersonalization (an indicator of burnout). Scores on the Perceived Stress Scale and Agreeableness produced significant relationships when added to the models as they did with the emotional exhaustion tests. An increase in Perceived Stress Scale score was associated with an increase in depersonalization while an increase in Agreeableness scores was associated with a decrease in depersonalization. Since high emotional exhaustion and depersonalization scores are indicators of professional burnout, these results are to be expected. One additional variable, teacher self-efficacy, also produced a significant relationship in all included models. An increase in a teacher’s reported confidence in professional skills such as classroom management and instruction was associated with a decrease in depersonalization. Although the adjusted $r^2$ was lower in Model 8 ($r^2$ of 0.296), the inclusion of the demographic variables was relevant to the study. The regression equation for Model 8 is as follows:

$$Depersonalization = \beta_0 + \beta_1 outdegree_i + \beta_2 indegree_i + \beta_3 selfefficacy_i + \beta_4 perceivedstress_i + \beta_5 extraversion_i + \beta_6 agreeableness_i + \beta_7 conscientiousness_i + \beta_8 emotionalstability_i + \beta_9 opennessstoexperiences_i + \beta_{10} schoollevelenvironment_i + \beta_{11} principalsupport_i + \beta_{12} gender_i + \beta_{13} age_i + \beta_{14} yearsincurrentschool_i + \beta_{15} yearsinprofession_i + \beta_{16} highestdegree_i + \beta_{17} schoolA_i + \beta_{18} schoolB_i + \beta_{19} schoolC_i$$
The relationship between in-degree score and depersonalization maintained significance in the final model. The strong relationship in the all tested models indicates that the number of ties directed toward another individual can increase the reported depersonalization and associated burnout symptoms.

**Personal Accomplishment**

When teachers report low personal accomplishment scores, symptoms such as reduced productivity, reduced capability, and low morale can exhibit (Maslach & Leiter, 2016). The teachers in the study reported higher personal accomplishment scores than the comparison population. A series of models were developed to assess the relationship between network centrality and personal accomplishment score. Collaboration out-degree did produce a positive significant relationship in the first tested model. The relationship remained significant when collaboration in-degree was added. As additional variables were added to the model, network ties (out-degree and in-degree) maintained a positive relationship with personal accomplishment score but did not retain significance. This finding is consistent with prior research in that strong collegial connections can mitigate the effects of professional burnout. The other significant variables in the models, including a positive relationship between school level environment and personal accomplishment score also is supported by existing literature (Hakanen, Bakker, & Schaufeli, 2006).

The demographic variables including age, an indicator for gender, as well as indicators for years in current school, year in profession, highest degree attained, and a set of three indicators to control for participant’s home school were added in for models 6-8. The performance of the final three models improved slightly with Model 6 reporting
the best performance with an adjusted $r^2$ of 0.363. Although the adjusted $r^2$ was lower in Model 8 ($r^2$ of 0.358), the inclusion of the demographic variables was relevant to the study. The regression equation for Model 8 is as follows:

$$
\text{Personal Accomplishment} = \beta_0 + \beta_1 \text{outdegree}_i + \beta_2 \text{indegree}_i + \beta_3 \text{selfefficacy}_i \\
+ \beta_4 \text{perceivedstress}_i + \beta_5 \text{extraversion}_i + \beta_6 \text{agreeableness}_i \\
+ \beta_7 \text{conscientiousness}_i + \beta_8 \text{emotionalstability}_i \\
+ \beta_9 \text{opennesstoexperiences}_i + \beta_{10} \text{schoollevelenvironment}_i \\
+ \beta_{11} \text{principalsupport}_i + \beta_{12} \text{gender}_i + \beta_{13} \text{age}_i \\
+ \beta_{14} \text{yearsincurrentschool}_i + \beta_{15} \text{yearsinprofession}_i \\
+ \beta_{16} \text{highestdegree}_i + \beta_{17} \text{schoolA}_i + \beta_{18} \text{schoolB}_i + \beta_{19} \text{schoolC}_i
$$

Based on the results of the quantitative analysis, two key findings on extent of network connectivity and burnout indicator scores emerged. First, although not a statistically significant relationship, the number of ties an individual directs toward others in the school network did buffer against the effects of burnout on the indicators of emotional exhaustion and personal accomplishment. Second, a statistically significant relationship was identified between the number of ties received (in-degree) within the collaboration relationship and depersonalization score.

**Semi-Structured Interviews**

To provide further context for the findings from the social network analysis, fourteen semi-structured interviews were conducted. Selected teachers represented various levels of connectivity within their school networks and differing levels of reported burnout indicators. Table 4.6 outlines the Maslach Burnout Inventory scores as well as the normalized out-degree and in-degree centrality values for each of the interview participants.
### Table 4.6

*Interview Participants - Burnout Indicator and Centrality Scores*

<table>
<thead>
<tr>
<th>Pseudonym</th>
<th>Emotional Exhaustion</th>
<th>Depersonalization</th>
<th>Personal accomplishment</th>
<th>Out-degree Centrality</th>
<th>In-degree Centrality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alyssa</td>
<td>33</td>
<td>12</td>
<td>30</td>
<td>0.03</td>
<td>0.182</td>
</tr>
<tr>
<td>Abigail</td>
<td>24</td>
<td>7</td>
<td>42</td>
<td>0.364</td>
<td>0.182</td>
</tr>
<tr>
<td>Amanda</td>
<td>8</td>
<td>3</td>
<td>38</td>
<td>0.909</td>
<td>0.091</td>
</tr>
<tr>
<td>Kristin</td>
<td>41</td>
<td>4</td>
<td>37</td>
<td>0.034</td>
<td>0.172</td>
</tr>
<tr>
<td>Rebecca</td>
<td>42</td>
<td>15</td>
<td>32</td>
<td>0.138</td>
<td>0.207</td>
</tr>
<tr>
<td>Linda</td>
<td>24</td>
<td>11</td>
<td>39</td>
<td>0.207</td>
<td>0.207</td>
</tr>
<tr>
<td>Stacy</td>
<td>37</td>
<td>4</td>
<td>46</td>
<td>0.483</td>
<td>0.241</td>
</tr>
<tr>
<td>Molly</td>
<td>27</td>
<td>2</td>
<td>39</td>
<td>0.154</td>
<td>0.231</td>
</tr>
<tr>
<td>Veronica</td>
<td>42</td>
<td>3</td>
<td>28</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Annie</td>
<td>6</td>
<td>1</td>
<td>43</td>
<td>0.423</td>
<td>0.231</td>
</tr>
<tr>
<td>Julie</td>
<td>28</td>
<td>7</td>
<td>43</td>
<td>0.17</td>
<td>0.149</td>
</tr>
<tr>
<td>Jessica</td>
<td>39</td>
<td>12</td>
<td>37</td>
<td>0.021</td>
<td>0.319</td>
</tr>
<tr>
<td>Samantha</td>
<td>3</td>
<td>0</td>
<td>41</td>
<td>0.106</td>
<td>0.106</td>
</tr>
<tr>
<td>Suzanne</td>
<td>35</td>
<td>13</td>
<td>32</td>
<td>0.872</td>
<td>0.128</td>
</tr>
</tbody>
</table>

*Notes.* Adapted from Leiter & Maslach (2016); Pseudonyms used to protect participants.

Based on the analysis of the indicator scores (as shown in Table 4.7), three burnout profiles were identified for the interview participants: Burnout profile, Overextended profile, and the Engaged profile.

### Table 4.7

*Interview Participants - Burnout Profiles*

<table>
<thead>
<tr>
<th>Pseudonym</th>
<th>School</th>
<th>Grade Level/Position</th>
<th>Burnout Profile</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alyssa</td>
<td>Main Street</td>
<td>Sixth Grade</td>
<td>Burnout</td>
</tr>
</tbody>
</table>

83
Table 4.7 (continued)

<table>
<thead>
<tr>
<th>Name</th>
<th>School</th>
<th>Grade/Department</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abigail</td>
<td>Main Street</td>
<td>Special Education</td>
<td>Engaged</td>
</tr>
<tr>
<td>Amanda</td>
<td>Main Street</td>
<td>Special Area</td>
<td>Engaged</td>
</tr>
<tr>
<td>Kristin</td>
<td>Greene</td>
<td>Fourth Grade</td>
<td>Overextended</td>
</tr>
<tr>
<td>Rebecca</td>
<td>Greene</td>
<td>Fifth Grade</td>
<td>Burnout</td>
</tr>
<tr>
<td>Linda</td>
<td>Greene</td>
<td>Intervention</td>
<td>n/a</td>
</tr>
<tr>
<td>Stacy</td>
<td>Greene</td>
<td>Fifth Grade</td>
<td>n/a</td>
</tr>
<tr>
<td>Molly</td>
<td>Southview</td>
<td>Third Grade</td>
<td>Engaged</td>
</tr>
<tr>
<td>Veronica</td>
<td>Southview</td>
<td>Preschool</td>
<td>Overextended</td>
</tr>
<tr>
<td>Annie</td>
<td>Southview</td>
<td>Intervention</td>
<td>Engaged</td>
</tr>
<tr>
<td>Julie</td>
<td>Lakeside</td>
<td>Fifth Grade</td>
<td>Engaged</td>
</tr>
<tr>
<td>Jessica</td>
<td>Lakeside</td>
<td>Special Education</td>
<td>Burnout</td>
</tr>
<tr>
<td>Samantha</td>
<td>Lakeside</td>
<td>Special Education</td>
<td>Engaged</td>
</tr>
<tr>
<td>Suzanne</td>
<td>Lakeside</td>
<td>Special Area</td>
<td>Burnout</td>
</tr>
</tbody>
</table>

Note. Linda and Stacy’s indicator scores did not align with an identified Burnout profile.

Table 4.8 outlines identified themes and the associated codes identified during the interview analysis.

Table 4.8

**Themes and Code Frequency**

<table>
<thead>
<tr>
<th>Theme</th>
<th>Codes and Code Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Choice</td>
<td>Helping (5), rewarding (17), first-hand experience (12), friends/family (22), always knew (4), salary (3), former teachers (14), fall back (12), flexible schedule (1), calling (5), kids (4)</td>
</tr>
<tr>
<td>Collaboration- Positive</td>
<td>Reaching out (25), focused (4), organic (5), personality (33), venting (10), community (16), partner teacher (31), flexible (5), real world connections (2), walkthroughs (1), good for students (5)</td>
</tr>
<tr>
<td>Collaboration- Forced</td>
<td>Venting (10), limited staff (6), one-sided (18), plate too full (5), alone (1)</td>
</tr>
</tbody>
</table>
Table 4.8 (continued)

<table>
<thead>
<tr>
<th>Administrative Burden</th>
<th>Manageable work (5), positive thoughts (36), culture (14), treated as professional (9)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administrative Burden</td>
<td>Consuming, blame (2), negativity (19), work-life balance (9), unrealistic (14)</td>
</tr>
</tbody>
</table>

Administrative Burden

**Overwhelming Workload.** All of the teachers identified as matching the Burnout and Overextended profiles expressed a feeling of burden associated with professional responsibilities. According to Maslach and Leiter (2016) “Work overload contributes to burnout by depleting the capacity of people to meet the demands of the job. When this kind of overload is a chronic job condition, there is little opportunity to rest, recover, and restore balance” (p. 105). Alyssa shared:

> I think there are multiple workloads. There's the workload with just students, just what you need to do with them, uhm helping to get them through what they need to learn, the scope that they need, and then there's administrative workload. That's the workload that I think can be the straw that breaks the camel's back, because it-it seems every year there's more added for us to do, but nothing's ever taken away. Uhm and that's- that's the workload that- that beco- becomes overwhelming (Alyssa).

For Rebecca, the paperwork and additional responsibilities required for new teachers proved burdensome. She felt much of the administrative work was “just not necessary.” Rebecca shared that her workload was “overwhelming” while Jessica stated her workload was “horrendous.” For Suzanne, the additional duties assigned to her outside of her own professional responsibilities added to her already full plate. In
Suzanne’s school, all teachers were required to provide instructional support during a structured, school wide intervention block regardless of content specialization. She felt this requirement was more about providing adult supervision than quality instruction. “Well, you know, we're, like I said, we're we've a lot added on to us in the day just because, like I said, we're an extra body. We're an extra adult that can supervise and, you know, so a lot of times it’s not really in our teaching capacity of what we should or could be doing.” Rebecca’s school has experienced high administrator turnover during the last few years due to both promotion to central office and principal attrition. For Rebecca, the administrative turnover proved challenging as the lack of principal consistency affected her ability to manage her classroom. The behavior issues in her classroom added to her professional struggles.

Both Veronica and Kristin expressed that an extreme workload was a staple in their professional lives. Kristin shared that her workload was “enormous” and Veronica found her professional responsibilities to be “overwhelming, overwhelming.” Kristin acknowledged that some of the work stressors were self-inflicted due to volunteering for additional responsibilities but that she found the added workload “onerous” and often regretted volunteering in the first place. For Veronica, a special education preschool teacher, the assessments and paperwork associated with her position were intense. She shared, “…I had to do all the paperwork, all the documents, all the meetings….And I know everybody has a work load; I'm not acting like pre-school is even more than anybody else, but it was just on top of all that.” Veronica also questioned her own ability to manage her workload effectively. Time management was a pressing concern. She stated, “…maybe it was me just not organizing my time well enough; I don't know. I'm
like how do other people do it? Why am I, you know, still here at 5:00? Why am I still here?”

Both Burnout and Overextended teachers felt overwhelmed by the expectations and administrative responsibilities associated with their positions. The stress associated with feelings of overwhelming workload and unreasonable expectations has previously been associated with burnout (Richards, Levesque-Bristol, Templin, & Graber, 2016). How a teacher responds to these stressors and challenging work conditions is predictive of their burnout symptoms (Zhang, Zhou, & Zhang, 2016). For the interviewees, a general perception of a consuming and unrelenting workload is manifesting in high emotional exhaustion and depersonalization scores, which can lead to professional burnout.

**Manageable Workload.** The teachers identified as engaged shared that, unlike their Overextended and Burnout peers, their workloads were manageable. In contrast to the overwhelming workload associated with increased burnout indicators, a workload that is viewed as reasonable can buffer against the risk of burnout. “A sustainable and manageable workload, in contrast, provides opportunities to use and refine existing skills as well as to become effective in new areas of activity” (Maslach & Leiter, 2016, p. 105). For Annie, a position change from general classroom to specialist resulted in a reduction in planning. Amanda, who had previously worked in larger school districts, found that the smaller school environment at her current school creating a more balanced work setting. Abigail acknowledge that while her colleagues may feel overwhelmed, she found her workload to be reasonable. She shared, “I think I'm probably one of those people that don't feel like it's
a lot of workload.” Julie identified a supportive team established by her building administrator that helped to make her workload more manageable sharing:

I have another teacher with each of those subjects that teach it with me as well so, I definitely felt support as for like, planning lessons and that kind of workload. It definitely takes some off if you're doing it together and you're taking turns making copies and doing certain things so, I didn't feel like extremely overwhelmed with my workload this year.

As a special educator, Samantha benefited from a small caseload of students, which resulted in a reasonable workload. Although she also acknowledged her situation was distinct from others in her building.

All of the Engaged teachers felt the expectations associated with their position were reasonable and manageable. The support provided by fellow teachers was identified as a source of assistance in reducing workload. For the teachers categorized as Engaged, the collaborative interactions with their colleagues helped to support a positive professional outlook. These findings align with prior research on the benefits of collaboration on the development of a resilient attitude and well-adjusted attitude toward professional responsibilities (Conderman & Johnston-Rodriguez, 2009; Rigelman & Ruben, 2012).

Factors Influencing Teacher Choice

Prior research has identified an association between rationale for entering the teaching profession and burnout risk. Individuals who entered the profession based on perceived abilities or due to the intrinsic value associated within the career choice
reported lower emotional exhaustion and depersonalization. In contrast, individuals who selected the career as a fallback or based on extrinsic factors such as job security and time for family reported high burnout scores. To explore this potential association within the interview participants, each interviewee was asked to share about their choice to become a teacher. The responses were coded using the career-choice categorization identified by Watt and Richardson (2007) in the Factors Influencing Teacher Choice (FIT-Choice) scale. These categorizations include prior teaching and learning experiences, intrinsic career value, personal utility value, social utility value, self-perceptions, and fallback career. The category for each of the 14 interview participants is identified in Table 4.9.

Table 4.9

Factors Influencing Teacher Choice

<table>
<thead>
<tr>
<th>Teacher</th>
<th>Category</th>
<th>Evidence (Direct Quotes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jessica</td>
<td>Fallback</td>
<td>I'm actually a speech and language therapist in the schools. I wanted to be a nurse.</td>
</tr>
<tr>
<td>Amanda</td>
<td>Fallback</td>
<td>I originally started in business and then I switched I guess, almost into my second year. My mom was a teacher, but the pull of the business was stronger…just the image of success, I guess.</td>
</tr>
<tr>
<td>Molly</td>
<td>Fallback</td>
<td>So, I got a degree as a medical transcriptionist… I thought it was interesting to listen to what a doctor had to say, and transcribe it. And I like typing. …I wasn’t really interested in going to college for four years at that point in my life either.</td>
</tr>
<tr>
<td>Veronica</td>
<td>Prior Teaching and Learning</td>
<td>It’s like a life guard. I taught swim lessons, you know. I did all of that, you know, with kids so, I knew that I loved being with kids and working with kids.</td>
</tr>
<tr>
<td>Name</td>
<td>Career Value Type</td>
<td>Description</td>
</tr>
<tr>
<td>----------</td>
<td>----------------------------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Kristin</td>
<td>Intrinsic Career Value</td>
<td>Okay, so it was kind of an unusual start I guess because I decided to go back to school when I was in my mid 30's to become a teacher. …I was looking at [prior career] I was thinking well, this is not going to fill my heart for the rest of my life.</td>
</tr>
<tr>
<td>Linda</td>
<td>Intrinsic Career Value</td>
<td>I chose to become a teacher because it was my calling. It was like okay, this is what I'm supposed to be doing.</td>
</tr>
<tr>
<td>Suzanne</td>
<td>Personal Utility Value</td>
<td>So I was trying to find a profession that would be great, make money but I just really kept going back to the art stuff and then the more I kinda researched with my arts, I really like to show people art and teach people art so I kinda naturally just after about seven years or so, kinda went back to the teaching and so that's when I wound up actually getting my Bachelors and it was Art Ed.</td>
</tr>
<tr>
<td>Alyssa</td>
<td>Prior Teaching and Learning</td>
<td>So I got into it a little bit later, and I just loved being in the classroom [as a volunteer].</td>
</tr>
<tr>
<td>Annie</td>
<td>Prior Teaching and Learning</td>
<td>Well, I knew right away before I started college that that's what I wanted to do. When I was in high school, we did a thing called, Project Charlie and it was at the elementary school. I just remember liking it so much and I thought, this is what I want to do. So, I mean I knew.</td>
</tr>
<tr>
<td>Abigail</td>
<td>Prior Teaching and Learning</td>
<td>And I was like, well, this is what I'm doing, and she was like, well find you have to volunteer somewhere. Well, the school that I go to has an elementary school right next door that I went to and so, she was like, how about you just go up there. …I really enjoyed it,</td>
</tr>
<tr>
<td>Name</td>
<td>Social Utility</td>
<td>Statement</td>
</tr>
<tr>
<td>----------</td>
<td>----------------</td>
<td>-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Rebecca</td>
<td>Prior Teaching and Learning</td>
<td>Uhm, in high school I was placed into a kindergarten classroom as part of our service projects. So, uh, I just loved being in school and I wasn't even teaching anything. I was just the assistant. But I just loved being there, so I went into education when I went to college.</td>
</tr>
<tr>
<td>Julie</td>
<td>Social Utility</td>
<td>Uhm, I have known I wanted to be a teacher since I was in like first grade I remember. I've always wanted to do it. I just love working with people in general and especially kids. I guess I was very blessed, I had a lot of like influential teachers and kind teachers growing up and I just want to be that kind of influence on children and like, I wanted to make some sort of impact whether it was a social impact or academic impact at that point in their lives. So, I just have always known since I was very young.</td>
</tr>
<tr>
<td>Samantha</td>
<td>Social Utility</td>
<td>Uhm, I had decided to be a teacher when I was nine years old. I had a fabulous third grade teacher that uhm showed so much kindness to me. My mother had a brain tumor, and we didn't know if she was going to uhm, to make it. And so one of my biggest support systems was my teacher. And I thought I'm going to be like that. She's kind, and I want to be a kind teacher.</td>
</tr>
<tr>
<td>Stacy</td>
<td>Social Utility</td>
<td>It had always kinda been in the back of my mind. I went to a private school so it was a smaller community and just kind of took some kids under their wings so I kinda wanted to just kind of pay it forward before that term even existed.</td>
</tr>
</tbody>
</table>

Contrary to prior research, of the four teachers who entered the profession as a “fallback” career, two were identified as Engaged, one Overextended, and one met the
Burnout profile. Prior teaching experience, personal utility (e.g., salary), and intrinsic motivators were also not consistently associated with a particular burnout profile. However, consistent with prior research, the two teachers who entered the profession due to a perceived social utility value (an interest in helping others) were identified as Engaged and reported low burnout scores.

**Collaboration**

All of the interviewees described school cultures, which featured administratively mandated collaborative activities. All four schools have professional learning communities established by the building principal as well as scheduled grade level planning time. Interviewees identified additional structured collaborative activities including monthly staff meetings and book studies.

In discussing the collaborative environment at their schools, interviewees had two differing perspectives. Individuals meeting the burnout and overextended profile types identified a feeling of forced or mandatory collaboration that was often ineffective. In contrast, interviewees meeting the Engaged profile type spoke positively about the collaborative efforts at their schools. According to Maslach and Leiter (2016), “A clear link has been found between a lack of control and burnout. On the contrary, when employees have the perceived capacity to influence decisions that affect their work, to exercise professional autonomy, and to gain access to the resources necessary to do an effective job, they are more likely to experience job engagement” (p. 105). Although all four schools had structures in place to foster collaboration, the perspective with which a teacher approached the mandatory collaboration influenced their responses either positively or negatively.
**Forced Collaboration.** A theme that emerged from the interviews with individuals meeting the Burnout and Overextended profiles was a negative association with forced collaboration. While Jessica acknowledged the potential benefits of collaboration, the lack of flexibility to form impactful relationships impeded the collaborative environment in her building. She felt her school did not invest in the development of a true professional “rapport” and that the collaborative relationships she experienced lacked a feeling of support. According to Jessica, the ability to enter another teacher’s classroom and productively “bounce” ideas off each other doesn’t naturally and has to be fostered through the development of real, meaningful relationships. Alyssa echoed a similar sentiment sharing that teachers in her building have “fragmented conversations” and limited time to interact. Alyssa questioned the “common sense” of her building administrator in the choice to mandate relationships between teachers rather than allowing them to develop naturally. She shared, “I think that's something schools miss sometimes is you know we've got to let teachers find the people you know that they work well with and put them together and magic happens. But it doesn't always happen that way…. It's common sense, but it doesn't always happen. Common sense isn't always a number one priority in the school.”

For Suzanne, being forced into a collaborative relationship felt like a “waste of time.” She felt when she was “required to do something with other teachers” she wasn’t able to spend time in her own classroom completing tasks that she viewed a “more important things to do.” While acknowledging that some teachers may find the structured collaboration helpful, Suzanne felt the imposed interactions prevented her from being “somewhere else making a difference.”
Similar to the teachers fitting the burnout profile, the two teachers identified as Overextended also expressed concern about forced collaborative settings. For Kristin, being pushed into collaborative planning settings was uncomfortable and unproductive:

Yeah, yeah, it was really painful in a way when we were told we had to plan together because it was like I couldn't think that way. I couldn't think in a group mind, I needed like quiet space. My own computer. When the kids were at specials, we'd be…planning. Uhm, but personally I started off as it's just my style, I'm very independent and since we departmentalized when I started off, we did not co-plan. It wasn't my style. I would do things by myself and I would figure it out by myself.

For Kristin, the structured collaborative activities occurring at her school challenged her sense of professional autonomy. As expressed in the passage above, Kristin desired not only her own physical space to complete her planning, but also the freedom to work independently in the way she was most comfortable. By describing the process of collaboration as “painful” she is expressing her desire to determine how she makes instructional decisions for her own classroom.

Veronica indicated that she “loved all of the teachers” in her building, but worked mostly with the paraprofessionals assigned to her preschool classroom. Veronica did not identify any certified teachers that she collaborated with in her building and none of the other certified teachers identified her as a collaborator. As the only preschool teacher in her building, Veronica felt many of the school’s collaborative initiatives were not relevant to her role. Within her school’s network on the collaboration relationship, Veronica had zero in-degree and out-degree ties. Her position as the sole preschool
teacher in the building created an isolating environment where collaboration between certified teachers and herself was non-existent.

For Veronica, the lack of grade-level peers resulted in forced collaboration that was ineffective. Although she had previously shared with administrators that the required collaboration was not useful to her due to the lack of relevance to her teaching assignment, she was still expected to participate. She found the process “so frustrating because it looked like I could be using the time to do other things.” By not acknowledging the clear disconnect between her role and the mandatory meetings, Veronica felt disrespected as a professional. “We’re professionals and should be treated like professionals to know that if, if, if you're not, if this doesn't apply to you, you're going to do something that's…I'm going to use my time wisely. But [they] micro manage everything.”

Teachers experiencing indicators associated with Burnout and Overextended profiles expressed a loss of autonomy and control in determining how and when to collaborate with their colleagues. Although collaboration was occurring through the administrative structures in place, the resulting relationships were not productive in supporting the professional well-being of the teachers involved. When teachers felt the school environment was restrictive and did not allow for teacher input, the risk of burnout increased (Friedman, 1991).

**Positive Collaboration.** Unlike their Burnout and Overextended colleagues, the Engaged teachers expressed positive associations with collaboration. Annie found collaboration so beneficial that she would often initiate collaborative relationships. When asked to discuss school and district efforts to foster collaboration, Annie praised the
collaborative activities occurring at her school sharing that it is “wonderful and I wish that that could happen more.” She believed students benefit “tremendously” when teachers are given the opportunity to collaborate with peers in an instructional setting. She shared, “When there's two people in the room… you meet their [students’] needs. You work with a smaller group or you have two people you know, thinking of different things to help in one activity. You can talk about the student's growth… I think the students definitely benefit from collaboration.”

Like Annie, Molly found “value” in all of her collaborative relationships and shared, “Having multiple people look at a child and have different views, and different strategies to share is amazing.” This positive outlook toward collaboration was evident in Molly’s discussion of her school community. She viewed all her colleagues as potential supports to improve her professional practice. Additionally, Molly described a school culture that promoted collegiality and the development of personal relationships not just professional ones. The principal at Molly’s school, Southview, arranged for celebrations for faculty members such as baby showers and birthday parties and established opportunities for social engagement outside of the school setting. For Julie, the school-based structures around collaboration were helpful in her transition to the profession. In particular, the interactions with her professional learning community provided critical support. Julie shared that she was “kind of like very stressed out and wondering where I needed to go from there to kind of make some changes. So, I always reached out for any collaboration I needed.” Julie’s perspective on her school’s administrative decision-making was very positive indicating that the building administrators were “very understanding of what we have to do. They try to make it easier than harder.”
to the support from administrators, Julie felt “blessed with an amazing team” of colleagues who she felt made her job easier.

Samantha also felt that the supportive school environment positively impacted her professional outlook. “This is the right place… I enjoy my co-workers. I enjoy working with them…it's been a good experience….” The sense of community Samantha felt in her building was echoed by the other participants exhibiting and Engaged profile. Abigail succinctly summarized the sentiments of many of the Engaged teachers toward collaboration sharing, “We learn so much from each other.”

Having a positive perspective on structured collaboration appears to protect teachers from the burnout risk associated with administratively-imposed collegial connections. A perceived strong connection to a school community can protect against the effects of burnout (O’Brennan, Pas, & Bradshaw, 2017; Pas, Bradshaw, & Hershfeldt, 2012). Rather than viewing structured collaboration as a loss of autonomy, the Engaged teachers perceived the opportunity to collaborate as beneficial to both themselves professionally as well as their students.

**Teacher Comparison by Burnout Profile**

To explore further how perception toward collaboration can buffer against the potential negative effects of overcentralization, the themes identified from the four most central (based on in-degree value) interview participants were compared. Two of the participants, Annie and Molly aligned with the engaged profile while Jessica’s burnout indicator scores fit the burnout profile. The fourth teacher, Stacy, reported burnout indicator scores that did not fit a defined profile type although her emotional exhaustion
score was high. All four teachers identified as leaders within their school network. The two Engaged teachers viewed this leadership role positively. Annie stated, “…I feel like I’m a leader in our school…you know I’m a veteran teacher.” Molly shared, “I think I’m kind of…like the go to. I feel like people are comfortable talking to me.” Both Annie and Molly intended to continue advancing in their leadership role in their schools through opportunities such as membership on the site-based decision making council and sponsorship of afterschool activities. In her role as math specialist, Molly was “hopeful” that in the upcoming school year more teachers in the building would seek out her support and collaboration. Annie also found the opportunity to co-teach to be “a great thing” and an enjoyable part of her role in the building.

In contrast, Jessica and Stacy had more conflicted viewpoints on their leadership role. When asked about her relationship with her colleagues, Stacy shared, “I think that as far as my ability to teach, I think I’m pretty well respected. Me as a person, I think it depends on who you ask.” While Stacy felt her role as a teacher-leader had given her the opportunity for “great conversations,” she felt some teachers viewed her as a “grouchy curmudgeon.” Stacy indicated her elevation as an instructional model affected her interactions with her colleagues. “I feel like I have, this is gonna sound pious or pompous, I feel like the administrators have put me up on a pedestal to a point where, you know, I sort of became who a lot of the teachers looked at as a model or an example of how to teach which I didn’t and don’t love.”

Jessica reported the highest in-degree value of all interview participants indicating that she was one of the more central members of her school’s network. However, Jessica’s out-degree value was the second lowest of the group. Within her school
community, Jessica’s expertise as a speech pathologist required that she collaborate with nearly all staff members in some capacity. Although interacting regularly with the faculty, Jessica felt her contributions were not valued in a truly collaborative way. Jessica shared, “There’s times when I offer to do things or be on a committee, even with the speech and like, that I’m not utilized. I don’t think given what my interests are you know, that drives you a little crazy.”

Perception of collaboration appeared to either buffer or exacerbate the professional burnout associated with their school roles. The central teachers who viewed the collaborative activities as positive opportunities for personal or professional growth reported low burnout indicator scores for both emotional exhaustion and depersonalization. In contrast, the central teachers who viewed collaboration as burdensome or unnecessary reported high emotional exhaustion scores.

Within the literature, two distinct attitudes toward autonomy have been identified: reactive and reflective. Individuals with a reactive perspective toward autonomy focus on independence and non-reliance while a reflective perspective toward autonomy is “inherently interpersonal” referring to the “personal choice and freedom to act in a self-directed manner in an inherently interdependent manner” (Vangrieken, Groseman, Dochy, & Kyndt, 2017, p. 312). A reactive attitude hinders collaboration while a reflective attitude can foster collaboration. The central actors aligning with the Engaged profile exhibited a reflective perspective toward autonomy and embraced the collaborative opportunities within their buildings. In contrast, the central actors aligning with the Burnout and Overextended profiles exhibited a reactive attitude and therefore viewed the collaborative activities as invasive and unnecessary.
Definition of Collaboration by School

The term collaboration has been used to describe a variety of activities and interactions within the school environment (Powell, 2004). Through the social network survey, each member of the school network was asked to identify the individuals with whom they collaborate. By leaving the prompt open-ended, participants were able to interpret for themselves what constitutes a collaborative relationship. In an effort to explore school-based definitions of collaboration within the four participant sites, the interviewees’ interpretations of collaboration were analyzed.

Collaboration at Main Street Elementary. At Main Street Elementary, the three interviewed teachers had three distinct interpretations of collaboration. For Alyssa, collaboration was defined as “regular meetings” with other teachers guided by “an agenda…with relevant topics.” Collaborative activities included co-planning of lessons. On the other hand, Abigail viewed collaboration as a part of her role as a special educator stating that collaboration occurs when a teacher goes “into the classroom” to co-teach with another educator. The final interviewee from Main Street, Amanda, interpreted collaboration as instructional activities and “project driven stuff” which provided “unique” learning opportunities for students.

Collaboration at Greene Elementary. For the teachers at Greene Elementary, the viewpoints on collaboration were also varied. Kristin shared that collaboration occurs when teachers “bounce ideas or give our impressions of what we’re learning about.” Similarly, Linda viewed collaboration as occurring, “everyday talking to one another. Not having a formal meeting, just after something happens in the classroom, being able to go next door and talk it through.” Conversely, Rebecca indicated that collaboration occurred
in structured settings like PLCs when teachers are given the opportunity to discuss “what we’re seeing in the classroom and what we can do to help our students.” Suzanne shared that collaboration involves co-teaching but indicating that this type of collaboration can be challenging if “teaching with someone who doesn’t teach the same way I do or have the same philosophy.” Greene Elementary had recently changed from a school-wide workshop model requiring self-contained classrooms to a model supporting departmentalized instruction. The new model was implemented to foster collaboration across grade levels while support the identification of content experts at each grade. Two of the interviewees felt the new model would be beneficial for both students and faculty, while the other two interviewees were more skeptical.

**Collaboration at Southview Elementary.** Two of the teachers at Southview Elementary shared a similar definition of collaboration. Both Veronica and Annie viewed collaboration as co-teaching with a colleague. Additionally, all three teachers interviewed shared that collaboration occurs between teachers during scheduled meetings and co-planning blocks. The interviewees from Southview praised the building principal and other faculty members for fostering a supportive environment. Annie shared, “I mean we just have a very positive atmosphere in our building. So, obviously that’s always great and I feel like when someone is down or negative, there’s a lot of compassion and people help them to bring them back up.”

**Collaboration at Lakeside Elementary.** At Lakeside Elementary, two of the teachers interviewed shared a common definition of collaboration. Both Julie and Jessica define collaboration in the school setting as co-teaching lessons with another teacher. Additionally, Julie included co-planning with other teachers as collaboration stating, “I
have two separate teachers that I plan with and collaborate with in different subjects.”

Samantha had a more general definition of collaboration indicating that collaboration occurs when teachers share strategies and discuss instructional topics. For Suzanne, a special area teacher, collaboration was viewed as teachers working together to create cross-curricular connections. Although a single definition for collaboration was not identified, Julie shared that the environment at Lakeside supported the development of teacher relationships sharing, “I am very appreciate of the school that I get to work in and the support that I have. I can reach out for any sort of help that I need….”

**Understanding of Collaboration.** Across the four sites, the interviewees shared very different interpretations and applications of collaboration. For some of the teachers, collaboration was an instructional practice in which teachers co-taught or co-facilitated learning opportunities within a classroom. For others, collaboration was defined as a professional learning endeavor where teacher interactions provided mentorship and support for educator growth. Still others viewed collaboration as a mostly administrative requirement guided by structured meetings and agenda-driven interactions. The lack of a consistent understanding of collaboration is reflected in the social network survey responses. When prompted to identify collaborators within their school network, the majority (>60 percent) of the identified relationships were not reciprocated. This indicates, for many of the teachers across the four school networks, the interpretation of the collaborative relationship is one-sided.

The interviewees’ varying perspectives on the benefits and constraints of collaboration may also help explain this finding. For example, Amanda shared a positive perspective on collaboration and identified nearly all teachers in her building as
collaborators with a normalized out-degree centrality of 0.909. On the other hand, Amanda’s colleague, Alyssa, expressed a more negative outlook on collaboration and reported a normalized out-degree centrality of 0.03. This low centrality score indicated she identified very few individuals as collaborators within her school. However, when measuring in-degree centrality, Alyssa was the more central of the two teachers. This could indicate that Alyssa applied a more narrow definition of collaboration while Amanda viewed all of her colleagues as collaborators simply because they were members of the school’s professional community. Given that in-degree centrality is associated with a statistically significant increase in depersonalization score, Amanda’s high burnout indicators scores could be reflective of the disconnect between her perception of collaboration and that of her peers.

**Teacher as Professional**

Although not directly related to the research goals of the study, an interesting theme emerged from the participant interviews. Regardless of burnout profile, all teachers identified feeling misunderstood as professionals by those not directly involved in education. Many felt that society viewed teachers as “glorified babysitters” with short working hours and summers off. Suzanne shared:

I think a lot of times people think teachers are, you know, these sweet little loving, you know, little I don't know, little women that just, you know, run around and sit with the kids all day and that's just what they love to do and, you know, I think that's, lot of obviously the misconception.

For the participants, a lack of respect and understanding for their professional “value” was a great concern and focal point in the interviews. At the time of data collection in the
spring of 2018, educators in Kentucky were confronted with a challenging political climate concerning the funding of key educational programs and the state teacher retirement system. The subsequent political debate concerning funding and the associated implications for teachers and students motivated many educators to advocate for professional respect. Sadly, many of the comments from key political figures were overtly critical toward teachers. Given this reality, the responses from the interviewees concerning their profession is not surprising. As the study population reported statistically significant higher values of emotional exhaustion than the comparison population, the consequences of this professional disrespect is worth additional exploration as it may contribute to teacher burnout.

Chapter Conclusion

Although strong collegial relationships have been associated with a reduced risk of professional burnout, the results of the current study indicate that some professional relationships may increase burnout symptoms, particularly depersonalization. The following research questions guided the study:

Research Question 1: To what extent is network connectivity associated with symptoms of teacher burnout?

Research Question 2: What are the perceived benefits or constraints associated with network centrality on the collaboration relationship?

A significant negative relationship was identified between number of in-degree ties within the collaboration relationship in the school network and the burnout indicator of depersonalization. Within the collaboration relationship, in-degree ties represent the
number of individuals that identify a teacher as a collaborator. While number of out-degree ties was associated with a reduction in burnout indicator scores, greater number of in-degree ties increased the burnout risk.

The results of the analysis of the semi-structured interviews provide an important context from which to interpret the quantitative results. All four schools had structures in place to foster collaborative relationships. The analysis of the semi-structured interviews indicated that the administrative requirement for collaborative activities was implemented to improve school culture and instruction. A teacher’s perspective toward the forced collaboration was found to be a factor in the impact the practice had on the teacher’s professional outlook and burnout scores. The teachers with low burnout indicators aligning with the Engaged profile found the collaborative opportunities beneficial and showed a reflective perspective toward professional autonomy. In contract, teachers with high burnout indicators matching the Overextended and Burnout profiles found the forced collaboration to be burdensome and exhibiting a reactive perspective toward professional autonomy.

Striking a balance between fostering an environment conducive to collegiality in an effort to create strong, supportive collaborative ties while avoiding the forced development of unproductive or potentially harmful relationships is a challenge for administrators worth additional exploration.
CHAPTER 5. IMPLICATIONS

The purpose of this study was to evaluate the impact of collaborative ties within the school network on professional burnout. With high teacher attrition rates and a growing need to retain a high-quality teaching population, addressing the damaging effects of professional burnout is a priority. Prior research has provided a positive outlook on professional collaboration and strong collegial ties with the school community. It has been suggested that the more connected a teacher is to her colleagues, the more protected she is from burnout (e.g., De Stasion, Fiorilli, Benevene, Uusitalo-Malmivaara, & Di Chicacchio, 2017). Additionally, collaboration among teachers has been shown to improve instructional practice and increase student learning outcomes (e.g., Risser & Bottoms, 2014; Vescio, Ross, & Adams, 2008). In response, many school administrators have elected to impose structured collaboration within their buildings through mandated participation in collaborative activities (e.g., professional learning communities, peer mentorship, or co-teaching). Teacher leaders, who are respected in the school community and valued for their instructional expertise, are often the primary recipients of these forced collaborative relationships.

In order to explore the potential benefits or consequences of a highly connected position within the school network, an exploratory study was conducted focusing on two research questions.

*Research Question 1:* To what extent is network connectivity associated with symptoms of teacher burnout?

*Research Question 2:* What are the perceived benefits or constraints associated with network centrality on the collaboration relationship?
It was hypothesized that connections within the school network can protect a teacher from burnout until the responsibilities associated with maintaining those relationships becomes burdensome resulting in increased professional burnout.

The study used a mixed-methods design to explore the perceived benefits and constraints of network centrality on reported burnout. The social networks within each of four Kentucky elementary schools were analyzed to determine the level of connectivity for each certified staff member. Although participants were asked to identify the colleagues fulfilling three school-based relationships, the focus of the study was on collaboration. The level of centrality was calculated for each participant based on number of network ties both received and directed. Centrality scores were included with previously identified variables associated with teacher burnout including level of perceived stress, perception of school environment, principal support, and other demographic data in a series of hypothesis tests to assess the relationship between network connectivity and reported burnout. A series of semi-structured interviews were conducted with a selection of participants to further explore the impact of network connections on participant burnout.

Findings

The exploratory study produced several key findings. Initially, the results from each participating school will be discussed. Then, the findings from the full data set and semi-structured interviews will be explored.

School Level Findings

Main Street Elementary. At Main Street Elementary, teachers with high out-degree centrality had lower reported burnout indicators while those with high in-degree
centrality reported higher burnout indicators. Although this result was not statistically significant, likely due to the small sample size, the finding is important. It appears that having a large network of teachers with whom one can access to collaborate can improve an individual’s professional outlook. Conversely, being identified as a collaborator may have the opposite effect. Main Street reported the lowest arc reciprocity on collaborative ties of the four schools in the study. For each tie within the network, only approximately 33% of the ties were reciprocated. This finding indicates that teachers at Main Street may have different definitions of what it means to be in a collaborative relationship. This finding is supported by the varying definitions of collaboration shared by the interview participants.

**Greene Elementary.** The school network at Greene Elementary produced similar results to that of Main Street. Out-degree centrality was positively associated with an increase in personal accomplishment scores. This result was statistically significant, although given the small sample size; the result should be interpreted cautiously. At Greene, having a large number of identified collaborators to access appears to improve one’s sense of accomplishment and competency as a teacher. However, as was found at Main Street, depersonalization values increased when a teacher become more central as measured by in-degree. Being identified as a collaborator did not protect a teacher from burnout whereas being able to identify collaborators did reduce burnout risk.

**Southview Elementary.** The school network at Southview Elementary was the only network of the four studied where network centrality (both in-degree and out-degree) was associated with reduction of burnout symptoms. At Southview, being well-connected with the school’s network appears to produce only positive outcomes. The
collaboration relationship at Southview reported the largest reciprocity (>40 percent) of the four schools in the study. The interviewees from Southview Elementary praised the building administrator for his role in fostering a school culture that promoted the development of a strong and supportive collegial community.

**Lakeside Elementary.** The collaborative relationship with the school network at Lakeside Elementary reported a statistically significant correlation between in-degree network centrality and depersonalization score. Central teachers reported a 22.621 increase in depersonalization score for every one standard deviation increase in in-degree value. As with Main Street and Greene Elementary, it appears that frequent identification as a collaborator can have unfortunate consequences. Although the small sample size may affect statistical significance levels, Lakeside Elementary was the largest school in the study. The regression models tested using the full dataset controlled for this possible variance through the inclusion of school indicator variables. Unlike the other schools in the study, out-degree centrality was associated with an increase in depersonalization score. However, out-degree centrality was associated with a reduction in emotional exhaustion.

**Full Study Population**

*Finding #1: Centrality within the collaboration relationship was significantly correlated with the professional burnout indicator of depersonalization.*

As was hypothesized, overcentralization was associated with an increase in reported professional burnout indicators. Although a significant relationship was not identified between a central network position and the burnout indicators of emotional exhaustion and personal accomplishment, the study found a significant positive
relationship between number of collaborative ties directed toward a teacher and their depersonalization score on the Maslach Burnout Inventory. High depersonalization can manifest in symptoms of irritability and withdrawal from others. This finding is contradictory to the existing literature on burnout. Prior research has indicated that strong connections within the school community reduces burnout risk (e.g., Van Droogenbroeck, Spruyt, & Vanroelen).

Finding #2: Ties were centralized around a few key actors.

All four schools reported high percentages of degree centralization (ranging from 72 to 80 percent). This finding indicates that a few key actors are receiving the majoring the ties within the school network. One commonly agreed upon definition of a teacher-leader is one who provides leadership and guidance to their colleagues. By this definition, the central individuals can be assumed teacher leaders (Hill & Martin, 2014).

Finding #3: The majority of ties were not reciprocated on the collaboration relationship.

Within the four school networks, the majority of ties on the collaboration relationship were not reciprocated. Arc reciprocity ranged from 33% to 41% indicating that many of the identified collaborative relationships were not mutually identified.

Finding #4: The definition of collaborator varies for each person.

Given the low level of reciprocity, it can be assumed that teachers at the four schools had different interpretations of what it means to collaborate. Participants were asked to identify the teachers with whom they collaborate but a definition of “collaboration” was not provided. While this open-ended approach allowed for each participant to interpret the definition of collaboration for themselves, the results of the
survey highlighted an inconsistent view of what constitutes a collaborative relationship. The lack of mutual identification of collaborators can imply that, for some teachers, the relationship is one-sided. Where one teacher may feel the relationship is collaborative and benefiting both parties, the other teacher may view the relationship as providing guidance or mentorship.

Finding #5: All schools had structured, administratively-mandated collaboration.

Based on the analysis of the semi-structured interviews, all four schools in the study had structured collaboration in place within their buildings. These collaborative opportunities included professional learning communities, common planning time, scheduled staff meetings, and mandatory co-teaching.

Finding #6: Teacher perception of collaborative efforts within the school environment influenced their professional outlook and associated burnout.

Teachers with a positive perspective on collaboration reported low burnout indicator scores. In contrast, teachers with a negative perspective on collaboration reported high burnout indicator scores. Since all of the schools in the study had administrative structures in place to foster collaboration, the participatory mindset (either positive or negative) appears to play a role in the associated benefit or consequence of the collegial interactions. The finding is supported by the existing literature on professional burnout. Job satisfaction (or dissatisfaction) for teachers is often grounded in the autonomy afforded to them as professionals. According to Glazer (2018):

It is important to understand what kinds of autonomy might be salient for teachers. One could argue that the vast majority of teachers in the United States
have little autonomy if one considers the number of decisions made for them. They are told where to teach (a single classroom), when to teach (a specific, often arbitrary amount of time is assigned to each subject or class), whom to teach (they are given a roster of students), and what to teach (e.g., the Common Core State Standards). In such a context, the desire for autonomy could take many forms (p. 66).

While the mixed-methods design provided an opportunity to explore the contextual implications of the findings, the unique realities for each participant can complicate interpretations. Based on the results of this study, an additional administrative demand on teachers is often with whom they must collaborate. Teachers who view this requirement as an attack on their professional autonomy (reactive perspective) will likely respond negatively which can contribute to their subsequent burnout. In contrast, teachers who view structured collaboration as an opportunity to learn from their peers, grow as a professional, and enhance their leadership standing (reflective perspective) are more likely to benefit from the administrative mandate.

**Discussion**

The findings from this study produce a unique perspective on collaboration within the school network. As has been reported previously, level of connectivity within the school network as measured by the number of teachers one can identify as collaborators appears to mitigate (or not significantly increase) a teacher’s risk of professional burnout. However, being identified as a collaborator by a large number of teachers (in-degree) significantly increases one’s risk for depersonalization behaviors. Given that all four networks reported high percentages of degree centralization, it appears that a few key
actors (teacher leaders) at each school are the recipients of these collaborative ties. Since depersonalization is associated with feelings of annoyance and irritability, it can be assumed that being bombarded by a large number of colleagues can frustrate these key teachers. The low level of reciprocity in collaborative ties indicates that, for many teachers, the perception of collaborative benefit is one-sided. It is plausible that the most central teachers feel they have a limited community of true collaborators and instead find themselves providing mentorship and guidance to a disproportionate number of their fellow teachers.

**Implications for Practice**

As the nation continues to address a teacher shortage crisis, combating the mounting stressors driving educators from the profession is a priority. Burnout is a reality facing many teachers, as the challenges associated with the profession are numerous. Professional burnout is a complex phenomenon and the factors associated with the condition are numerous. Identifying, confronting, and combating burnout requires an awareness of the various social, emotional, and environmental variables influencing burnout risk. Prior research has shown the positive benefits of a strong school community in protecting teachers from the negative consequences of burnout (e.g., Langher, Caputo, & Ricci, 2017). According to Podolsky, Kini, Bishop and Darling-Hammond (2017), “…teachers’ career decisions are closely related to their opportunities for professional collaboration, shared decision making, and participation in teams that work toward common goals — all of which have been found to improve teacher efficacy and retention” (p.24).
The results of this exploratory study have found that not all collaborative relationships are beneficial. While a strong school community can buffer against the effects of professional burnout, mandatory collaboration creates a false sense of collegiality, which can prove damaging to the professional outlook of teachers. Hargreaves and Dawes (1990) refer to this mandatory collaborative culture as “contrived collegiality” (p.238). Although often used interchangeably, collaboration and collegiality are not synonymous. Collegiality within a school setting refers to the quality of the relationship between staff members (Kelchtermans, 2006). When relationships are imposed, unproductive and negative associations supplant the desired positive ones. “In such circumstances, with administrative colonization and surveillance of teachers’ collegial relations and non-classroom time, it is likely not only that contrived collegiality will fail to create an enduring collaborative culture, but also that it may additionally undermine those elements of trust, support, and relaxed informality that already exist” (Hargreaves & Dawe, 1990, p. 239). While opportunities to interact can lead to increased network connectivity (Atteberry & Bryk, 2010), the development of a successful community of practice cannot be forced.

Although administrative structures can be put into place to require collaborative activities, it is the development of a strong, collegial community that should be the priority for administrators. According to Shah (2012):

Schools that do not support collegiality among their staff and allow their teachers to work alone in their classrooms waste human resources and contribute to disenchantment with teaching as a career. It is warned that collegiality in any organization does not happen by chance; it needs to be structured, taught, and
learned. It is pointed out that laying the groundwork for a collaborative and collegial culture is essential for school leaders… (p. 1244)

However, the results of this study indicate that the process by which collaboration is encouraged should be carefully orchestrated. The hallmark of a truly collaborative culture is one in which “teachers interact knowledgeably and assertively with each other, rather than simply being congenial and complacent” (Datnow, 2011, p.194). According to Hargreaves (1994), administrators can support and facilitate collaborative cultures by scheduling opportunities for collegial interaction while allowing time for teachers to work together flexibly. When teachers perceive collegial relationships as valuable with a guiding belief that collaboration is enjoyable and productive, a culture of trust and support is developed (Datnow, 2011).

The unique findings at Southview Elementary help to support this point. Collaborative relationships (both those received and directed) were associated with reduced symptoms of professional burnout. Interviewees from this school praised the administrator for creating opportunities for the development of true, supportive relationship among faculty members. In addition to structured collaborative settings, teachers were encouraged to gather socially and the school practiced an open door policy to promote collegiality. Administrators who wish to foster a collegial school culture should create opportunities for teachers to develop collaborative relationships based upon

Future Research

The results of this exploratory study are just the beginning of a conversation on the impact of overcentralization within the school network. The professional outlook of teachers assuming a leadership role within the school network warrants further research.
Utilizing an SNA perspective on leadership identification, those individuals with the greatest number of ties are the de facto leaders within the school network. Understanding the power associated with centrality and utilizing these individuals to support the flow of resources can be critical to the professional growth and innovation occurring within a school (Daly, Moolenaar, Bolivar, & Burke, 2010).

Particular attention should be paid to the “invisible” network existing within the school, as the true leaders within the school network may not be those with formalized leadership roles. The four most central individuals (as measured by in-degree) that participated in the interviews all self-identified as teacher leaders although none had formal leadership roles. One teacher with high emotional exhaustion score shared that the increased visibility and imposed collegial interactions associated with her role was detrimental to her professional outlook. However, the two central teachers with low burnout (Engaged) profiles associated their positive professional perspectives with their leadership positions. The results from this study support that leadership (as measured by in-degree centrality) affects an individual’s risk for increased depersonalization, an indicator of professional burnout. However, the participatory mindset of the leader toward collaborative initiatives appears to somewhat mitigate that risk.

As more teachers are encouraged to adopt a leadership role within their schools, it is important to identify the appropriate support structure to foster a growing desire to lead while protecting the teacher from any unintended consequences or burdens associated with increased responsibilities. Further research on the process by which teacher leaders can develop a positive professional mindset and perspective may help buffer these critical team members from the negative effects of professional burnout.
Through social network analysis, the current study highlights the true collaborative relationships occurring within the four research sites and the associated burnout risk. The diverse interpretations of collaboration at each of the participating schools indicates that, although administrative structures exist to foster collaboration, a common understanding of collaborative support did not exist within the studied schools. Future studies may wish to explore how different perspectives on collaboration affect both the implementation and effectiveness of the intended support.

**Study Limitations**

Although the open-ended prompts utilized on the social network survey allowed each participant to identify their own definition of collaboration, the lack of a common, shared definition did limit the interpretations. Given the low level of reciprocity for the collaboration relationship at the four schools and the varying interpretations of collaboration shared during the interviews, it is evident that the study participants have a diverse interpretation of collaborative endeavors. Future studies may wish to address this variance in an effort to identify the specific implications of the various interpretations and applications of collaboration.

The current study focused on the collaborative networks within four distinct elementary schools. By restricting the identified collaborative ties to only those found within each school building, potential collaborative supports outside of the school (e.g., district-level collaborators) are not included within the analysis. Identifying the boundary for a whole-network study can be challenging. Although restricting the network to the relationships that exist within the school walls is common practice within educational
applications of social network analysis, the possibility of capturing an “incomplete” network is a limitation.

Additionally, the exploratory study included only four elementary schools in Kentucky. The study used a cross-sectional design with no longitudinal analysis. Therefore, casual relationships cannot be identified. In order to apply the findings of the study more broadly, additional research with a larger population over an extended period is recommended.

Finally, the study population reported significantly higher emotional exhaustion scores and lower depersonalization scores than the comparison population provided by Maslach, Jackson, and Leiter (2016). Additionally, study participants reported significantly higher personal accomplishment scores. Given the challenging political climate in place in Kentucky during the data collection, these scores are not surprising. Although the manifestation of burnout is unique to each individual, the study results may not apply to teacher populations with burnout scores more similar to the comparison population.

Chapter Conclusion

Job stress will likely always be a part of the teaching profession as it is with many service-related professions. Efforts to protect teachers from the negative ramifications of this stress and subsequent burnout should be emphasized. Although the sharing of knowledge and expertise with others comes at an implicit cost to an individual participant (Rienties and Kinchin, 2014), creating opportunities for teachers to form healthy collegial relationships while avoiding shallow administratively mandated connections may help to mitigate the risk of professional burnout. In particular, formal building leaders (e.g.,
principals) should be cognizant of how administrative structures may unintentionally burden teacher leaders who, in their central roles within their school networks, often receive the lion’s share of the responsibility to support these initiatives.
Dear ____________.

Good Morning! I am writing to request your school’s support as a participant site for my dissertation research through the University of Kentucky. **This will require no more than 20 minutes of your staff’s time at an upcoming staff meeting.**

My research is focused on teacher burnout which has been empirically shown to be a legitimate and present concern in schools. Although all types of contact professions are susceptible to burnout, teachers have repeatedly been shown to report the highest levels of burnout. This study will contribute to the knowledge base on this issue by using Social Network Analysis (SNA) to explore burnout and network position and the associated benefits and constraints of various roles within the whole school network.

The data collection portion of my research includes **one administration of an electronic survey** that will take no more than 15 minutes to complete. Based on the results of the survey analysis, some individuals may be contacted for in-person interviews to occur outside of regular school hours. Participation is voluntary and all data will remain confidential. No identifiable information will be shared at any time during the course of the study.

Ideally, this electronic measure will be completed during a staff meeting/gathering. I am happy to attend the meeting and share a brief (5 minute) overview of the research project and then share the link to the survey which can be completed onsite. **If you agree to allow access to your school, I am happy to provide a meal for your staff as an appreciation for their time.**

If you are willing to participate, please provide a letter of support on your school’s letterhead by **Friday, January 5.** For your convenience, I have attached a sample letter. The letter can be returned electronically or via fax.

I truly appreciate your time and consideration!
APPENDIX B. PARTICIPANT SURVEY

Background Information

To Elementary School Staff Member:

Researchers at the University of Kentucky are inviting you to take part in a survey about school networks and teacher burnout.

Although you may not get personal benefit from taking part in this research study, your responses may help us understand more about the associated benefits and constraints of various roles within the whole school network in regard to teacher burnout. Some volunteers experience satisfaction from knowing they have contributed to research that may possibly benefit others in the future.

If you decide to take part in the study, it should be because you really want to volunteer. You will not lose any services, benefits or rights you would normally have if you choose not to volunteer. In order to volunteer, you must be over the age of 18.

The survey will take about 12 minutes to complete.

Although minimal, risks to participants include impact to social status and privacy. Data collection for this project required identification of relationships between individuals. While these data will be collected using the actual names of staff members, all data will be reported with names removed.

Your response to the survey will be kept confidential to the extent allowed by law. When we write about the study you will not be identified.

Identifiable information such as your name or date of birth may be removed from the information collected in this study. After removal, the information may be used for future research or shared with other researchers without your additional informed consent.

We hope to receive completed questionnaires from about 125 people, so your answers are important to us. Of course, you have a choice about whether or not to complete the survey, but if you do participate, you are free to discontinue at any time.

Please be aware, while we make every effort to safeguard your data once received from the online survey/data gathering company, given the nature of online surveys, as with anything involving the Internet, we can never guarantee the
confidentiality of the data while still on the survey/data gathering company’s servers, or while en route to either them or us. It is also possible the raw data collected for research purposes may be used for marketing or reporting purposes by the survey/data gathering company after the research is concluded, depending on the company’s Terms of Service and Privacy policies.

If you have questions about the study, please feel free to ask; my contact information is given below. If you have complaints, suggestions, or questions about your rights as a research volunteer, contact the staff in the University of Kentucky Office of Research Integrity at 859-257-9428 or toll-free at 1-866-400-9428.

Thank you in advance for your assistance with this important project. To ensure your responses/opinions will be included, please submit your completed survey by April 1, 2018.

Sincerely,

Meredith Brewer

Education Policy and Evaluation, College of Education, University of Kentucky

What is your name?

What is your position/title?

- Classroom Teacher
- Interventionist
- Principal
- Assistant Principal
- Instructional Coach
- Special Education Teacher
- Instructional Assistant
- Special Area Teacher (e.g., art, music)
- Other
How long have you been employed at your current school?

- This is my first year.
- 1-2 years
- 3-5 years
- 6-10 years
- 11-15 years
- 16-20 years
- More than 20 years

What grade level do you teach? Choose all that apply.

- Preschool
- Kindergarten
- First Grade
- Second Grade
- Third Grade
- Fourth Grade
- Fifth Grade
- n/a

How many years have you been in the education profession?

- This is my first year.
- 1-2 years
- 3-5 years
- 6-10 years
- 11-15 years
- 16-20 years
- More than 20 years

What is your highest degree attained?
What is your gender?
- Male
- Female

What is your age?

<table>
<thead>
<tr>
<th>Self-Efficacy Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>This questionnaire is designed to help us gain a better understanding of the kinds of things that create difficulties for teachers in their school activities. Please indicate your opinion about each of the statements below. Your answers are confidential.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>How much can you do to control disruptive behavior in the classroom?</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>How much can you do to motivate students who show low interest in school work?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td>How much can you do to get students to believe they can do well in school work?</td>
</tr>
<tr>
<td>How much can you do to help your students value learning?</td>
</tr>
</tbody>
</table>
To what extent can you craft good questions for your students?  

How much can you do to get children to follow classroom rules?  

How much can you do to calm a student who is disruptive or noisy?  

How well can you establish a classroom management system with each group of students?  

How much can you use a variety of assessment strategies?  

To what extent can you provide an alternative explanation or example when students are confused?  

How much can you assist families in helping their children do well in school?  

How well can you implement alternative strategies in your classroom?  

**Perceived Stress Scale**

The questions in this scale ask you about your feelings and thoughts during the last month. In each case, you will be asked to indicate how often you felt or thought a certain way. Although some of the questions are similar, there are differences between them and you should treat each one as a separate question. The best approach is to answer each question fairly quickly. That is, don't try to count up the number of times you felt a particular way, but rather indicate the alternative that seems like a reasonable estimate.

In the last month, how often have you been upset because of something that happened unexpectedly?  

<table>
<thead>
<tr>
<th>Question</th>
<th>Never</th>
<th>Almost Never</th>
<th>Sometimes</th>
<th>Fairly Often</th>
<th>Very Often</th>
</tr>
</thead>
<tbody>
<tr>
<td>In the last month, how often have you felt that you were unable to control the important things in your life?</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>In the last month, how often have you felt nervous and “stressed”?</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>In the last month, how often have you dealt successfully with irritating life hassles?</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>In the last month, how often have you felt that you were effectively coping with important changes that were occurring in your life?</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>In the last month, how often have you felt confident about your ability to handle your personal problems?</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>In the last month, how often have you felt that things were going your way?</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>In the last month, how often have you found that you could not cope with all the things that you had to do?</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>In the last month, how often have you been able to control irritations in your life?</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>In the last month, how often have you felt that you were on top of things?</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>In the last month, how often have you been angered because of the things that happened that were outside your control?</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>In the last month, how often have you found yourself thinking about things that you have to accomplish?</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>In the last month, how often have you been able to control the way you spend your time?</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>

**Personality Inventory**
Here are a number of personality traits that may or may not apply to you. Please select a number next to each statement to indicate the extent to which you agree or disagree with that statement. You should rate the extent to which the pair of traits applies to you, even if one characteristic applies more strongly than the other.

I see myself as:

<table>
<thead>
<tr>
<th>Extraverted, enthusiastic</th>
<th>Disagree Strongly</th>
<th>Disagree Moderately</th>
<th>Disagree a Little</th>
<th>Neither Agree Nor Disagree</th>
<th>Agree a Little</th>
<th>Agree Moderately</th>
<th>Agree Strongly</th>
</tr>
</thead>
<tbody>
<tr>
<td>Critical, quarrelsome</td>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Dependable, self-disciplined</td>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Anxious, easily upset</td>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Open to new experiences, complex</td>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Reserved, quiet</td>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Sympathetic, warm</td>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Disorganized, careless</td>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Calm, emotionally stable</td>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Conventional, uncreative</td>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

**School Level Environment Survey**

The following statements are to be considered in the context of the school in which you work and your actual working environment. Think about how well the statements describe your school environment. Indicate your answer by selecting the most appropriate response.

<table>
<thead>
<tr>
<th>Teachers design instructional programs together.</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Statement</td>
<td>Strongly Disagree</td>
<td>Disagree</td>
<td>Neutral</td>
<td>Agree</td>
<td>Strongly Agree</td>
</tr>
<tr>
<td>---------------------------------------------------------------------------</td>
<td>-------------------</td>
<td>----------</td>
<td>---------</td>
<td>-------</td>
<td>----------------</td>
</tr>
<tr>
<td>Most students are well-mannered and respectful to the school staff</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Instructional equipment is not consistently available.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Teachers are frequently asked to participate in decisions.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>New and different ideas are always being tried out.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>There is a good communication among teachers.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Most students are helpful and cooperative with teachers.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>The school library has sufficient resources and materials.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Decisions about the school are made by the principal.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>New courses or curriculum materials are seldom implemented.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I have regular opportunities to work with other teachers.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Students in this school are well behaved.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Digital equipment, computers and Internet access are readily available.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I have very little to say in the running of the school.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>We are willing to try new teaching approaches in my school.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I seldom discuss the needs of individual students with other teachers.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Most students are motivated to learn.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>The supply of equipment and resources is not adequate.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Teachers in this school are innovative.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Classroom instruction is rarely coordinated across teachers.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Good teamwork is not emphasized enough at my school.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>
Principal Support Survey

The following statements are about your perceptions of supportive behaviors given by your principal. Please indicate the extent to which you agree with each of the following statements from STRONGLY DISAGREE (1) to STRONGLY AGREE (6) by selecting the appropriate response.

My principal:

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Disagree</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>Strongly Agree</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gives me undivided attention when I am talking.</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
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</tr>
<tr>
<td>Is honest and straightforward with the staff.</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Gives me a sense of importance-- that I make a difference.</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Supports my decisions.</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Provides data for me to reflect on following classroom observations of my teaching.</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Provides frequent feedback about my performance.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Helps me evaluate my needs.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trusts my judgment in making classroom decisions.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shows confidence in my actions.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Provides opportunities for me to grow professionally.</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Encourages professional growth.</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Provides suggestions for me to improve my instruction.</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Provides time for various non-teaching responsibilities (e.g., IEPs, conferences, test students)</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Provides adequate planning time.</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Provides extra assistance when I become overloaded.</td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Equally distributes resources and unpopular chores.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Maslach Burnout Inventory

Following are 22 statements of job-related feelings. Please read each statement carefully and decide if you ever feel this way about your job. If you have never had this feeling, select the number "0" zero. If you have had this feeling, indicate how often you feel it by selecting the number (from 1 to 6) that best describes how frequently you feel that way.

I feel emotionally drained from my work.

The Maslach Burnout Inventory is a proprietary instrument. Access to the assessment is available through Mind Garden, Inc.
The Maslach Burnout Inventory is a proprietary instrument. Access to the assessment is available through Mind Garden, Inc.

School Network- Instructions

The remaining questions ask that you provide the names of colleagues with whom you interact in three different contexts, advice on math instruction, instructional collaboration, and friendship.

Please only select the colleagues that fit the relationship in question. While these data will be collected using the actual names of staff members, all data will be reported with names removed.

School Network- Math Advice

In this school, to whom do you turn for advice or information about mathematics instruction?
What is your frequency of interaction with the people listed above regarding mathematics education/instruction?

<table>
<thead>
<tr>
<th></th>
<th>Daily</th>
<th>Once a week</th>
<th>Once a month</th>
<th>Once a semester</th>
<th>Once a year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sally Teacher</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>John Doe</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Suzie Educator</td>
<td>☐</td>
<td>☐</td>
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**School Network - Collaboration**

With whom in your school have you collaborated on instructional matters?

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<td>Sally Teacher</td>
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<td>Suzie Educator</td>
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What is your frequency of interaction with the people selected above regarding instructional collaboration?

| For each colleague selected above, what is the frequency of the interaction? |
|-----------------------------|-----------------|-----------------|-----------------|-----------------|
|                            | Daily           | Once a week     | Once a month    | Once a semester | Once a year     |
| Sally Teacher              | ○               | ○               | ○               | ○               | ○               |
| John Doe                   | ○               | ○               | ○               | ○               | ○               |
| Suzie Educator             | ○               | ○               | ○               | ○               | ○               |
| Mike Mathematics           | ○               | ○               | ○               | ○               | ○               |
| Ernie English              | ○               | ○               | ○               | ○               | ○               |
| Tammy Topical              | ○               | ○               | ○               | ○               | ○               |

School Network - Friendship

In your building, who do you count as friends?

☐ Sally Teacher
☐ John Doe
☐ Suzie Educator
☐ Mike Mathematics
☐ Ernie English
☐ Tammy Topical

What is your frequency of interaction with the friends selected above?

<p>| For each colleague selected above, what is the frequency of the interaction? |
|-----------------------------|-----------------|-----------------|-----------------|-----------------|
|                            | Daily           | Once a week     | Once a month    | Once a semester | Once a year     |
| Sally Teacher              | ○               | ○               | ○               | ○               | ○               |
| John Doe                   | ○               | ○               | ○               | ○               | ○               |
| Suzie Educator             | ○               | ○               | ○               | ○               | ○               |
| Mike Mathematics           | ○               | ○               | ○               | ○               | ○               |</p>
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APPENDIX C. INTERVIEW RECRUITMENT EMAIL

Dear ______________________,

Thank you for completing the online survey for my dissertation research project exploring school networks and teacher burnout. I am writing to invite you to participate in an additional component of the research, a one-time, in-person interview. As a thank you for your time, you will receive a $20 gift card.

You have been selected because the analysis of the survey indicated that you may have a unique perspective about your school’s network which is important to explore as part of the research project.

Participation in this portion of the project will approximately 60 minutes. Your participation is completely voluntary. The interview will take place on campus or a public library during a time that is convenient for you.

More information about the project can be found in the attachment to this email.

If you would like to participate, please respond to this email and include the completed, signed consent form (attached) so we can arrange a time to meet.

Please be assured that your participation is voluntary and confidential: no one at your school will know whom we have interviewed and, in writing up our results, nothing you say will be attributed to you.

I look forward to hearing from you.
APPENDIX D. INTERVIEW PROTOCOL

Introduction: Thank you for agreeing to participate! There are two primary foci for our interview. First, we will discuss your personal journey into the teaching profession and your current professional outlook. Second, we will discuss collegial collaboration within your school community.

QUESTIONS ABOUT TEACHER MOTIVATION

• Why did you choose to become a teacher?

• What influences did other people have on your consideration to enter teaching?
  o Follow-up: Were you ever discouraged to enter the profession? If so, in what ways and by whom?

• There has been a lot of focus both in the media and in academic research on the workloads of teachers. How would you describe your workload?
  o Follow-up: In what ways are you able to determine your workload?
  o Follow-up: In what ways is your workload determined by others?

• How does your definition of yourself as a professional differ from how others might describe teachers as professionals?

• What are the ways that you are treated as a professional that contribute to your decision to remain in the teaching profession?
  o Follow-up: What are the ways that you are treated as a professional that challenge your decision to remain in the teaching profession?

• When you reflect back on your career to date are you happy with your choice to be a teacher? If so, why? If no, what about the choice do you regret?

• What are your professional goals for the next five years?

QUESTIONS ABOUT COLLABORATION

• What are the ways teachers can collaborate in regards to teaching and learning? Give some examples that you’ve experienced.

• What aspects of the collaboration have you felt worked well?

• What aspects might have been challenging or problematic?
• Have you ever initiated a collaboration?
  o Follow-up: What was it? What motivated you to initiate the collaboration?

• What do you look for in a potential collaborator?

• Have you ever collaborated with individuals outside of your home-school?
  o Follow-up: What were the benefits? What were the constraints?

• Do you see any ways in which students’ learning has been influenced by teachers’ participation in peer collaboration? Give examples.

• Have there been situations where you feel collaboration has impeded your ability to complete your own work? If so, in what ways?

QUESTIONS ABOUT SCHOOL COMMUNITY (NETWORK)

• How do you perceive your role in your school community?

• What structures, if any, are in place at your school to foster professional relationships among teachers?
  o Follow-up: Are there any school structures that hinder your opportunities to work with others?

• How does your interaction with other members of your school community impact your view of teaching?
  o Follow-up: How do your interactions with members of your school community impact your view of yourself as a professional?

CONCLUSION

• Is there anything else you would like to share?

• May I have your permission to follow-up if I have any questions?
REFERENCES


Gray, L., & Taie, S. (2015). *Public school teacher attrition and mobility in the first five years: Results from the first through fifth waves of the 2007-08 beginning teacher longitudinal*


VITA

MEREDITH JANE BREWER

EDUCATION

Baylor University
M.S.Ed. Curriculum and Instruction
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Baylor University
2006

B.A. Double Major: Political Science and Public Relations
Magna Cum Laude

PROFESSIONAL EXPERIENCE

Kentucky Center for Mathematics
Director

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TEACHING EXPERIENCE

Summit View Elementary
Classroom Teacher

2009-2012

Rapport Academy
Classroom Teacher

2005-2007

CERTIFICATIONS

Kentucky Professional Certificate for Teaching Elementary School
Primary through Grade 5

Kentucky Professional Certificate for Interdisciplinary Early Childhood Education
Birth to Primary

PUBLICATIONS
