Evaluating the Role of Principals in Teacher Teams: A Longitudinal Analysis of Principal Involvement and Impact in a District-Wide Initiative to Increase Teacher Collaboration

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EVALUATING THE ROLE OF PRINCIPALS IN TEACHER TEAMS:
A LONGITUDINAL ANALYSIS OF PRINCIPAL INVOLVEMENT AND IMPACT IN A
DISTRICT-WIDE INITIATIVE TO INCREASE TEACHER COLLABORATION

A Dissertation Presented

by

CRAIG MICHAEL OUTHOUSE

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

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EVALUATING THE ROLE OF PRINCIPALS IN TEACHER TEAMS:
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Approved as to style and content by:

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Aside from my committee, I would be remiss if I did not thank a few other professors who I met along my UMass journey. Katie McDermott was an invaluable source of assistance throughout my studies, particularly with my general exam. Without Katie’s guidance, I don’t think I would have made it through the program. Besides being a brilliant mind, Katie was a passionate teacher (through
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notable family members include my parents, three sisters, Harry Potter loving niece Kaitlyn, and Red Sox loving nephew Aidan. It will be wonderful knowing I now have the time to take a spur of the moment weekend vacation to see them. Lastly, some friends deserve special recognition including Amanda and Matt Karsten who were our Friday night dinner buddies to maintain a hint of normalcy.

There are hundreds of other colleagues, professors, and mentors that have put me in position to graduate with a doctoral degree. Additionally, fast food delivery people, babysitters, and other on the surface minor contributors who collectively paid major dividends. The task of completing a doctoral dissertation is most definitely a journey. I am proud to have completed this distinction at the University of Massachusetts, Amherst. While my undergraduate experience at Syracuse University still has me bleeding orange, I am proud to join the Minuteman family. I hope my work here and in the future not only contributes to the field of educational leadership, but also makes my past, present, and future peers at UMass proud.
Principal leadership is one of the most heavily researched topics in the field of education and is a key to increasing school effectiveness and stimulating school change. One of the most important principal roles that have emerged in the literature is the facilitation of a collaborative culture. Teacher collaboration has been linked to a variety of positive outcomes such as improved instruction and student learning. Research indicates that collaboration is most effective when it is part of a district’s professional development. Using a theory-driven approach, the present study evaluated a four-year collaboration initiative aimed to increase student learning in one Connecticut school district. More specifically, the study investigated whether principals’ actions in support of teacher teams and the quality of teacher collaboration changed over time. Of particular interest was an examination of how principals influenced a collaborative shift in school culture and what specific strategies had the most impact on the quality of collaboration in teacher teams.

Data were collected from a sample of 400 teachers, beginning in 2008 and ending in 2011, although sample sizes varied across time according to response rate. Items from the
Teacher Collaboration Survey were used to measure teachers’ perceptions of principals’ actions in support of teacher teams and the quality of teacher collaboration. Hierarchical Linear Modeling (HLM) was utilized to measure change across time, accounting for repeated measures. No statistically significant changes were found for either principals’ actions in support of teacher times or the quality of teacher collaboration. However, statistically significant correlations were found between these two variables in each of the four years, indicating a moderate to strong relationship. In addition, qualitative responses on the survey were used to investigate the high leverage behaviors that principals employed to create a cultural shift in this district and provided insight into the types of change that occurred during this initiative. Finally, implications and limitations of the present study were discussed, and future research in this area was suggested.
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CHAPTER 1

INTRODUCTION TO THE STUDY

Background

Leadership, and the study of its impact on schools, is ubiquitous. From discussions of leadership typologies to leadership critiques or exemplars, leadership is pervasive in the field of education. A search of “principal leadership” on Google Scholar results in approximately 1.5 million hits. The same search in the ERIC (Education Resources Information Center) database yields nearly 50,000 results. The vast array of publications on the subject of educational leadership speaks to the topic’s popularity and importance.

Evidence indicates that leaders’ impact on student learning occurs primarily through indirect influence on teachers or on curriculum, approaches to teaching, and level of teachers’ cooperative learning (Leithwood, University of Minnesota, Ontario Institute for Studies in Education of the University of Toronto, & Wallace Foundation, 2004). Of all the factors that impact student learning, leadership is considered second only to teaching (Leithwood et al., 2004). Leaders influence student learning by setting a school culture, providing professional development opportunities, aligning district goals with school goals, and setting policies on a school and district level (Hanson & Moir, 2008; Leithwood et al., 2004; Wells, Maxfield, Klocko, & Feun, 2010). School principals are especially influential. As the leaders with the most direct teacher contact, principals have an opportunity to influence and enhance teacher performance on a daily basis (DuFour, DuFour, & Eaker, 2008; Horton & Martin, 2010; Rasberry & Mahajan, 2008). Thus, an examination of the role of principals in sustaining school change is particularly important.
Scholars have concluded that strong principal leadership is essential in accomplishing any of the attributes of effective schools that have been identified in the literature (Cuban, 1984; Hallinger, 2003; Lezotte, 1992). Many leadership theories and typologies have emerged in the field of education, as well as related fields, which attempt to explicate the leadership process. Examples include situational, transactional, transformational, and instructional leadership. However, much of this research is contradictory and confusing (DuFour, DuFour, & Eaker, 2008; Leithwood et al., 2004; Rost, 1993). National leadership organizations have established professional standards in an attempt to operationalize leadership and help guide principal behaviors. These include such things as developing a shared vision of learning, fostering a sense of community both in and out of schools, and creating a culture amenable to learning and growth (ISLLC, 2008; NAESP, 2008; NSDC, 2011).

Promoting a collaborative learning environment or culture has emerged as one of the most important roles that a principal can play (ISLLC, 2008; NAESP, 2008; NSDC, 2011). Scholars have noted the importance of a collaborative culture as the foundation with which organizations can reach desired outcomes (Gajda & Koliba, 2007; Sergiovanni, 2004; Waldron & McLeskey, 2010). Further, there has been an increasing demand for school principals to abandon traditional hierarchical notions of schools for more modern approaches that hinge upon high-quality teacher collaboration (DuFour, 2004; Gajda & Koliba, 2008; Horton & Martin, 2010).

Teacher collaboration is a way to build teacher capacity, improve instruction, and increase student learning (DuFour, 2007; Gajda & Koliba, 2007, 2008; Rasberry & Mahajan, 2008; Sergiovanni, 2001). Teachers who collaborate report greater commitment to professional learning (Haun & Martin, 2004; Hord, 2007; Hord, 2009), improved time management for
preparation and/or curriculum development (Elbousty & Bratt, 2010; Hord, 1997; Yamraj, 2008), reduced professional isolation (Hord, 2007; Yamraj, 2008), more student-centered classrooms (Harris & Jones, 2010; Vescio, Ross, & Adams, 2008; Yamraj, 2008), improved classroom management (Elbousty & Bratt, 2010), and less stress (Elbousty & Bratt, 2010, Hord, 2007). Perhaps most importantly, it has been found that high quality teacher collaboration contributes to positive student achievement outcomes (Fullan, 2005; Gates & Watkins, 2010; Hayes, Christie, Lingard, 2004; Hord, 2009; Stoll, Bolam, McMahanon, Wallace, & Thomas, 2006, Wei, Darling-Hammond, & Adamson, 2010; Zito, 2011). Within collaborative cultures, teachers become more equipped to institute instructional practices that lead to improved student outcomes (Cranston, 2009; Yamraj, 2008).

But collaboration is widely misunderstood, and the anti-collaborative culture is pervasive within schools. Simply stated it is not easy to establish a collaborative culture with teachers who prefer to work in isolation (Rasberry, Mahajan, & Center for Teaching Quality, 2008). Further, “sporadic” and “superficial” communication within schools reinforces the notion of teachers as a collection of independent contractors (DuFour 2004; Schmoker, 2006). In 2008, the Center for Teaching Quality released a report titled “From Isolation to Collaboration,” which detailed the challenges facing principals:

In many schools across America, teachers enter their classrooms each morning only to close the door and teach with little to no peer interaction. While some teachers exert almost complete control over their instructional practices, their sphere of influence is typically confined to their four walls, and opportunities to collaborate with colleagues are limited (p. 1).
Over 25 years ago, Cusick (1983) reached a similar conclusion regarding isolationism as he described the unprecedented freedom afforded to teachers in their curriculum, instruction, and assessment decisions. Related reports, books, and studies have concurred with Cusick’s (1983) findings, that in order to foster a collaborative school environment, a fundamental culture shift is needed to break teachers away from their history of making decisions in isolation (DuFour, 2004; Elbousty & Bratt, 2010; Gajda & Koliba, 2008; Hughes & Kritsonis, 2006; Vescio, Ross, & Adams, 2008). While there is still debate regarding the roles of teachers within a collaborative environment, there is universal agreement that principals have a large role in reducing and eradicating the isolationism that has dominated the field of education. Specifically, principals play a pivotal role as they have a responsibility to set teacher expectations, guidelines, and goals that can improve student learning.

The Present Study

The goal of the present study is to examine the role and effects of leadership in a teacher collaboration initiative within one northeastern school district. More specifically, the study will investigate how principals have worked to shift their district culture from one of isolation to one of collaboration. As previously discussed, teacher collaboration is widely recognized as a positive change agent in schools (DuFour, 2007; Gajda & Koliba, 2008), and leaders play a crucial role in developing and sustaining a culture of collaboration. However, little is known about the principals’ role in fostering a collaborative culture, particularly in terms of specific actions that might affect the quality of teacher collaboration.

Conceptual Underpinnings for the Study

This study employs a theory-driven approach to evaluating whether principals’ actions produce a district-wide cultural shift toward increased teacher collaboration. Theory-driven
evaluation has been championed as the ideal process for evaluation practice (Coryn, Noakes, Westine, & Schrotter, 2010). Simply put, this method draws upon prior research and theory to conceptualize, implement, and analyze an evaluation. The primary advantage of this approach is that it can determine not only whether a program is successful but also how it is successful (Coryn, Noakes, Westine, & Schrotter, 2010). Consistent with the core principles of theory-driven evaluation, this study will use both collaboration and leadership theories as the basis for understanding the variables under investigation.

The leadership literature has shifted focus over the past century, having begun with the trait approach and evolving through behavioral, situational, and contingency perspectives (e.g., Fiedler, 1964; Hersey & Blanchard, 1977; Stogdill, 1948). Over the past few decades, educational leadership literature has converged primarily on instructional leadership, which grew out of the literature on effective schools, and more recently, contemporary conceptualizations, including transformational leadership and distributed leadership. In modern perspectives, many scholars have postulated that leadership is not embodied within one individual, but instead is comprised of an interconnected web in which many stakeholders play an integral role in sustaining the organization (e.g. Fullan, 2006). Research has indicated that schools which embrace shared conceptualizations of leadership, such as distributed leadership, tend to be characterized by a shared vision, reflection, and collaboration (Newman & Wehlege, 1995).

Widely championed, collaboration is at its best when it is a component of district professional development (Crafton & Kaiser, 2011; Hoque, Alam & Abdullah, 2011; Wood, 2010). Collaboration theory finds strength when a group of people work together to forge a strategic alliance rooted in shared values and beliefs (Gajda, 2004). Specifically, Gajda (2004) provided the following five guiding principles of collaboration theory: (1) collaboration is an
imperative, (2) collaboration is known by many names, (3) collaboration is a journey and not a
destination, (4) with collaboration the personal is as important as the procedural, and (5)
collaboration develops in stages. These principles can be used to understand collaborative
change initiatives within schools. Quality professional development is teacher-centered and
commands a collaborative forum that, over time, empowers teachers to demonstrate leadership

Clearly, leadership is inextricably linked to any school change effort, and the conversion
of schools into communities of practice (CoPs) in which organizational stakeholders (e.g.
teachers) work together to achieve mutually desired outcomes (e.g. student learning) is a major
change effort for which principals are responsible. Principals and school leaders must bring
about a paradigmatic shift in school culture away from the isolation that has been commonplace
in today’s schools, toward a collaborative culture that is committed to student learning and
supported by teachers across the district. Gajda (2004) argued that “collaboration is increasingly
considered the means by which student, school, and community level outcomes will be obtained”
(p. 66). Further, she contended that many organizational leaders have come to recognize that
organizational success is predicated upon the quality of CoPs within them.

Statement of the Problem

A large portion of the professional culture of collaboration is contingent upon the work of
the building leader in shaping how the collaborative environment is structured and how
individuals’ roles are defined within teams. In other words, meaningful administrative
involvement appears necessary to increase the level and quality of collaboration in teams, but to
what extent and in what manner remains unclear. This study attempts to fill in those gaps by
empirically examining the relationship between leadership and cultural shift, as well as the specific principal actions that most significantly impact high quality teacher collaboration.

Collaboration as the means through which school leaders will enact change in school has been addressed by a number of contemporary authorities (DuFour, Eaker, & DuFour, 2005; Gajda & Koliba, 2007; Marzano, Waters, & McNulty, 2005; Stoll, McMahon, Wallace, & Thomas, 2007). It is now understood that principals’ involvement is critical to team effectiveness; however, scholars have approached this idea in different ways. For example, some have emphasized principal involvement in establishing an environment of collective learning where teachers regularly share personal practice (Hord, 2009; Pittman, 2009). Others have highlighted the role of principals in effective teacher teams as it relates to results (DuFour, 2006). Still others have focused on the principal’s role in providing the pre-requisite conditions and protocols that will support teacher teams (Saunders, Goldenberg, & Gallimore, 2009). Yet the specific ways in which leaders impact the quality of collaboration in teacher teams has not been empirically examined. Research that will shed light on how to best maximize principal involvement in teacher teams is greatly needed. Expanding what is known about the high leverage, high yield actions principals can take to bring about a cultural shift from isolation to collaboration would inform theory development, policy, and practice.

**Purpose of the Study**

This study will investigate the leadership role of building principals and a district-wide shift toward a culture of collaboration. Further, the relationship between specific principal actions in support of teacher teams, such as providing vision and feedback, and the quality of teacher collaboration will be examined. These research questions will be explored longitudinally using a theory-driven evaluation approach and will test the following theory of action, which is
aligned with that of the district under review: If principals and teacher teams are provided with professional development focused on a cycle on inquiry, and are held accountable for using this knowledge, then the quality of collaboration in teacher teams will increase. Further, the principal actions in support of teacher teams can be more closely examined.

**Research Questions**

1. How have principal actions in support of teacher teams changed over time?
2. How has the quality of collaboration among teachers changed over time?
3. What is the relationship between principals’ actions in support of teacher teams and the quality of teacher collaboration? What, if any, high leverage principal behaviors emerge as having the greatest impact on the quality of teacher collaboration?

**Hypotheses**

1. Principal actions in support of teacher teams will increase over time.
2. The quality of collaboration among teachers will increase over time.
3. Principals’ establishment of a shared vision will have the strongest impact on the quality of teacher collaboration.

**Summary**

Within the existing body of literature on the efficacy of teacher collaboration, teacher teams have been identified as a means by which schools can diminish teacher isolation and increase student achievement as well as other positive school-related outcomes. Although principal involvement has been recognized as a key ingredient in the creation and sustainment of high functioning and effective teams, few studies have quantified how leaders accomplish a cultural, district-wide shift from isolation to collaboration or how specific administrative strategies influence the quality of collaboration within teacher teams.
In Chapter 2, a literature review will be presented that focuses on the following areas: (1) leadership theory, (2) teacher collaboration, and (3) leadership for collaboration. The research design and methodology employed in this study will be discussed in Chapter 3, with attention to the population and sample, data collection and instrumentation, and data analysis. Chapter 4 will explicate the data analyses that were performed and the results for each of the research questions. Finally, Chapter 5 will provide a discussion of the results uncovered in Chapter 4, along with the implications of these findings for policy and practice, as well as suggestions for future research.
CHAPTER 2
REVIEW OF RELATED LITERATURE

Introduction

There are numerous cited benefits of teacher collaboration, such as improving student achievement, improving instruction, and job satisfaction (Hord, 1997; Schmoker, 2006); yet collaboration also has its challenges. School “buffers” exist which may limit collaboration and result in teachers working in isolation as they manage the technical core (Elmore, 2000). One highly regarded change effort has been identified as the gold standard of collaboration within the existing literature base: professional learning communities (DuFour, DuFour, & Eaker, 2008; Gajda & Koliba, 2007). Bloom and Vitcov (2010) described professional learning communities (PLCs) as a culture of learning, in which people work together, guided by ample data, with the explicit goal of improving teaching and student learning. They are an extension of communities of practice (CoPs), which Gajda and Koliba (2007) described as a form of interpersonal collaboration that manifests itself through members of an organization who “share common practices and work together to achieve mutually desired outcomes” (p. 27). PLCs are considered the highest functioning CoPs (Gajda & Koliba, 2007). One of the reasons that PLCs are so highly regarded is because they offer a promising avenue for administrators to decrease teacher isolation and improve student achievement (Saunders, Goldenberg, & Gallimore, 2009; Stoll, Bolam, McMahon, Wallace & Thomas, 2006).

The present study investigates a school district’s four year teacher collaboration initiative and attempts to expand what is known about principal’s actions in support of teacher teams in an effort to formulate a culture of collaboration across the district. While the relationship between high quality teacher collaboration in teacher teams and student achievement has been
established, little is known about which leader actions precipitate high levels of teacher collaboration.

This chapter will begin with a discussion of the proliferation of leadership theories, including a review of the most prominent theories in the educational arena. Next, the importance of school leadership, with emphasis on the role of principals, as it relates to school improvement will be examined. The importance of teacher collaboration will then be discussed, with particular focus on collaboration in teacher teams and the contextual importance of communities of practice. The chapter will conclude with a discussion of the major principal/administrative functions and responsibilities identified in the literature as they relate to collaboration development and teacher teams.

**Theories of Leadership**

The topic of leadership is widely researched throughout education and other sectors of society. There are thousands of theoretical and empirical articles on the subject, yet most have yielded inconsistent results (Yukl, 2008). Thus, the literature review for this section is not exhaustive, and focuses instead on how the leadership landscape has morphed into its current state, and what implications this has for school principals. Scholars have conceptualized the major leadership theories as both “traditional” and “contemporary” (Crowther et al., 2002; Gorton, Alston and Snowden, 2007); the following section will explain this progression.

**A Brief History of Leadership Theory**

While conceptualizations of leadership began early in the 1900s, the first leadership studies emerged in the early 1940s with the *trait approach*, which sought to identify the inborn traits of leaders. Numerous traits were identified as advantageous for leaders, such as intelligence, extraversion, and self-confidence; however, researchers could not identify a specific
set of characteristics that would provide a standard of leadership excellence (Stogdill, 1948). In
the 1950s, a behavioral approach to leadership developed, which examined leader behaviors
predominantly from a two-dimensional perspective. For example, one of the most well-known
was Stogdill and Coon’s (1957) “consideration” and “initiating structure.” Owens (2007)
described this conceptualization as relating to education in two behavioral ways: through
organizational behaviors and behaviors that involved consideration for subordinates. Research
shifted in the 1970s to a contingency approach to leadership, in which leadership was
investigated based on situational characteristics. This philosophy examined the environment in
which the leader functioned and specific aspects of the situation that were potentially under the
leader’s control, such as positional power (Fiedler, 1964), decision importance (Vroom &
Yetton, 1973), and maturity of subordinates (Hersey & Blanchard, 1977).

In the 1980s, instructional leadership came on the scene, growing out of the effective
schools literature (Hallinger, 2003). Instructional leadership focused on the power of the
principal in dictating curriculum and instruction that would improve student outcomes. Some
other elements of instructional leadership are an emphasis on strong and directive leaders
(Edmonds, 1979; Hallinger & Murphy, 1986), a hands-on approach to teaching and learning
(Cuban, 1984; Hallinger & Murphy, 1986), and a focus on goals and outcomes. Finally,
instructional leaders are often thought of as “culture builders” who increase expectations of both
teachers and students, in an effort to raise student achievement (Mortimore, 1993).

Critics of instructional leadership (e.g., Cuban, 1984) disapproved of its strong focus on
principals as central authorities. The emergence of more decentralized models of leadership
indicated dissatisfaction with, and movement away from, traditional top-down leadership
approaches in favor of more bottom-up philosophies. Some assert that the instructional
leadership model morphed into transformational leadership, with many considering the latter to be an extension of instructional leadership (Leithwood & Jantzi, 1990). At the beginning of the 21st century, distributed leadership emerged, which is also characterized by a shared leadership process.

Spillane (2005) described distributed leadership as “a system of practice comprised of a collection of interacting components: leaders, followers, and situation” (p. 150). Distributed leadership is characterized by the “reciprocal interdependency” between leaders and other organizational stakeholders and is constructed through situations (Spillane, 2005, p.146). This notion of leadership differs from many traditional leadership theories in that it debunks the idea that leadership is performed by a heroic figure doing something to subordinates that will increase outcomes. Even popular theories such as instructional leadership emphasize the crucial role of the leader (e.g. principal) in influencing teachers, and that through this person’s establishment of school structure and policy, change can be realized. Transformational leadership is a little closer in recognizing that a transformative relationship exists, but it still occurs in a hierarchical fashion. Finally, while situational leadership recognized the importance of the context, this theory did not conceptualize it as something that comprises the leader/follower relationship.

In an effort to organize the literature on school leadership, Marzano, Waters, and McNulty (2005) reviewed what they considered to be the most influential leadership theories and theorists. Although their review was not inclusive of every leadership framework identified in literature, it represents the most significant cross-section of research that has guided school administrators. These scholars identified six types of leadership commonly practiced by principals: transformational leadership, transactional leadership, total quality management (TQM), servant leadership, situational leadership, and instructional leadership. Many of these
categories overlap the historical categories that have already been presented, for example situational, instructional, transactional, and transformational leadership; however, the literature regarding TQM and servant leadership has been more focused on leadership in a corporate setting. The following sections will provide a more in-depth review of the most popular leadership theories in the field of education: situational leadership, instructional leadership, transactional and transformational leadership, and distributed leadership.

**Situational Leadership**

Situational Leadership Theory was developed by Hersey and Blanchard (1977) and represented the fusion of their independent thinking on management and leadership at the time. The basic premise behind the theory is that leadership is not a static entity, but rather, a flexible style that should be adapted to the situation/follower. According to this theory, educational leaders should adjust their leadership style to match the “maturity” of their subordinates as well as the task at hand in order to increase outputs (Hersey & Blanchard, 1977). Further, it proposed that maturity as a leader meant setting high but attainable goals.

Hersey and Blanchard (1977) identified four types of leadership styles that could be situationally employed: Telling, Selling, Participating, and Delegating. The styles varied in the amount of task and relationship behavior provided to followers. “Telling” involved one-way communication, in which the leader would fully dictate how to do a task. In “Selling,” the leader would still give a great deal of direction, but would also involve those influenced to have a say and would provide support for them, allowing them to buy into the process. “Participating” consisted of shared decision making, with less focus on task behaviors, and more on maintaining relationships. Finally, “Delegating” involved passing on the process to a person or people, while maintaining involvement to monitor the process and make decisions. Once again, the theory
suggests that leaders should change styles often, depending on the situation and/or person(s) being influenced in order to be most effective.

Maturity also consisted of four types in Hersey and Blanchard’s (1977) model, and were coded M1—M4. M1 level indicated that the follower(s) did not have the skill set to adequately perform the task or was unable or unwilling to do it. In M2, the follower(s) is still unable to do the task, but willing to work hard. Level M3 followers were experienced and were able to accomplish a task, but unsure of themselves. Finally, M4 followers were experienced and comfortable accepting responsibility for completing the task. When examining Hersey and Blanchard’s model, it is important to note that maturity levels are specific to the task at hand; thus, a follower could have high maturity in one situation, and low in another. According to Hersey and Blanchard, this is why the leader must adapt his or her style according to the follower’s maturity for each separate situation and task in order to be effective. A visual representation of this framework is depicted below in Figure 2-1 (www.managewell.net):

Figure 2-1: Situational Leadership Model
The Center for Leadership Studies, Inc. identified situational leadership as one of the most influential leadership models in the world, having been incorporated into over 700 of the Fortune 1000 companies (http://www.situational.com/aspx). This theory has been used less often in the field of education (Leithwood, et al., 2004). The limited amount of empirical research that has been conducted on situational leadership with respect to schools appears to have focused predominantly on teachers’ perceptions of principals’ leadership styles (e.g., Franklin, 2000) and principals’ preferences for using various styles (e.g., Walter, 1980). For example, Franklin (2000) empirically investigated situational leadership in 17 schools throughout North Carolina in order to identify which of Hersey and Blanchard’s (1977) four leadership styles would be preferred by teachers. They found that the supporting and delegating styles were the most preferred styles for public school principals, while Walter (1980) found that principals least preferred telling and delegating.

**Instructional Leadership**

Instructional leadership has been identified as one of the most frequently discussed educational leadership theories in the U.S. (Heck & Hallinger, 1999; Leithwood, Jantzi, & Steinback, 1999). Multiple conceptualizations of instructional leadership simultaneously emerged in the early 1980s; however, all of them grew out of the effective schools literature (e.g., Andrews & Soder, 1987; Hallinger & Murphy, 1986; O’Day, 1983). These conceptualizations focused in large part on the unitary role of the principal in supervising curriculum and instruction (Bamburg & Andrews, 1990). Instructional leaders have been described in the literature as strong, directive, goal-oriented culture builders, who foster high expectations and standards for all (Edmonds, 1979; Hallinger & Murphy, 1986). They have been
characterized by their hands-on style and strong emphasis on academic outcomes (Cuban, 1984; Hallinger & Murphy, 1986).

Although a description of every conceptualization of instructional leadership is beyond the scope of this paper, two of the most visible and frequently cited are Smith and Andrews (1989) and Hallinger (2003). Smith and Andrews identified four dimensions of instructional leaders: resource provider, instructional resource, communicator, and visible presence. As a resource provider and instructional resource, principals are responsible for supplying materials and support to teachers that are necessary for them to carry out their jobs, particularly as they relate to instruction (e.g., prioritizing instructional concerns and teacher training). As a communicator, they are responsible for conveying school goals to faculty and staff. They must also have a visible presence, making themselves accessible to faculty and engaging in classroom observation.

Perhaps the most frequent conceptualization of instructional leadership was provided by Hallinger (2003), who suggested three dimensions: defining a school mission, managing the instructional program, and promoting a positive learning environment. Similar to Smith and Andrews (1989), the first dimension in this model, development of a school mission, involved the creation and communication of school goals. The second dimension, managing the instructional program, also fell into the principal’s domain through the organization and supervision of curriculum and instruction. Thus, this model emphasized the principal’s role in developing the academic core as a major job function (Hallinger & Murphy, 1986). The third dimension, the importance of promoting a positive learning environment, entailed establishing visibility within the school, but also ensuring adequate instructional time, encouraging professional development, motivating teachers, and creating incentives for learning.
Instructional leadership has been the subject of a great deal of empirical educational research (e.g., Glasman, 1984); Hallinger’s (2003) review of research on the subject found more than 125 empirical studies published on the subject between 1980 and 2000. These studies have investigated an abundance of antecedents (e.g., school size, school SES) and consequences (e.g., student achievement) of instructional leadership, as well as organizational context effects (e.g., level of experience) (Hallinger, 2003; Leithwood et al., 1990). Overall, the findings of this body of research indicate that principals indirectly contribute to schools’ effectiveness and student achievement through their influence as the leader, most notably through their vision of the schools’ purpose (Bamburg & Andrews, 1990; Goldring & Pasternak, 1994) and alignment of the school structure with its mission (Hallinger & Heck, 2002).

**Transactional and Transformational Leadership**

The concepts of transactional and transformational (or “transforming”) leadership were first introduced by James Burnes (1978), and later expanded upon by Bass (1985) and others (e.g., Bass & Avolio, 1994; Leithwood, 1994). Transactional leaders have been characterized as task-oriented, focusing on their “transactions” with followers and attempting to motivate followers by providing or withholding extrinsic rewards (Bolkan & Goodboy, 2009). The leaders’ attention is on communicating expectations and goals, and allocating work. In contrast, transformational leaders have been described as “transforming” followers’ motivation and aspirations. Transformational leaders are described as leading by example, defining a vision, and providing challenging goals for their subordinates (Bass, 1985; Bass & Avolio, 1990; 1994).

Bass’ (1985) expanded the theory of transformational leadership by introducing elements drawn from psychology. He delved specifically into measurement issues and explained how transformational leaders can impact followers’ motivation and performance. He described the
relationship between leaders’ influence on followers and subsequent levels of trust and respect among followers. Bass found that increasing levels of trust and respect lead to increased work ethic. According to Bass (1985), transformational leaders inspire followers by providing them with a vision and a sense of identity. Avolio, Waldman, and Yammarino (1991) identified the four I’s of transformational leadership:

1. Individualized Consideration—followers’ needs and how to challenge followers
2. Intellectual Stimulation—risk taking and encouraging creativity in followers
3. Inspirational Motivation—articulate vision that appeals to followers
4. Idealized Influence—role model and highly ethical behavior

Leathwood and Jantzi (2000) adapted Bass’ (1985) transformational leadership theory, introducing their conceptual model of leadership into the educational arena. This framework has been examined extensively over the past ten years (Hallinger, 2003) and has produced an extensive amount of information regarding applications of transformational leadership to education (Silins, Mulford, & Zarins, 2002). The model delineated seven components: individualized support, shared goals, vision, intellectual stimulation, culture building, rewards, high expectations, and modeling (Leithwood & Janzi, 2000). Hallinger (2003) made note of two important features about this model: (1) leadership is shared between the principal and the teachers (Leithwood & Jantzi, 2000), and (2) leadership is rooted in an understanding of the needs of personnel rather than a control of them. In this way, it represents a bottom-up approach to leadership, a shift from early conceptualizations of instructional leadership.

In a study of transformational leadership spanning over two hundred elementary schools, Ross and Gray (2006) found that transformational leadership predicted both teacher efficacy as well as commitment to the school mission and professional learning community. Likewise,
individual teacher commitment, including commitment to professional groups, has been positively correlated with student achievement; thus, transformational leadership has the potential to indirectly impact student achievement in schools (Ross & Gray, 2006). By fundamentally changing the political and cultural systems of an organization, transformational leaders can be pioneers in their schools (Tichy & Ulrich, 1986).

Nguni, Sleegers, and Denessen (2006) highlighted the following differences between transactional and transformational leadership (represented in Table 2-1):

Table 2-1: Transactional vs. Transformational Leadership

<table>
<thead>
<tr>
<th>Transactional</th>
<th>Transformational</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leaders only</td>
<td>Leaders and followers</td>
</tr>
<tr>
<td>Maintain status quo</td>
<td>Desire change</td>
</tr>
<tr>
<td>Staff compliance</td>
<td>Staff empowerment</td>
</tr>
</tbody>
</table>

(Nguni, Sleegers, & Denessen, 2006)

Their qualitative data revealed the following aspects of each style, as described by participants (represented in Table 2-2):

Table 2-2: Aspects of Transactional and Transformational Leadership

<table>
<thead>
<tr>
<th>TRANSACTIONAL</th>
<th>TRANSFORMATIONAL</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Title</strong></td>
<td><strong>Descriptor</strong></td>
</tr>
<tr>
<td>Contingent reward</td>
<td>“The head teacher tells me what I should do, if I want to be rewarded for my efforts.”</td>
</tr>
<tr>
<td>Active management by exception</td>
<td>“Most of the time the head teacher follows closely my mistakes.”</td>
</tr>
<tr>
<td>Laissez-faire leadership</td>
<td>“The head teacher avoids making decisions in the school.”</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Title</th>
<th>Descriptor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Charismatic leadership</td>
<td>“The head teacher sets a vision and future direction of what we may be able to accomplish and achieve if we work together.”</td>
</tr>
<tr>
<td>Individualized consideration</td>
<td>“The head teacher treats each teacher as an individual with different needs, abilities and aspirations.”</td>
</tr>
<tr>
<td>Intellectual stimulation</td>
<td>“The head teacher helps me to think and solve old problems in new and alternative ways.”</td>
</tr>
</tbody>
</table>

(Nguni, Sleegers, & Denessen, 2006)
Note that charismatic leadership encompassed idealized influence and inspirational motivation in this comparison.

While the literature has focused heavily on transformational leadership as a best practice in schools, producing “results beyond expectations” (Bass, 1985; Burns, 1978), there may be some use for transactional leadership (Bass & Avolio, 1990; Nguni, Sleegers, & Denessen, 2006). Research on the effects of these two leadership styles on teachers’ job satisfaction, organizational commitment, and organizational citizenship in primary schools has concluded that to be most effective school leaders should employ a combination of transformational and transactional leadership behaviors (Nguni, Sleegers, & Denessen, 2006).

**Distributed Leadership**

Distributed leadership takes the arduous tasks previously assigned to one individual and spreads work across many leaders (Elmore, 2000; Harris & Spillane, 2008; Portin, 2003; Spillane, 2001). The thinking behind distributed leadership this is that as leaders learn how to best distribute roles to others within their organization, they will be able to evaluate the curriculum, instruction, and assessment in greater depth. The theory underpinning distributed leadership is that schools should “decentre” their leadership such that it will become “fluid and emergent, rather than a fixed phenomenon” (Gronn, 2000, p. 324). It reflects the belief of a collective relationship in which “leadership is present in the flow of activities in which a set of organization members find themselves enmeshed” and in which leadership is not “embodied in just one individual” (Gronn, 2000, p. 331). Thus, distributed leadership appears to have three important characteristics: it incorporates the activities of many people in a school who are working toward improving instructional change, it spreads leadership across many people, and it embraces interdependency and shared responsibility (Harris, 2003; Spillane, 2001).
Elmore (2000) described distributed leadership as involving two main tasks: (1) laying out the ground rules that leaders must follow to galvanize large-scale improvements, and (2) figuring out how the leaders will go about sharing responsibility. Similarly, Spillane (2001) suggested that the defining characteristic of distributive leadership is the interaction of school leaders across time that forms the unit of analysis in schools (as opposed to the analysis of an individual leader or leadership style). Gronn (2002) argued that it was insufficient to define distributed leadership in its current context and described a holistic theoretical framework for analyzing distributed leadership. Gronn explained that three forms of concertive action could be applied to understand how distributed leadership emerges in practice: spontaneous collaboration, intuitive working relations, and institutionalized practices. The basis of this argument was that analysis should incorporate organizational leadership capacity as a whole, through a distributed view of leadership rather than a traditional one.

Spillane, Halverson, and Diamond (2001) conducted in-depth observations and interviews with school leaders and teachers within Chicago elementary schools to investigate school leadership and instructional change. They found that distributed leadership involved the systematic use of people, artifacts, and organizational structure working in unison. In a related study, Camburn, Rowan, and Taylor (2003) examined distributed leadership in elementary schools that were implementing comprehensive school reforms (CSR). They found that implementing CSR models with distributed leadership had a significant positive effect on staff development. This is an emerging development in educational leadership theory. As Harris and Spillane (2008) argued, the theory must now be put to the test of practice and the field will need to adjust to the changes that a distributed style will have on schooling.

**Synthesis of Leadership Theories**
Kuhn (1970) posited that when an existing theory does not adequately explain some phenomena, a new theory surfaces. As discussed in the previous section, there have been a series of significant theoretical shifts over the past seven decades, with each new theory taking a different or modified perspective on the nature of leadership. Each of these theories can be seen in context as an extension of previous thinking. The theories reviewed in the last section are synthesized on a continuum (see Figure 2-2) to illustrate the conceptual movement from a top-down approach to a more decentralized, shared notion of leadership:

Figure 2-2: Continuum of Leadership Theories

Hallinger (2007) noted the ideological shift in the educational leadership literature over the past three decades. In the 1980s, instructional leadership reigned and principals attempted to improve schools through strong direction of subordinates and by tenaciously communicating their personal vision. However, school improvements were difficult to maintain as leadership
changed in the organization. Transformational leadership was heralded in the 1990s because it emphasized less principal control and more empowerment of individuals within the organization to make decisions, provide vision, and challenge themselves. During this time, Hallinger described a heightened level of autonomy for classroom teachers. The problem was that increased autonomy did not necessarily translate into organizational improvement. At the turn of the century, Hallinger described a movement toward shared leadership, with a revised conceptualization of schools as communities of learners. In this newest iteration, principals are encouraged to develop leaders or teams of leaders throughout schools, such that they become the “leader of leaders” (DuFour, DuFour, & Eaker, 2008, p. 310). Perhaps the most important change in this conceptualization is that leadership is not embodied in one individual, but is instead shared teams who are empowered by their principal to impact school outcomes.

**The Importance of School Leadership**

Effective school functioning, or lack thereof, has important implications for student success. As Marzano (2003) documented, there is an estimated 44% difference in projected passing scores on a test with a typical 50% pass rate for students in effective schools, as compared to ineffective schools. Students’ success in school has significant ramifications for the future trajectory of their lives, most notably, earning potential (Marzano, Waters, & McNulty, 2005). It has been known for quite some time that a schools’ leadership is vital to its functioning (Marzano, Waters, & McNulty, 2005; Horton & Martin, 2010). Principals lead those responsible for the delivery of instruction (Printy, Marks, & Bowers, 2009).

There has been extraordinary interest in the study of leadership and its effect on organizations, change, and student achievement (Bolman & Deal, 2003; Hallinger & Heck, 2002; Marzano; Robinson, Lloyd, & Rowe, 2008; Rost, 1993). School leadership is said to be
inextricably linked to the development of a school mission (Hallinger, 2003; Hord, 1997; Silins, Mulford, & Zarins, 2002), school/classroom climate (Hallinger, 2003; Leithwood et al., 2004; Pittman, 2009), teacher attitudes (Hord, 1997; Lavie, 2006; Pittman, 2009), teachers’ classroom practices (Graham, 2007; Leithwood et al., 2004; Nelson, 2009; Robinson, Lloyd, & Rowe, 2008), organization of curriculum and instruction (Loeb, Kalogrides, & Horng 2010; Wahlstrom, Seashore, Leithwood, Anderson, et al., 2010), and students’ opportunity to learn (Marzano, Waters, & McNulty, 2005). Yet the question of how exactly a leader should lead and what roles are most essential has been muddied by the overabundance of theorizing on the subject (DuFour, DuFour, & Eaker, 2008; Leithwood et al., 2004).

One way to clarify these responsibilities for principals has been in the establishment of national standards (e.g. ISLLC, 2008; NAESP, 2008), which have attempted to synthesize the research on best practices and endeavor to guide what principals should know and do. One of the largest organizations influencing school leadership is the Council of Chief State School Officers (CCSSO). CCSSO represents leaders from forty-four states alongside the District of Columbia. CCSSO, in collaboration with the National Policy Board on Educational Administration (NPBEA), developed and recently revised the Interstate School Leaders Licensure Consortium (ISLLC) standards for school leaders. Below are the six standards for school leaders:

1. A school administrator is an educational leader who promotes the success of all students by facilitating the development, articulation, implementation, and stewardship of a vision of learning that is shared and supported by the school community.
2. A school administrator is an educational leader who promotes the success of all students by advocating, nurturing, and sustaining a school culture and instructional program conducive to student learning and professional growth.

3. A school administrator is an educational leader who promotes the success of all students by ensuring management of the organization, operations, and resources for a safe, efficient, and effective learning environment.

4. A school administrator is an educational leader who promotes the success of all students by collaborating with families and community members, and mobilizing community resources.

5. A school administrator is an educational leader who promotes the success of all students by acting with integrity, fairness, and in an ethical manner.

6. A school administrator is an educational leader who promotes the success of all students by understanding, responding to, and influencing the larger political, social, economic, legal, and cultural context (CCSSO, 2011).

The ISLLC standards are by far the most influential standards guiding building principal’s roles across the United States with forty-four states utilizing ISLLC in some capacity to describe principal roles and responsibilities. There are numerous other national organizations that set forth principal standards for various grade levels. The National Staff Development Council (NSDC) is another important voice that has shaped principal standards. In its latest iteration of standards, the NSDC called for the development of leadership capacity for learning and leading through the establishment of organizational structures and systems (NSDC, 2011). The complete list of standards can be viewed in Appendix A. The ISLLC and NSDC standards provide frameworks that other organizations and associations can follow in articulating what principals
should do. For example, the National Association for Elementary School Principals (NAESP) has the following standards that suggest what principals should know:

Standard 1: Lead student and adult learning
Standard 2: Lead diverse communities
Standard 3: Lead 21st century learning
Standard 4: Lead continuous improvement
Standard 5: Lead using knowledge and data
Standard 6: Lead parent, family, and community engagement

Similarly, the National Association of Secondary School Principals (NASSP) called for ongoing PD built into a principal’s schedule that works to: central analysis of schools around teaching and learning; including life-long learning for adults centered around improving student achievement, collaboration, data-driven decisions, modeling of best practices, and problem solving (NASSP, 2011).

These standards are the recommended curriculum and are only meant to guide state and local boards of education. Decisions regarding how these standards are best implemented are made by each state. Thus, which standards are emphasized and valued most in the evaluation of principals can vary. Although the state standards typically overlap with ISLLC and other national standards, confusion still exists based on differing emphases made by individuals in power at the state and district level. Often the local decisions made on a district or school level create more ambiguity and have the potential to leave principals confused on which roles or actions are most necessary to thrive within their organization.

Despite variations in standards or theoretical underpinnings that guide leaders’ decision-making, it is clear that the role of the principal is crucial in improving schools. Leaders, most
often building principals, can have a tremendous influence on teachers’ instructional practice, which is the most influential factor impacting student achievement (Leithwood et al., 2004; Schmoker, 2006). Thus, effective leadership, specifically in defining the roles and responsibilities of classroom teachers, is the precursor to ensuring quality classroom instruction for every student.

**Teacher Collaboration**

Isolationism, particularly in relation to the planning, delivery, and assessment of instruction, has dominated the landscape of public education for years (Cusick, 1983; DuFour, 2004; Hord, 1997; Horton & Martin, 2010; Schmoker, 2006; Vescio, Ross, & Adams, 2008). Working in isolation has become the norm, an accepted practice in which individual teachers act somewhat like independent contractors (Horton & Martin, 2010). Even when presented with compelling evidence that collaboration is a best practice, teachers cling to working alone (DuFour, 2004). Principals and teachers tend to work in isolation rather than collectively as colleagues (Doolittle, Sudeck, & Rattigan, 2008; Housman & Martinez, 2001; Zito, 2011). Further, when collaboration has occurred, it has typically only been among similar, like-minded individuals, which is problematic because it reduces the variety of perspectives to which teachers are exposed (Popham, 2004).

The benefits of collaboration are evident and serve as a means for achieving important organizational change. Yet there appears to be resistance to models of organized collaboration in schools (DuFour, 2004). In some cases, this resistance can be attributed to poor implementation by administrators. Teachers need to feel that they are a part of the process in opening up their practice with their colleagues (Vescio, Ross, & Adams, 2008). It is essential for teachers to understand that collaboration by definition represents a systematic process that takes time to
implement properly (DuFour, 2004). In other words, as beneficial as collaboration can be for a school system, it may take some time to fully develop. Teachers’ attitudes about collaboration influence the capacity of a school to transition to a collaborative model.

DuFour’s (2004; 2007) work on PLCs has had a profound impact in shaping how public school educators conceptualize teacher collaboration, as evidenced by how often it is cited in articles and books on the subject (e.g., their book Professional Learning Communities at Work: Best Practices for Enhancing Student Achievement has been cited by over 1,300 articles and books). PLCs have been applauded for reducing isolationism among teachers, and increasing student achievement (Saunders, Goldenberg, & Gallimore, 2009; Stoll, Bolam, McMahon, Thomas, Wallace, Greenwood, & Hawkey, 2010). There are hundreds of articles that have been published on the essential characteristics of PLCs. Most (e.g. Hayes, Christie, Mills, & Lindgard, 2004; Hord, 1997; Stoll, Bolam, McMahon, Thomas, Wallace, Greenwood, & Hawkey, 2010) are fairly similar to one another and they all accentuate or highlight the importance of collaboration. The next section will define what is meant by collaboration, discuss the benefits of teacher collaboration in schools, and teachers’ attitude toward collaboration.

**Operationalizing Collaboration**

As discussed in Chapter 1, the term “collaboration” is challenging to define because it has been used very freely to characterize almost any kind of relationship that exists within or between organizations (Gajda, 2004) and has persisted as a fairly abstract concept (Gajda & Koliba, 2007). The foundation of any type of collaboration is a shared purpose, in which two or more entities come together to do or achieve something that could not be attained alone. When this occurs within organizations, it is referred to as “communities of practice” (Gajda & Koliba, 1997; Wenger, 1998). Communities of practice (CoPs) have been described as involving
personal communication, decision making, interdependence, and self-reflection (Kolibra & Gajda, 2009; Wenger, 1998). As Wenger (1998) described, CoPs are comprised of three main elements: (1) participation in the community, wherein members build collaborative relationships, (2) interaction between participants that creates a mutual understanding of their collective pursuits, and (3) a “shared repertoire” of communal resources.

Collaboration occurs in groups of teachers with “intentional” and “understood” dialogue and inquiry (Crafton & Kaiser, 2011). Gajda and Koliba (2007) contended that inter-professional collaboration entails a cycle of inquiry around a shared purpose in which communities of practice members engage in continuous dialogue, decision making, action, and evaluation. Dufour (2008) described collaboration as teachers working together toward a shared vision. One step further, Zito (2011) argued that high quality collaboration entails “teachers working together, and engaging in reflective dialogue, with the common goal of improving practice and increasing student learning” (p. 31).

Benefits of Collaboration

As previously discussed, teacher collaboration has been widely recognized as a best practice in educational reform (Barr & Parrett, 2003; DuFour, 2007; Gajda & Koliba, 2008; Hayes, Mills, & Lingard, 2004; Sergiovanni, 2001). Hord (1997) noted many benefits associated with teacher collaboration, including:

- reduction of isolation of teachers
- shared responsibility for the total development of students and collective responsibility for students' success
- increased meaning and understanding of the content that teachers teach and the roles they play in helping all students achieve expectations
• higher likelihood that teachers will be well informed, professionally renewed, and inspired to inspire students
• significant advances in adapting teaching to the students, accomplished more quickly than in traditional schools
• higher likelihood of undertaking fundamental systemic change (p. 27)

There has been a great deal of literature that identifies major outcomes of collaboration. These will be reviewed briefly in this section.

**Greater trust, commitment, and satisfaction.** In a recent study, Markow, Pieters, and Harris Interactive (2010) found that more collaborative schools have been shown to exhibit higher levels of trust among teachers, administrators, and other school personnel. In their recent survey, 69% of teachers in collaborative schools reported that school personnel trust one another versus 42% at non-collaborative schools. 78% of administrators reported this type of trust in collaborative schools versus 60% in non-collaborative schools. Importantly, trust has been shown to facilitate positive relationships and collegiality among peers (Harris & Jones, 2010; Stoll, McMahon, Wallace & Thomas, 2006).

Hord (1997) found that greater collaboration was linked with increased commitment to the mission and goals of the school. Increased collaboration was also associated with commitment to making “significant and lasting changes” (Hord, 1997, p. 27). Finally, Hord noted that collaboration was related to increased satisfaction, higher morale, and less absenteeism. Markow et al. (2010) also found that 68% of teachers at collaborative schools reported being satisfied with their profession versus 54% at non-collaborative schools.

**Improved classroom management.** Outside of learning more about the content area that they taught, teachers reported classroom management as their priority for Professional
Development (PD) in a recent study (Wei, Darling-Hammond, Andree, Richardson, & Orphanos, 2009). When given the opportunity to share their experiences with colleagues, teachers’ comfort levels with respect to exploring new management procedures increased (Yamraj, 2008). Further, teachers have reported that they gained insight into classroom management through opportunities to collaborate (Elbousty & Bratt, 2010).

**Student-centered classrooms.** Vescio, Ross, & Adams (2008) conducted a comprehensive literature review of eleven studies that considered the impact of specific groups on teaching practice and student learning. Participation in learning communities influenced teaching practice by making their work more student-centered. This included discussing student work and how students learned best. A focus on student-learning was at the heart of virtually all of the studies reviewed by Vescio. For example, in Phillips (2003), teachers collaborated to generate new and inventive curriculum to help low and underachieving students learn. Bolam & Great Britain (2005) found that more developed PLCs had stronger associations between teachers’ professional learning and student achievement. Collaboration in a community seems to work best when all members of the team have an unwavering focus on students’ learning (Moore, 2010). Teachers’ collaborative inquiry that emphasizes students appears to carry over into their individual classrooms (Nelson, 2009).

**Improved instructional practice.** Hord (2007) described one of the major outcomes of teacher collaboration as learning that informs classroom practice and forges new knowledge and thinking about teachers and learners. Vescio, Ross, & Adam’s (2008) review of 11 research articles also supported the notion that teacher collaboration can lead to improvements in teaching practice. Only five of the eleven studies reviewed explicitly mentioned changes made by teachers. In one of the studies that Vescio, Ross, & Adams (2008) referenced, participants
became more likely to employ various techniques like flexible classroom arrangements and changes in instructional pace to accommodate student mastery as a result of increased collaboration with colleagues. Englert and Tarrant’s (1995) also found evidence of substantial instructional change by a teacher in their case study. Similarly, Hollins et al. (2004) found that teacher collaboration evoked a strategic focus to the problem of low achieving students, allowing them to envision a new approach and innovative instruction.

In a study examining the relationship between quality of classroom pedagogy and core characteristics of PLCs, Louis and Marks (1996) found that PLCs played an important role in facilitating authentic pedagogy. More specifically, their model accounted for 36% of the variance in quality of classroom pedagogy, which highlights the significant role of collaboration in enhancing instructional practice. Strahan (2003) also found that teachers who worked collaboratively to construct a school mission developed more stringent instructional norms, which led teachers to change their instructional practice. Finally, in a case study conducted in the British West Indies which examined the experiences of a group of seven teachers who implemented collaboration over a 12-week span, it was found that teachers made significant changes in their practices and in how they approached teaching, and they also tried harder to meet the needs of diverse learners in their classrooms (Yamraj, 2008).

**Higher student achievement outcomes.** An important benefit of collaboration is higher student achievement outcomes. There is great value in school interventions that contribute to improved student achievement results (Jackson, Bruegmann, National Bureau of Economic, 2009). Studies have concluded that collaboration can help teachers balance strengths and weaknesses as they meet a varied level of student needs and ultimately improve student achievement outcomes (Markow, Pieters, & Harris Interactive, 2010). Furthermore, one recent
study that gathered quantitative data across 78 different elementary schools showed that teacher collaboration was a good predictor of higher math and reading achievement (Moore, 2010). Additional studies have reached the conclusion that teacher collaboration can lead to student achievement gains (Saunders, Goldenberg, & Gallimore, 2009).

In Vescio, Ross, & Adam’s (2007) literature review, all eight studies examining the link between teachers’ participation in PLCs and student achievement found that student learning improved. They reported that one study found that grade level results jumped from slightly more than 50% performing at or above grade level to more than 80%. Phillips (2003) found that achievement scores of low and underachieving student increased over a span of three years from 50% to 90% passing subject area tests. Similarly, Strahan (2003) found that student test scores increased from 50% proficiency to over 75% proficiency over a 3 year time period. Finally, Hollins et al. (2004) also reported increased achievement in second-grade Black students at the target school (from 45%-64%-73% scoring above the 25th percentile across two years).

Bolam et al. (2005) compared self-reported PLC characteristics with national student outcome data, and found a significant relationship between the strength of PLC characteristics and student achievement. Further, research has found that student achievement gains differ according to the strength of the PLC (Bolam et al., 2005; Louis & Marks, 1998) and team instructional focus (Supovitz, 2002; Supovitz & Christman, 2003). Louis and Marks (1998) found markedly higher student achievement in schools with stronger PLCs. Finally, Zito (2011) recently found that the interaction between teacher collaboration and administrative support predicted student achievement in reading and writing.

Teacher Attitudes Toward Collaboration
Elbousty and Bratt (2010) conducted research in an urban high school where teacher collaboration had been introduced as a school improvement strategy. Despite the reality that teachers were accustomed to working in isolation, the case study found numerous benefits identified by teachers, including insights into curriculum, classroom management, and motivation. Furthermore, the study found that team members became more empathetic and complimentary of one another. Finally, teachers indicated that working collaboratively saved time and effort, assisted with problem solving, provided an opportunity to receive constructive criticism, and fostered the attainment of new knowledge and skills.

However, not all respondents in Elbousty and Bratt’s (2010) study shared this sentiment. Others perceived collaboration as useless, wasteful of time, inequitable, and unfocused. The authors noted that when teachers’ attitudes toward collaboration were negative it usually existed in one of two forms: (1) outward rejection of working collaboratively, or (2) passive rejection where teachers worked with a limited number of colleagues who shared their belief system while excluding others. As a preventative measure to minimize the anti-collaboration sentiment, they suggested that collaborative activities be time-managed, focused on improving student performance, and focused on creating a stronger school community.

Rost (1993) noted that some teachers resist any relationship with others and often choose not to be involved in an interaction. Thus, even within a supportive culture, collaboration cannot be mandated. Almost as important as the actual mandate may be the perceptions of teachers regarding an initiative. If the perception is that the mandated process is unimportant, their commitment level will likely be low (Pittman, 2009). Consequently, it is critical for building principal to explicitly emphasize teacher collaboration in all aspects of a school culture (Beaty-O’Ferrall & Johnson, 2011; McCombs, 2010).
In sum, there is a documented tendency for teachers to work in isolation, despite the numerous benefits of working in collaboration. Although the definition of collaboration has remained somewhat abstract, common elements include two or more individuals working toward a shared purpose to accomplish something that could not be achieved in isolation. These high functioning communities of practice have been associated with several positive outcomes including increased commitment to school missions/goals (Hord, 2007), improved instructional practice (Vescio, 1997) and, most notably, higher student achievement (e.g., Vescio, Ross, & Adams, 2008). When collaboration has been introduced as a school improvement strategy, teachers’ attitudes have evidenced a positive overall shift; however, scholars have suggested some actions that can be taken to support collaborative efforts and stave off the anti-collaboration response that is so pervasive in today’s schools (Elbousty & Bratt, 2010). The purpose of the present study is to investigate a cultural shift toward collaboration over time in one school district, as well as to identify any high leverage principal actions that might facilitate this shift. Thus, the next section of this paper will explore what is known in the literature about how principals influence teacher collaboration.

The Relationship between Leadership and Teacher Collaboration

The role of the principal in fostering collaboration has been noted by many state standards for educational leaders (see Appendix B). For example, Iowa standards guiding school leaders call for principals to engage their communities in shared leadership and responsibility in an effort to maximize student learning (Iowa School Leaders, 2006). New York State’s leadership standards stress the importance of leaders collaborating and cooperating with others by stating that collaboration is the means to ensure high expectations for all students, maintain trust, and confidence (New York Leadership Standards, 2008). Finally, the Commonwealth of
Massachusetts recently revised their standards, which now include a heavy emphasis on collaboration (MDESE, 2010). In synthesizing the information in Appendix B, the language used by these states clearly suggests a positive relationship between administrators who value collaboration and desired outcomes.

In addition to state standards, national organizations such as The National Staff Development Council (NSDC) published their third iteration of professional learning standards that include input from 40 professional associations and education organizations (Learning Forward, 2011). A central theme of the NSDC is that collaboration is an important trait of leaders in contributing to teacher effectiveness. The National Commission on Teaching and America’s Future (2007) corroborated these recommendations, arguing that high quality collaboration, through the creation of strong learning teams in schools, is a precursor of effective teaching.

In sum, there appears to be a strong relationship between invested, involved leaders and collaboration thriving within a school or district. As Gajda and Koliba (2007) described, “nearly all major educational institutions, foundations, bargaining units, accrediting bodies, and educational sponsors at all levels of schooling openly endorse interpersonal practitioner collaboration as the most powerful strategy for sustained, substantive school improvement” (p. 27). Thus how leaders, specifically principals, can promote teacher collaboration is of paramount importance. The following section will review the most prominent leader strategies that have surfaced in the literature regarding the principal’s role in cultivating collaboration.

**Specific Leader Strategies for Fostering Teacher Collaboration**

Various strategies are employed by administrators in an attempt to foster teacher collaboration; key actions include promoting a shared vision, visibility, providing individual and
team feedback, attending and/or facilitating meetings, and monitoring team progress through the use of student achievement data.

**Vision.** Administrators strongly influence school culture and improvement plans (Pitman, 2009). Specifically, their vision, including the visibility and audibility of the vision, is essential (Campo, 1993). Yet having shared vision alone is not enough to foster teacher collaboration. A shared vision could be grounded in high standards for all students or ensuring a safe environment for all students. While these are useful and important goals that a principal should consider in shaping a vision, without an explicit link in their vision statement to teacher collaboration, principals are unlikely to foster a cultural shift to increased collaboration. Specifically, fostering a vision of collaboration means principals motivate teachers to be dynamically interactive, effective, and driven by the shared vision of improving student learning (Moore, 2010). A shared vision of teacher collaboration should be grounded in both research and practitioner knowledge (Beaty-O’Ferrall & Johnson, 2011; Wood, 2010). Above all else, the shared vision that a leader creates within a school helps individuals make sense of their work and find a collective identity (Leithwood et al., 2004). This collective identity, alongside ongoing and regular collaboration, can generate change within a school (Hallinger & Heck, 2002). While the administrator plays a crucial role in the decision-making, planning, and setting of values within teacher teams, how these roles (in this case, the formulation of vision) impact school improvement should be explored further (Hallinger & Heck, 2002). While the work of establishing a shared vision takes a great deal of time, it is time well spent as it will eventually demonstrate a strong return on the investment (Marzano, Waters, & McNulty, 2005).

**Visibility.** One of the 21 responsibilities of the school leader identified by Marzano, Waters, and McNulty (2005) was visibility. It refers to a school leader’s contact and interaction
with teacher teams, as well as students and parents (Marzano, Waters, and McNulty, 2005). Visibility entails regular visitation of classrooms and attendance at school events and functions by building principals, and it provides ongoing coaching and mentoring opportunities where leaders can support teacher learning and change (Crafton & Kaiser, 2010). Without being visible, the relationship between a teacher and principal is limited. Specifically, the physical presence of principals in teams does two important things: (1) it conveys that principals care and are connected, and (2) it affords principals with the opportunity to interact with teachers and students as a natural component of the collaborative culture. Instead of seeing a principal solely as an authority figure, the visibility of principals in teacher teams further promotes a collaborative environment through their participation and support for the team. Indirectly, visibility fosters a sense of community within a building, something that has been established as an important administrative role for principals (Marzano, Water, and McNulty, 2005).

**Feedback, monitoring, and evaluation.** Collaboration is a process that takes time to fully emerge within an organization (Rasberry & Mahajan, 2008). As a district embarks on a cultural change initiative to increase collaboration, regular feedback, monitoring, and evaluation is crucial (Gate & Watkins, 2010; Rasberry & Mahajan, 2008). Even the strongest teachers need feedback from administrators and peers (Yamraj, 2008). In some cases the feedback will be positive, while in others it may involve some degree of constructive criticism to guide change. In all cases, the administrator’s involvement directly impacts the manner in which the process of inquiry has been constructed and the manner in which it supports, nurtures, and models future inquiry (Nelson, 2009).

Hattie’s (1992) review of nearly 8,000 studies showed that what enhances achievement the most is feedback. However, feedback does not occur automatically and needs to happen
within a system of monitoring and evaluation that assesses the effectiveness of school practices in terms of their impact on student achievement. Elmore (2000) found that effective schools had administration that actively monitored curriculum and instruction. Kaagan and Markle (1993) also observed that continuous monitoring was a norm in the most effective schools. Thus, the feedback that an administrator provides a team is crucial to their effectiveness.

**Supported, regular meeting times.** To function properly, teacher teams require regular meeting times that principals should prioritize (DuFour, 2004). This can be complicated on a school level due to district-wide initiatives (Pittman, 2009). Yet providing supported, regular meeting time is a crucial task of administrators. Principals must place a priority on finding time within the year for teacher teams to meet. Beyond simply meeting in teams, principals need to support teachers within these teams. When supported meeting times occur, it demonstrates the commitment of the principal to the collaborative process and its goals (Rasberry & Mahajan, 2008). Further, these regular meeting times allow for members of a team to plan and support each other on a consistent basis. National data indicate that teachers collaborate 2.7 hours per week (Markow, Pieters, & Harris Interactice, 2010).

**Attendance and facilitation.** The ability of teachers to support one another can be enhanced as administrator attendance at teacher team meetings increases. The presence of administrators allows for the refinement of inquiry questions, the development of trust, and the understanding of the collaborative process, assuming the leader is an active participant while in attendance (Nelson, 2009). Beyond just being visible, principals who attend meetings stand to assist in the facilitation of meetings. Thus, principals who regularly participate can enhance the long-term effectiveness of teacher teams through their guidance during meetings (Servage, 2008). Depending on the experience of the members of a teacher team, the role of the principal
in facilitating work within a team will vary. It is reasonable to assume that over time a principal would desire less responsibility facilitating as other members of a teacher team take ownership of the process.

**Use of student achievement data.** Use of student achievement data is necessary for any cycle of inquiry in a CoP or teacher team (DuFour, 2007; Gajda & Koliba, 2008). When used properly, data can drive significant improvements in instruction (Horton & Martin, 2010). Principals need to model proper use of data within teacher teams; for example, using data to make instructional decisions (Rasberry & Mahajan, 2008). Additionally, principals can model the use of multiple data sources in discussing student achievement (Bloom & Vitcov, 2010). Using data as the cornerstone of how teachers analyze and discuss student data in teams takes time (Stoll, Ray; McMahon, Wallace, & Thomas, 2006). In promoting teacher collaboration, a principal needs to ensure that discussions and decisions are grounded in student data. Additionally, a principal may desire a team to consider data that they otherwise may fail to consider.

**Setting goals.** While setting a clear vision linked to teacher collaboration was identified earlier as an important strategy to foster teacher collaboration, setting goals directly linked to teacher collaboration is equally as important. By involving teachers in the process of setting goals for their team’s collaboration, the personal beliefs or identities of members can be better aligned with school/district goals, potentially increasing their buy-in (Crafton & Kaiser, 2010).

Marzano, Waters, and McNulty (2005) noted the tendency for schools to become too eager in trying new things, which can result in ambiguity regarding school goals. Furthermore, when teachers feel like they do not have a voice in goal setting, identity that is rooted in collaborative initiatives is thwarted. Marzano, Waters, and McNulty (2005) concluded that an
effective school leader must establish clear goals and maintain focus on those goals. They found four specific behaviors or characteristics that were associated with this in their meta-analysis, including the establishment of concrete goals for curriculum, instruction, and assessment practices within the school as well as for general school functioning, high expectations that students will meet these goals, and continued attention to what the goals entail.

**Recognizing and celebrating achievements.** Among other things, administrators influence collaboration through the recognition of their teacher teams’ collaborative efforts (Sawyer & Rimm-Kaufman, 2007). The notion of using contingent rewards, in other words recognizing and rewarding teachers’ accomplishments, might seem like common practice in K-12 education; however, it is quite rare (Marzano, Waters, and McNulty, 2005). Recognizing and rewarding the accomplishments of employees is important for a variety of reasons. Kouzes and Posner (1999) explained that contingent rewards send a message of what is valued by the organization. In their framework for school leaders, Woodland and Koliba (2008) described the importance celebrating intellectual accomplishments as the last step in improving the quality of collaboration in teacher teams. They argued that celebrating these achievements generates a better appreciation for collaboration and promotes a vision for what teacher teams can accomplish working together.

**Connections between Leadership and Teacher Collaboration**

In sum, the principals’ role in creating a collaborative culture has been recognized in many state standards for school leaders and there appears to be a robust relationship between invested leaders and successful collaboration in schools. This review has identified some specific strategies that have been utilized in nurturing a collaborative environment. These included promoting a shared vision of teacher teams, increasing visibility in those teams,
providing individual and team feedback, attending and/or facilitating team meetings, monitoring team progress through the use of student achievement data, setting team goals, and recognizing/celebrating team achievements.

Summary

This chapter reviewed literature on leadership, teacher collaboration, and the relationship between the two. One key theme that emerged from the literature review in this chapter was a shift in focus from more command-and-control oriented leadership to a shared or distributed notion of leadership. Another important element that surfaced was the significance of collaboration in reducing teacher isolation and improving student performance. The research on teacher collaboration also revealed the key role of administrators in gaining acceptance for cultural change and maintaining focus on change initiatives. Finally, widely assessed principal strategies for increasing collaboration in teacher teams were reviewed and eight principal actions were identified as being most significant in fostering teacher collaboration. Yet the question remains whether these principal actions are identified by teachers as the most important administrative roles to increase collaboration on a school/district level. The following chapter will discuss the methodology and research design used in this study.
CHAPTER 3

METHODOLOGY AND RESEARCH DESIGN

Introduction

Many educational studies have researched the benefits of teacher collaboration in schools (e.g. Elbousty & Bratt, 2010; Yamraj, 2008) and the importance of strong leadership in facilitating school change (e.g. Horton & Martin, 2010; McDougall, Saunders, Goldenberg, 2007). It is clear that if teachers collaborate, both students and teachers stand to benefit (Jackson & Bruegmann, 2009; Yamraj, 2008); however, there has been documented resistance on the part of many teachers to adopt a collaborative process (Elmore, 2000).

The literature review provided in Chapter 2 identified the crucial role of the principal in encouraging and facilitating collaboration. Principals must play a central role in establishing and maintaining effective teacher teams (DuFour & Eaker, 1998; Gajda & Koliba, 2008; Maxwell, Wells, Keane, & Klocko, 2008; Mullen & Hutinger, 2008); however, little research exists that speaks to this relationship. This study will examine the connection between principals’ roles in teacher teams and teachers’ perceptions of collaboration, over time, in a school district that has implemented a comprehensive approach to developing teacher teams.

The present study expands upon the existing leadership and collaboration literature by using a theory-driven approach to investigating the role principals play in creating a cultural shift toward collaboration. More specifically, teachers’ perceptions of principal actions in support of teacher teams and the quality of teacher collaboration will be examined over time. Further, this study will investigate what, if any, high leverage principal behaviors emerge as having the strongest impact on the quality of teacher collaboration. It is hypothesized that principal actions in support of teacher teams and the quality of teacher collaboration will increase over time.
Additionally, it is predicted that the establishment of a strong vision will be identified by teachers as being the most vital administrative role within teacher teams. This chapter will provide a map of the study’s methodology and research design including: an overview of the problem, the purpose of the study, research questions and hypotheses generated, population and sample used, the method of data collection, a description of the instrumentation used, and a plan and rationale for data analysis.

**Problem and Purposes Overview**

Teacher collaboration has become a well-known means of initiating school improvements (Barr & Parrett, 2003; DuFour, 2007; Gajda & Koliba, 2008; Hayes, Mills, & Lingard, 2004; Sergiovanni, 2001). Some of the many positive outcomes of collaboration include: increases in student achievement (Fullan, 2005; Gates & Watkins, 2010; Hayes, Christie, Lingard, 2004; Hord, 2009; Stoll, Bolam, McMahanon, Wallace, & Thomas, 2006, Wei, Darling-Hammond, & Adamson, 2010; Zito, 2011), classrooms that are more student-centered (Harris & Jones, 2010; Hord, 2007; Yamraj, 2008), and better use of class time (Elbousty & Bratt, 2010; Hord, 1997; Yamraj, 2008). The leader’s role in creating a culture of collaboration is crucial, and as the leaders with the most teacher contact, principals are instrumental in shaping and improving teachers’ performance (DuFour, DuFour, & Eaker, 2008). However, there is little empirical research in existence regarding school principals’ role in promoting such a culture, or which actions have the strongest effect on quality of teacher collaboration.

**Research Questions and Hypotheses**

The following research questions will be considered in this mixed methods study of teacher teams:

1. How have principal actions in support of teacher teams changed over time?
2. How has the quality of collaboration among teachers changed over time?

3. What is the relationship between principals’ actions in support of teacher teams and the quality of teacher collaboration? What, if any, high leverage principal behaviors emerge as having the greatest impact on the quality of teacher collaboration?

The hypotheses are as follows:

1. Principal actions in support of teacher teams will increase over time.

2. The quality of collaboration among teachers will increase over time.

3. Principals’ establishment of a shared vision will have the strongest impact on the quality of teacher collaboration.

District under Review’s Collaboration Initiative

A multi-year collaboration initiative was undertaken in a Connecticut district beginning in 2006. At that time, the Connecticut Center for School Change (CCSC) invited the district’s superintendent to take part in their Systemic Instructional Improvement Program (SIIP). According to Zito (2011), the purpose of the SIIP initiative was to mentor “senior-level district staff to help the district restructure their operations and focus on improved student achievement.” To this end, the district received a grant which was used to fund a CCSC coach and university consultant, both of whom worked with the district to provide staff with professional development related to the creation of Professional Learning Communities and an increase in teacher collaboration in an effort to improve student learning.

One of the biggest strengths of this initiative was the tremendous support within the district’s central office. The superintendent believed that creating and supporting the PLCs in each school was essential for strengthening variables such as instructional practice and collaboration, and improving student learning. Initial norms for the collaborative work were
aligned with the district’s theory of action (see Appendix C): “If we provide opportunities for
teachers to collaboratively examine student work, student assessment results and other data
relating to student performance in our standards-based curriculum, then teachers will have the
necessary information to appropriately adjust instruction so that all students will reach district
curriculum standards.” The theory of action shaped two major goals for the district: (1)
continued improvement of the K-12 mathematics program, and (2) helped the district more
effectively implement systemic change.

The collaboration initiative was modeled after Woodland and Koliba’s (2008) *Teacher
Collaboration Improvement Framework* (TCIF), which is a field-tested framework for evaluating
and improving the quality of teacher collaboration (see Figure 3-1). The first step of this
framework is to “raise collaboration literacy.” This was the main concentration in the district
during the summer of 2008. Administrators met with the university consultant for professional
development in an effort to increase knowledge on collaboration. They also read scholarly
material about collaboration, including the book *On Common Ground: The Power of
Professional Learning Communities* (DuFour et al., 2005), and participated in discussions about
the most important elements that emerged.
Figure 3-1: Teacher Collaboration Improvement Framework (TCIF)

Teacher Collaboration Improvement Framework (TCIF)

1. RAISE COLLABORATION LITERACY
   Foster a shared appreciation for and an understanding of teacher collaboration and professional learning communities.

2. IDENTIFY and INVENTORY COMMUNITIES of PRACTICE.
   Determine who is working with whom and for what purpose.

   Are all teachers a member of at least one team whose purpose is to improve teaching and learning? Is distribution of CoP membership equitable?

   YES

3. RECONFIGURE TEAMS
   So that membership distribution is purposeful and equitable.

   NO

4. ASSESS QUALITY of COLLABORATION
   Determine and document level(s), nature, and quality of team functioning.

   Is team functioning of consistently high quality? Do the teams demonstrate high intellectual output?

   NO

5. MAKE CORRECTIONS
   Support and direct teams who demonstrate attributes of poor quality collaboration and low intellectual output.

   YES

6. RECOGNIZE ACCOMPLISHMENTS
   Share improvements made in the quality of teacher collaboration. Celebrate achievements of teacher teams with high intellectual output.

The next step in the TCIF was to “identify and inventory communities of practice” to distinguish the members of each team and to determine their primary purpose. Based on this information, teams were reconfigured as needed in accordance with Step 3 of the TCIF in order to create better structure, or to match teachers in a way that would improve the team’s functionality. Overall, reconfiguration was not necessary for the majority of teams, as principals judged them to be suitably arranged for collaborative work.

Once team memberships were established, the quality of teacher collaboration was assessed with the Teacher Collaboration Survey to determine how well the teams were functioning (Step 4 of TCIF). Administrators and teachers were also trained on how to use The Teacher Collaboration Assessment Rubric (TCAR), developed by Gajda and Koliba (2008), which can be reviewed in Appendix D. The TCAR is rubric that assesses the quality of collaboration within teacher teams by measuring the team’s function with respect to dialogue, decision making, action, and evaluation (DDAE). Goodlad, Mantle-Bromley, and Goodlad (2004) use the acronym DDAE in referring to these four components which comprise a cycle of inquiry.

Within this cycle, teams engage in dialogue to address disagreements and discuss strengths and weaknesses in their practice (Gajda & Koliba, 2008). They then make decisions about changes to institute as a result which based on continuous group dialogue. Next, specific actions are taken related to practice in order to constitute change and the team also evaluates whether or not those actions were beneficial. Evaluation is done on a continuous basis through the collection and analysis of data, and teams use this data to inform future decisions regarding action. As Gajda and Koliba described, “systematic evaluation of practice is a critical
Assessment of teacher collaboration was also done through observations of teacher teams, reviews of meeting minutes, and interviews, all of which attempted to answer the questions “Is team functioning of consistently high quality?” and “Do the teams demonstrate high intellectual output?” This information was then used to help teams who were struggling, as evidenced by poor quality collaboration and low output (Step 5 of the TCIF). These teams were provided with further training and ways to facilitate team processes. Finally, teams that were demonstrating high collaboration and intellectual output were recognized for their achievements (Step 6 of the TCIF).

**Population and Sample**

The population for the present study included approximately 400 teachers and 12 administrators in a high performing Connecticut school district that served around 5,000 students in 2010. The demographics of the district under review are displayed in Table 3-1. As can be seen in the table, both the student and teacher populations were predominantly white (86.9% and 97.4%, respectively), with 12% of the teachers certified in special education, and 84% in possession of at least a Master’s degree. Approximately 5% of the population is eligible for free or reduced lunch price.
Table 3-1: Demographics of the District and Teachers

<table>
<thead>
<tr>
<th>Teacher Breakdown</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Education</td>
<td>287.20</td>
<td>88</td>
</tr>
<tr>
<td>Special Education</td>
<td>39.30</td>
<td>12</td>
</tr>
</tbody>
</table>

Teacher’s Race/Ethnicity

| White               | 97.4 |
| Minority            | 2.6  |

Teacher’s Education

| % with Master’s Degree or Above | 84 |

Student Race/Ethnicity

| Asian American | 256 | 5.3 |
| Black          | 205 | 4.2 |
| Hispanic       | 165 | 3.4 |
| White          | 4,227 | 86.9 |

The survey has been administered since 2008. Table 3-2 provides a summary of the response rate for each of the years.

Table 3-2: Response Rate by Year of Survey Administration

<table>
<thead>
<tr>
<th>Year</th>
<th>Completed Surveys</th>
<th>Total Surveys</th>
<th>Response Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>132</td>
<td>186</td>
<td>71%</td>
</tr>
<tr>
<td>2009</td>
<td>280</td>
<td>336</td>
<td>83.3%</td>
</tr>
<tr>
<td>2010</td>
<td>328</td>
<td>370</td>
<td>88.6%</td>
</tr>
<tr>
<td>2011</td>
<td>267</td>
<td>290</td>
<td>92.1%</td>
</tr>
</tbody>
</table>

Data Collection and Instrumentation

This data set was part of a longitudinal study in which survey data were collected in May of each year starting in 2008. Although the district employed nearly 400 certified staff, in the initial year of the data collection, teams existed only at the elementary level. In 2009,
comprehensive scheduling changes (most notably, the addition of block scheduling in the high school) occurred that allowed the district to organize teams at the middle and high school levels.

A mixed-method, non-experimental longitudinal research design was used for this study. An existing database originating from the district’s collaboration survey served as the source of data. The *Teacher Collaboration Survey* (Appendix E) was developed by a PLC subject matter expert (SME) who worked in conjunction with the district and the Connecticut Center for School Change. The survey had three sections: (1) *Quality of Collaboration in Your Primary PLC*, including characteristics of teaching collaboration, (2) *Perceptions about Collaboration*, including the role of administrator/supervisor formats for PLCs and administrator roles, and (3) *Collaboration, Your Instructional Practice, and Student Achievement*, or the effects of primary PLCs, lessons learned about instructional practices, etc.

All portions of the survey were completed online through the website *SurveyMonkey*. Content validity for the survey can be inferred because the survey items were developed by a subject matter expert (Fraenkel & Wallen, 2003). The instrument was designed based on the SME’s extensive knowledge of PLCs, a literature review, and consultation with peers. Using a SME to evaluate items and test content has long been acceptable in the measurement field (Hambleton 1980, 1984; Sireci, & Geisinger, 1995). Additionally, studies by Lee and Randall (2011) as well as Cook, Foster, and Randall (2011) evaluated the psychometric properties of the two scales on the *Teacher Collaboration Survey* that will be used in this study. They found favorable results overall, indicating that these scales measure the intended construct.

Cronbach’s alpha is widely used in the social sciences as a means of assessing reliability of internal consistency on a survey (Bland & Altman, 1997; Santos, 1999; Sexton, Snyder, Wadsworth, Jardine, & Ernest, 1998), and was used to measure the internal consistency of scales
in the present study. Cronbach’s alpha is considered the Bill Gates of measurement reliability (Reis & Judd, 2000). A score of 0.65 or higher is viewed as acceptable (Kleinsasser, 1999).

Below is the mathematic definition of Cronbach’s alpha:

\[
\alpha = \frac{K}{K-1} \left( 1 - \frac{\sum_{i=1}^{K} \sigma^2_{Y_i}}{\sigma^2_X} \right)
\]

Where:
- \( K \): Number of items
- \( \sigma^2_X \): Observed Variance of total test scores
- \( \sigma^2_{Y_i} \): Variance of component “I” for active sample or “n”

Table 3-3 presents the reliability coefficients for scales used in the survey in tabular format.

Once again, these were all self-reported perceptions of teachers. As can be seen in the table, the reliability coefficients were high across all variables, indicating sufficient internal consistency.

The next section will describe each measure in more detail.

**Table 3-3: Scale Alphas by Year**

<table>
<thead>
<tr>
<th>Scale</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Principal Actions</td>
<td>.93</td>
<td>.95</td>
<td>.97</td>
<td>.93</td>
</tr>
<tr>
<td>Quality of Collaboration</td>
<td>.95</td>
<td>.95</td>
<td>.93</td>
<td>.90</td>
</tr>
</tbody>
</table>

**Principal Actions in Support of Teacher Teams**

Principal actions in support of teacher teams was measured through ratings of 12 items on a 5-point likert scale, ranging from “Strongly Agree” to “Strongly Disagree,” with a sixth option of “Don’t know/Cannot Determine.” Scaled scores were computed as average responses where higher ratings indicated stronger agreement. Items that were rated as “Don’t Know/Cannot Determine” were excluded from further analyses. Table 3-4 displays the 12 items that participants used to indicate their agreement/disagreement about their principal’s involvement in their teacher teams:
Table 3-4: Principals’ Actions in Support of Teacher Teams Scale Items

1. My principal promotes a shared vision for teacher collaboration.
2. My principal observes my PLC participation.
3. My principal monitors the actions and achievements of my primary PLC.
4. My principal monitors how the work of my primary PLC impacts student achievement.
5. I have received individual feedback from my principal about how I could improve my contribution to my primary PLC.
6. Our group has received feedback from the principal about how to improve the quality of collaboration in our primary PLC.
7. I understand how to use the Teacher Collaboration Assessment Rubric (TCAR) as a tool to improve the quality of collaboration in my primary PLC.
8. My principal helps my primary PLC to set clear and measurable goals for student learning.
9. My principal helps my primary PLC figure out how to monitor our progress and achievements on a continuous basis.
10. My principal helps my primary PLC figure out how to monitor our progress and achievements on a continuous basis.
11. My principal uses evidence to identify areas that need improvement in my primary PLC.
12. My principal effectively addresses individuals who are resistant to, or disruptive of, the development of high quality teacher collaboration.

Aside from the content validity of this scale that can be inferred by the judgment of a SME, as previously discussed, Lee and Randall (2011) utilized an extension of the Rasch model called the Rating Scale Model (RSM) to investigate the functioning of this rating scale. Based on item response theory, RSM can analyze ratings of likert-type scales, such as the scales under investigation in this study. Drawing from Linacre (1999), Lee and Randall (2011) used a computer program called Facets 3.26 to investigate the eight guidelines in Table 3-5 that indicate the functionality of rating scale categories:
Table 3-5: Functionality of Rating Scale Categories for Principal Actions

<table>
<thead>
<tr>
<th>Guideline</th>
<th>Met requirements for functionality</th>
<th>Met requirements for functionality with revised four point scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. At least 10 observations of each category</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>2. Regular observation distribution</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>3. Average measures advance monotonically with each category</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>4. OUTFIT mean-squares less than 2.0</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>5. Step calibrations advance</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>6. Ratings imply measures, and measures imply ratings</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>7&amp;8. Step difficulties advance by at least 1.4 logits (1.0 for 5-category scale) and by less than 5.0 logits</td>
<td>Y</td>
<td>Y</td>
</tr>
</tbody>
</table>

Although the 5-point rating scale met almost all of Linacre’s (1999) guidelines, the analysis indicated that the categories were not used equally (specifically the Disagree and Strongly Disagree categories compared to the remainder of the rating categories), that only a very small portion of the scale had Disagree or Neutral as the most probable category, and that Rasch-Andrich thresholds increases were small. These were all evidence that there may have been too many rating categories, and although combining the Disagree and Neutral categories would eliminate the problem from a statistical perspective, the authors argued that it was not wise to combine semantically different categories as it can change the meaning of the scale.

Aside from the scale’s functionality and appropriateness, Lee and Randall (2011) wanted to establish the overall quality of the scale and its ability to define the construct of interest. In doing this, they used the following five questions developed by Wright and Masters (1982) to evaluate the requirements of measurement:

1. Have we succeeded in defining a discernible line of increasing intensity?
2. Is item placement along this line reasonable?
3. Do the items work together to define a single variable? (Consistency)

4. Have we succeeded in separating persons along the line defined by the items?

5. How valid is each person’s measure?

The results are displayed in Table 3-6 below:

<table>
<thead>
<tr>
<th>Measures</th>
<th>Teachers</th>
<th>Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>1.57</td>
<td>0.00</td>
</tr>
<tr>
<td>SD</td>
<td>1.98</td>
<td>0.79</td>
</tr>
<tr>
<td>N</td>
<td>291</td>
<td>12</td>
</tr>
<tr>
<td>Infit</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>1.03</td>
<td>1.01</td>
</tr>
<tr>
<td>SD</td>
<td>0.75</td>
<td>0.32</td>
</tr>
<tr>
<td>Outfit</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>1.01</td>
<td>1.00</td>
</tr>
<tr>
<td>SD</td>
<td>0.69</td>
<td>0.40</td>
</tr>
<tr>
<td>Reliability of Separation</td>
<td>0.89</td>
<td>0.99</td>
</tr>
<tr>
<td>Separation Index</td>
<td>2.83</td>
<td>8.70</td>
</tr>
<tr>
<td>$\chi^2$</td>
<td>2285.6</td>
<td>785.5</td>
</tr>
<tr>
<td>degrees of freedom</td>
<td>290</td>
<td>11</td>
</tr>
</tbody>
</table>

The requirements of measurement set forth by Wright and Masters (1982) were met, with the exception of the fourth question. The results of Lee and Randall’s (2011) analysis indicated that more general scale items were easier to agree with than more specific scale items, or items regarding situations that teachers may not have encountered. In their examination of internal structure, they suggested that more items were needed to better separate people across the underlying construct, or latent variable. However, they reported that, overall, the items and survey respondents were evenly separated along the scale of measurement, and that for a scale consisting of twelve items, there was adequate separation.

**Quality of Collaboration**

Teachers’ perceived quality of collaboration in teacher teams was measured with 22 items that were rated on a 5-point likert scale. The responses were ‘My primary PLC is: nothing
like that, not like that, sort of like that, mostly like that, and just like that.’ Once again, scale scores represent average responses to items, with higher scores indicating greater agreement. There was also an option to select “Don’t know/Cannot Determine” and these cases were excluded from analyses. The 22 items are listed in Table 3-7 below:

Table 3-7: **Quality of Teacher Collaboration Scale Items**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>All the members of my primary PLC share and express a vision for student learning.</td>
</tr>
<tr>
<td>2</td>
<td>The goal of our collaboration is clear - to systematically improve instruction and increase student learning.</td>
</tr>
<tr>
<td>3</td>
<td>The membership configuration of my primary PLC is appropriate – the right people are members of the group.</td>
</tr>
<tr>
<td>4</td>
<td>Our meetings are consistently attended by ALL members.</td>
</tr>
<tr>
<td>5</td>
<td>We always have a pre-planned agenda for our meeting.</td>
</tr>
<tr>
<td>6</td>
<td>We always keep a record of what happened in our meetings.</td>
</tr>
<tr>
<td>7</td>
<td>Our dialogue is focused on the examination of instructional practice and student performance data.</td>
</tr>
<tr>
<td>8</td>
<td>We utilize specific protocols to structure our dialogue.</td>
</tr>
<tr>
<td>9</td>
<td>We experience healthy professional inter-personal tension and directly address and resolve conflict.</td>
</tr>
<tr>
<td>10</td>
<td>There are no &quot;dominators&quot; or &quot;hibernators&quot; in the group - everyone participates/contributes equally.</td>
</tr>
<tr>
<td>11</td>
<td>We regularly make decisions about what instructional practices to initiate, maintain, develop, or discontinue.</td>
</tr>
<tr>
<td>12</td>
<td>All of our decisions are informed by group dialogue.</td>
</tr>
<tr>
<td>13</td>
<td>Decisions are transparent - everyone knows what the decision is and how and why it was made.</td>
</tr>
<tr>
<td>14</td>
<td>The decisions we make are clearly and directly related to the improvement of instructional practice and the cultivation of student learning.</td>
</tr>
<tr>
<td>15</td>
<td>As a result of group decision-making each one of us makes pedagogically complex adjustments to our instructional practice.</td>
</tr>
<tr>
<td>16</td>
<td>There is always an equitable distribution of workload among team members.</td>
</tr>
<tr>
<td>17</td>
<td>As a group we regularly collect and analyze information about member teaching practices.</td>
</tr>
<tr>
<td>18</td>
<td>As a group we regularly collect and analyze information about student performance.</td>
</tr>
<tr>
<td>19</td>
<td>We observe the classroom instruction of our colleagues.</td>
</tr>
<tr>
<td>20</td>
<td>We use student performance data to evaluate the merit of our instructional practices.</td>
</tr>
<tr>
<td>21</td>
<td>We regularly and publicly share evaluation data in our primary PLC.</td>
</tr>
<tr>
<td>22</td>
<td>The accomplishments of our primary PLC are publicly recognized.</td>
</tr>
</tbody>
</table>

Once again, the computer program Facets was used to provide evidence of validity based on the scale’s utility and internal structure (Cook, Foster, & Randall, 2011). The results are presented in Table 3-8.
Table 3-8: Functionality of Rating Scale Categories for Quality of Teacher Collaboration

<table>
<thead>
<tr>
<th>Guideline</th>
<th>Met requirements for functionality</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. At least 10 observations of each category</td>
<td>Y</td>
</tr>
<tr>
<td>2. Regular observation distribution</td>
<td>Y</td>
</tr>
<tr>
<td>3. Average measures advance monotonically with each category</td>
<td>Y</td>
</tr>
<tr>
<td>4. OUTFIT mean-squares less than 2.0</td>
<td>Y</td>
</tr>
<tr>
<td>5. Step calibrations advance</td>
<td>Y</td>
</tr>
<tr>
<td>6. Ratings imply measures, and measures imply ratings</td>
<td>Y</td>
</tr>
<tr>
<td>7. Step difficulties advance by at least 1.4 logits</td>
<td>N</td>
</tr>
<tr>
<td>8. Step difficulties advance by less than 5.0 logits</td>
<td>Y</td>
</tr>
</tbody>
</table>

Analyses of the internal structure, which examined the spread of scores, dimensionality, separation, and reliability, are reported in Table 3-9.

Table 3-9: Internal Structure Analyses for Quality of Collaboration Survey

<table>
<thead>
<tr>
<th>Measures</th>
<th>Respondents</th>
<th>Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>1.3</td>
<td>1.2</td>
</tr>
<tr>
<td>SD</td>
<td>1.1</td>
<td>23</td>
</tr>
<tr>
<td>N</td>
<td>349</td>
<td>23</td>
</tr>
<tr>
<td>INFIT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>1.01</td>
<td>0.46</td>
</tr>
<tr>
<td>SD</td>
<td>0.04</td>
<td>1.01</td>
</tr>
<tr>
<td>OUTFIT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>1.10</td>
<td>0.94</td>
</tr>
<tr>
<td>SD</td>
<td>0.02</td>
<td>1.10</td>
</tr>
<tr>
<td>Reliability of Separation</td>
<td>0.92</td>
<td>1</td>
</tr>
<tr>
<td>Chi-Square</td>
<td>4152.4</td>
<td>4799.8</td>
</tr>
<tr>
<td>Degrees of Freedom</td>
<td>348</td>
<td>22</td>
</tr>
</tbody>
</table>

The guidelines set forth by Linacre (1999) for rating scale utility were well met, which indicated that each level of rating is contributing to the scale. This means that it was not necessary to change the response categories by either combining groups or collapsing them. Cook, Foster, and Randall (2011) also provided support for the internal structure of the survey in that only one of the items and a low number of individuals did not fit the model. As they explain, this indicates that the scale is uni-dimensional and provides evidence for internal
consistency. Further, they suggested that the location of items and people on the variable map was also indicative of strong internal structure.

Data Analysis

Hierarchical Linear Modeling (HLM) will be used in the data analysis of the first two research questions because it allows for the “nestedness” of the data. In addition to seeing if perceptions of teachers are changing over time, HLM will consider differences on the individual level and team level. By calculating slopes (regression) and intercepts over time for individual subjects, HLM will provide a visual representation, a model, that accounts for the non-independence of repeated measures within an outcome variable (in this case individual teachers) but also groups (in this case teams) (Raudenbush & Bryk, 2002). Lee (2000) described three steps when conducting a HLM analysis: (1) partitioning the variance in a dependent variable into two parts—variance that lies between teachers in the same school (pooled over schools) and the proportion of the variance between schools; (2) estimating the within-school or level one model, in this case, investigating the characteristics of teachers associated with perceptions about the quality of collaboration and perceptions about principal involvement; and (3) estimating school effects adjusted for teacher effects.

HLM 7 software created by Raudenbush, Bryk, and Congdon will be used to estimate three-level hierarchical models, representing time (Level 1 scores), nested within teachers (Level 2 scores; how scores vary/change over time as a function of teacher characteristics), and teachers nested within teams (Level 3 scores; how scores vary/change as a function of teams taking teacher characteristics into account). For this study, data was collected on four different occasions, once per year. The data were collected at around the same time in each of the school years and administered as part of a professional development (PD) day. There were two
A fully-unconditional model with no predictors was first specified for each outcome to determine the intra-class correlation coefficients (ICCs), which provides the amount of variance in scores explained by teachers and schools and verify whether data are independent (note that any ICCs greater than zero indicate non-independence, and establish the need for a multilevel model analysis). Then, each model was comprised of year (centered so that the intercept for each model represents scores from the first year) and team as a time-varying covariate. Full maximum likelihood estimation, which is the default procedure in HLM 7 software, was used to estimate the models (Simonsen, B., Eber, L., Black, A., Sugai, G., Lewandowski, H., Sims, B., and Myers, D., 2011).

**Research Question #1**

The mean score from the Principal’s Actions in Support of Teacher Teams scale was calculated in order to determine how principal actions in support of teacher teams have changed over time. Within the HLM framework, the Level 1 scores included within-subject data, in this case, time. Level 2 scores consisted of the between-subject data of teachers in this district, which are the teachers’ mean scores on the Principal’s Actions in Support of Teacher Teams scale. Level 3 scores were the teams. For this research question, time was the independent variable and the mean score was the dependent variable. The model equations and explanations for the unconditional model are described below:

**Level-1 Model**

\[
PRINC.ME_{ijk} = \pi_{0jk} + \pi_{1jk} \times (YEAR_{ijk}) + e_{ijk}
\]
Where PRINC.ME_{ijk} = score of teacher j in team k at time i, π_{0jk}=mean score of
teacher jk (intercept), e_{ijk}=the deviation of each teacher’s jk score at time i from
the average, and π_{1jk} = yearly growth rate of teacher jk.

Level-2 Model

π_{0jk} = \beta_{00k} + r_{0jk}
π_{1jk} = \beta_{10k} + r_{1jk}

Where each teacher’s score becomes the DV (outcome) varying randomly around
team k mean, and \beta_{00k}= average score in team k, r_{0jk}=random teacher
effect/deviation of teacher jk’s average score from the team mean, and \beta_{10k}=mean
yearly growth for team k.

Level-3 Model

\beta_{00k} = γ_{000} + u_{00k}
\beta_{10k} = γ_{100} + u_{10k}

Where γ_{000}= grand mean, u_{00k}=random team effects/deviation of team k’s mean
from grand mean, and γ_{100}=mean growth rate between teams.

Mixed Model

PRINC.ME_{ijk} = γ_{000} + γ_{100}*YEAR_{ijk}+ r_{0jk} + r_{1jk} *YEAR_{ijk} + u_{00k} + u_{10k}*YEAR_{ijk} +
e_{ijk}

Research Question #2

Mean scores from the Quality of Teacher Collaboration scale will be calculated to
analyze the question of how the quality of collaboration among teachers has changed over time.
The Level 1 scores in this model are time, while the Level 2 scores are the teachers’ mean scores
on the Quality of Collaboration scale. Level 3 scores will again be the teams. For this research
question, time is the independent variable and the mean quality of collaboration score is the dependent variable. The model equations are the same as in research question one, with the exception of the DV, which will be the mean score on the principal actions in support of teacher teams scale rather than the quality of teacher collaboration scores.

**Research Question #3**

In order to examine the relationship between principals’ actions in support of teacher teams and the quality of teacher collaboration, a correlation analysis must be conducted. A correlation is a measure of the linear relationship between two quantitative variables (Hinkle, Wiersma, & Jurs, 2003; Moore, 1995). The correlation coefficient, or Pearson’s $r$, can range from -1.0 to +1.0. This coefficient indicates two important things about the relationship between the variables: (1) direction, and (2) strength. The direction of the relationship is indicated by the (+/-) sign which appears before the coefficient. A (+) sign indicates a positive relationship, such that as one variable increases, the other also increases. The (-) sign indicates a negative relationship, signifying that as one variable increases, the other decreases. Strength, or magnitude, can be inferred by the absolute value of the coefficient and its proximity to zero. The closer it is to zero, the weaker the relationship. It is important to note that correlation does not imply causation (Hinkle, Wiersma, & Jurs, 2003; Moore, 1995). Although it indicates the association between the two variables, without experimental manipulation, one cannot infer a causal relationship.

Another key piece of information that a correlation provides is the amount of variance accounted for in the relationship. Taking the square of the correlation coefficient, $r^2$ (or coefficient of determination), provides the proportion or percent of the total variance in $Y$ associated with variance in $X$ (Hinkle, Wiersma, & Jurs, 2003; Moore, 1995). Thus, correlation
can also indicate how much the variance in one variable can be attributed to the other, and how much is attributable to other factors.

Because the third research question in this study is looking to establish the relationship between the degree of perceived principal involvement in teacher teams and quality of teacher collaboration, a correlation is the appropriate statistical analysis. Correlation is the proper method for examining whether a relationship exists between these variables (Hinkle, Wiersma, & Jurs, 2003; Moore, 1995).

This correlational analysis will be supplemented with a frequency analysis of categorical responses to the following survey item: “In your experience, over the past 3 months what role has your principal/administrator played in relation to your primary PLC? Check all that apply.” Responses were presented as a checklist, enabling participants to indicate all principal actions that were exhibited from the following options: (1) occasional observer, (2) attends most/all of our meetings, (3) visits at the beginning or at the end of our meetings, (4) occasionally facilitates our meeting, (5) requests and collects student achievement/performance data for our primary PLC, (6) provides feedback about how to improve the quality of our collaboration, (7) provides specific training/support that will improve the quality of our collaboration, (8) reconfigures the membership of our group, (9) shares with us his/her vision of teacher collaboration and student performance, (10) has publically recognized achievements of our primary PLC, and (11) has not been involved with our primary PLC to any great extent. The frequency analysis will also be paired with a qualitative analysis of an open-ended question that asks whether principals’ actions in support of teacher teams have fostered increased collaboration, and if so, in what ways. Finally, a qualitative analysis of an open-ended question from an administrative survey that was distributed to principals in 2011 will be used to provide additional information about the
relationship between administrative involvement and the quality of teacher collaboration, and will speak to the cultural shift taking place within this district. The question reads as follows:

What effects have the actions you've taken in relation to PLC development had on your school's culture and teacher practice? i.e. How has your learning about PLCs impacted teacher attitudes, behavior, and instructional practice?

**Limitations, Assumptions, and Design Controls**

One major limitation of this study is the high reliance on self-report data. Although the accuracy of self-report data is often questioned due to concerns about the validity of constructs and the inability to estimate inter-construct relationships, these limitations may be overstated in the literature (Chan, 2009). While the overall survey participation for the district under study was high, the number of participants who completed the entire survey was slightly lower due to non-response, missing items, or inaccurate reporting. The final number of participants in the present study ranged from 132 in 2008 to 328 in 2010. The mean over these three years was 247 participants.

Additionally, with any self-report study, common method variance is a concern. Common method variance refers to the method bias that is inherent in any research where the items share a common method of data collection (Podsakoff, Mackenzie, Lee, & Podsakoff, 2003). Concerns related to this issue include missing or incorrectly reported data, and ratings that may have been influenced by socially desirable responding. Anonymity of responses was used to partially address these concerns.

Assumptions in this study included the belief that all members of the school district took the survey seriously, trusted the anonymity of the data collection, and were honest in their responses. Design controls for this research included anonymous responding to increase honesty.
Participants’ names were never recorded as data for any aspect of this research. Instead, a coding system was developed that asked participants to create a unique identifier using the following formula: “Indicate the LAST 2 LETTERS of your LAST NAME, followed by the 2 letter abbreviation of the STATE IN WHICH YOU WERE BORN, followed by the YEAR YOU GRADUATED from high school. For example, Christine Gallagher, born in Ohio, who graduated in 1987, would enter: EROH1987.” Survey data were collected and analyzed completely in the aggregate by a small team of researchers.

While the participation rate was acceptable, it should be noted that much of the 2011 data was lost due to a procedural change in the collection of data. Additionally, the coding system described above appeared to confuse some participants; thus, aligning data across years was not possible for many participants. It is hypothesized that the year participants graduated from high school was confused with the year they graduated from college. Additionally, it is possible that some participants used the last two letters of their first name instead of their last name.

**Summary**

The sample used for the present study included approximately 400 certified staff from grades K-12 in one Connecticut school district. The data were collected as part of a longitudinal study. A mixed-method, non-experimental causal-comparative research design was used for the study. A PLC subject matter expert created the survey instrumentation. The survey consisted of 42 quantitative and 11 qualitative items, many of which were used to form scales to measure the variables in this study. All measures indicated high internal consistency, as measured by Cronbach’s alpha, which is the standard for contemporary research. A description of the measures, including items used, instructions to participants, and scale scoring were discussed.
Finally, an explanation and rationale for the statistical techniques to be employed for the research questions were provided.
CHAPTER 4
RESULTS

Introduction

For over four years, the district under review has operated under a theory of action which asserted that “If we provide opportunities for teachers to collaboratively examine student work, student assessment results and other data relating to student performance in our standards-based curriculum, then teachers will have the necessary information to appropriately adjust instruction so that all students will reach district curriculum standards.” Specifically, the theory of action called for all individuals working with students work in teams to set goals, reflect on practice, and make data-driven decisions to improve student learning. Central to this effort was the work of building principals. The purpose of this study was to examine the behaviors of the principals in this district to examine whether (1) their actions in support of teacher teams changed over time, (2) the quality of collaboration among teachers changed over time, and (3) there was a relationship between principals’ actions in support of teacher teams and the quality of teacher collaboration. The findings were: (1) the actions in support of teacher teams did not change significantly over time; (2) the quality of collaboration among teachers did not change significantly over time, and (3) there was a significant relationship between principals’ actions in support of teams and the quality of teacher collaboration, with vision and meeting attendance identified by teachers as the most high leverage administrative actions facilitating collaboration. The bulk of this chapter will examine these results in more depth, including further analysis of the administrative actions that had the greatest impact on fostering a collaborative culture in this district.
Results for Research Question One

In order to investigate whether principals’ actions in support of teacher teams changed over time, the means of each item on the “Principal Actions in Support of Teacher Teams” scale were computed for each year of data collection and are displayed in Table 4-1.

<table>
<thead>
<tr>
<th>Item</th>
<th>2008 M (SD)</th>
<th>2009 M (SD)</th>
<th>2010 M (SD)</th>
<th>2011 M (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) My Administration/ Supervisor promotes a shared vision for teacher collaboration.</td>
<td>4.52 (.73)</td>
<td>4.40 (.87)</td>
<td>4.42 (.77)</td>
<td>4.45 (.79)</td>
</tr>
<tr>
<td>b) My Administration/ Supervisor observes my PLC participation.</td>
<td>3.98 (.92)</td>
<td>3.98 (1.03)</td>
<td>4.15 (.93)</td>
<td>4.02 (.98)</td>
</tr>
<tr>
<td>c) My Administration/ Supervisor monitors the actions and achievements of my primary PLC.</td>
<td>4.19 (.73)</td>
<td>4.10 (.88)</td>
<td>4.13 (.85)</td>
<td>4.14 (.81)</td>
</tr>
<tr>
<td>d) My Administration/ Supervisor monitors how the work of my primary PLC impacts student achievement.</td>
<td>4.12 (.77)</td>
<td>3.89 (.97)</td>
<td>4.00 (.93)</td>
<td>3.95 (.89)</td>
</tr>
<tr>
<td>e) I have received individual feedback from my Administration/ Supervisor about how I could improve my contribution to my primary PLC.</td>
<td>3.14 (1.10)</td>
<td>3.12 (1.18)</td>
<td>3.15 (1.16)</td>
<td>3.16 (1.15)</td>
</tr>
<tr>
<td>f) Our group has received feedback from the Administration/Supervisor about how to improve the quality of collaboration in our primary PLC.</td>
<td>3.51 (1.06)</td>
<td>3.35 (1.12)</td>
<td>3.40 (1.18)</td>
<td>3.40 (1.08)</td>
</tr>
<tr>
<td>g) I understand how to use Teacher Collaboration Assessment Rubric (TCAR) as a tool to improve the quality of collaboration in my primary PLC.</td>
<td>2.67 (1.11)</td>
<td>3.80 (1.04)</td>
<td>3.82 (.98)</td>
<td>3.84 (1.00)</td>
</tr>
<tr>
<td>h) My Administration/ Supervisor helps my primary PLC to set clear and measurable goals for student learning.</td>
<td>3.85 (.96)</td>
<td>3.64 (1.06)</td>
<td>3.82 (1.03)</td>
<td>3.69 (1.01)</td>
</tr>
<tr>
<td>i) My Administration/ Supervisor helps my primary PLC figure out how to monitor our progress and achievements on a continuous basis.</td>
<td>3.75 (.96)</td>
<td>3.52 (1.03)</td>
<td>3.73 (1.02)</td>
<td>3.57 (.98)</td>
</tr>
<tr>
<td>j) My Administration/ Supervisor celebrates the achievements of my PLC.</td>
<td>3.99 (1.06)</td>
<td>3.77 (1.15)</td>
<td>3.80 (1.10)</td>
<td>3.82 (1.09)</td>
</tr>
<tr>
<td>k) My Administration/ Supervisor uses evidence to identify areas that need improvement in my primary PLC.</td>
<td>3.53 (1.07)</td>
<td>3.50 (1.11)</td>
<td>3.59 (1.05)</td>
<td>3.54 (1.07)</td>
</tr>
<tr>
<td>l) My Administration/Supervisor effectively addresses individuals who are resistant to, or disruptive of, the development of high quality teacher collaboration.</td>
<td>3.41 (1.08)</td>
<td>3.31 (1.05)</td>
<td>3.37 (1.11)</td>
<td>3.34 (1.02)</td>
</tr>
</tbody>
</table>
As can be seen in the table, some principal actions in support of teacher teams slightly increased over time, while others slightly decreased; however, overall these rating remained stable over time, indicating that principal actions in support of teacher teams were maintained during this collaboration initiative.

Although these items measured different types of principal actions, they were all intercorrelated and formed an overall scale with high reliability. Thus, hierarchical linear modeling (HLM) was also employed as another way to analyze whether principal actions in support of teacher teams changed over time, using time as a level-1 variable, nested within teachers (level-2), and teachers nested within teams (level-3). Testing began with an intercept-only, or fully unconditional, model which revealed the amount of variability that existed within and between groups (in this case, teams). Using the HLM 7 software developed by Raudenbush, Bryk, and Congdon (2002), mean scores on the principal actions scale were entered as the outcome variable. A summary of the model specified in equation format was as follows:

Level-1 Model

\[ \text{PRINC.ME}_{ijk} = \pi_{0jk} + e_{ijk} \]

Level-2 Model

\[ \pi_{0jk} = \beta_{00k} + r_{0jk} \]

Level-3 Model

\[ \beta_{00k} = \gamma_{000} + u_{00k} \]

Mixed Model

\[ \text{PRINC.ME}_{ijk} = \gamma_{000} + r_{0jk} + u_{00k} + e_{ijk} \]

The analysis revealed an intra-class correlation coefficient of 0.27, based on the following equation:
This indicated that 27% of the variance in principal actions was between-teams and 73% was at the teacher level. Since variability existed at all levels of the data structure, predictors were individually added at each level.

Next, the unconditional model was tested by adding year as a level-1 predictor of principal actions. A summary of the model specified in equation format was as follows:

Level-1 Model

\[
\text{PRINC.ME}_{ijk} = \pi_{0jk} + \pi_{1jk}*(\text{YEAR}_{ijk}) + e_{ijk}
\]

Level-2 Model

\[
\pi_{0jk} = \beta_{00k} + r_{0jk}
\]
\[
\pi_{1jk} = \beta_{10k} + r_{1jk}
\]

Level-3 Model

\[
\beta_{00k} = \gamma_{000} + u_{00k}
\]
\[
\beta_{10k} = \gamma_{100} + u_{10k}
\]

Mixed Model

\[
\text{PRINC.ME}_{ijk} = \gamma_{000} + \gamma_{100}*(\text{YEAR}_{ijk}) + r_{0jk} + r_{1jk} * \text{YEAR}_{ijk} + u_{00k} + u_{10k} * \text{YEAR}_{ijk} + e_{ijk}
\]

Note that reliability estimates in this analysis were sometimes lower than 0.10 because they were based only on 66 out of the 165 teachers who had a data point for all four years of the study; however, the fixed effects and variances that were subsequently computed used all available data. As can be seen in Table 4-2, and contrary to predictions, there was a non-significant
relationship between time and principal actions \((b=0.07, p=0.298)\), indicating no change in principal actions over the four years that data were collected.

Table 4-2: Fixed Effects for Principal Actions

<table>
<thead>
<tr>
<th>Fixed Effect</th>
<th>Coefficient</th>
<th>Standard error</th>
<th>t-ratio</th>
<th>Approx.d.f.</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>For INTRCPT1, (\pi_0)</td>
<td>3.823036</td>
<td>0.060385</td>
<td>63.311</td>
<td>47</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>For INTRCPT2, (\beta_{00})</td>
<td>(\gamma_{000})</td>
<td>0.067297</td>
<td>0.063965</td>
<td>1.052</td>
<td>47</td>
</tr>
</tbody>
</table>

Number of teams entered in the model = 48; teachers = 167

Table 4-3 displays the final estimation of level-1 and 2 variance components. This data answers the question of whether all the teams look like the average. Based on the data in this table, the answer to this question is no for the intercept \((\chi^2=111.43, p<.001)\), but yes for the slope \((\chi^2=46.45, p=.163)\). These data indicate that there are significant differences in the initial team scores, but that the teams’ slopes do not vary much over time.

Table 4-3: Final Estimation of Level-1 and Level-2 Variance Components for Principal Actions

<table>
<thead>
<tr>
<th>Random Effect</th>
<th>Standard Deviation</th>
<th>Variance Component</th>
<th>d.f.</th>
<th>(\chi^2)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTRCPT1, (r_0)</td>
<td>0.44188</td>
<td>0.19525</td>
<td>38</td>
<td>111.42878</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>YEAR slope, (r_1)</td>
<td>0.08152</td>
<td>0.00665</td>
<td>38</td>
<td>46.45013</td>
<td>0.163</td>
</tr>
</tbody>
</table>

Results for Research Question Two
Descriptive information about teacher collaboration over time is displayed in Table 4-4. In analyzing the second hypothesis that the quality of teacher collaboration would increase over time, HLM was used once again. Testing began with the fully unconditional model, which was represented as:

**Level-1 Model**

\[ \text{TC.MEAN}_{ijk} = \pi_{0jk} + e_{ijk} \]

**Level-2 Model**

\[ \pi_{0jk} = \beta_{00k} + r_{0jk} \]

**Level-3 Model**

\[ \beta_{00k} = \gamma_{000} + u_{00k} \]

**Mixed Model**

\[ \text{TC.MEAN}_{ijk} = \gamma_{000} + r_{0jk} + u_{00k} + e_{ijk} \]

Note that the ICC was .37, indicating that 37% of the variance in teacher collaboration was between-teams and 63% was at the teacher level. Since variability existed at all levels of the data structure, predictors were added at each level individually as they were for research question one.

Next, the unconditional model was tested by adding year as a level-1 predictor of teacher collaboration. Here is a summary of the specified model:

**Level-1 Model**

\[ \text{TC.MEAN}_{ijk} = \pi_{0jk} + \pi_{1jk} \cdot \text{YEAR}_{ijk} + e_{ijk} \]

**Level-2 Model**

\[ \pi_{0jk} = \beta_{00k} + r_{0jk} \]

\[ \pi_{1jk} = \beta_{10k} + r_{1jk} \]
Level-3 Model
\[ \beta_{00k} = \gamma_{000} + u_{00k} \]
\[ \beta_{10k} = \gamma_{100} + u_{10k} \]

Mixed Model
\[ \text{TC.MEAN}_{ijk} = \gamma_{000} + \gamma_{100} \times \text{YEAR}_{ijk} + r_{0jk} + r_{1jk} \times \text{YEAR}_{ijk} + u_{00k} + u_{10k} \times \text{YEAR}_{ijk} + e_{ijk} \]

Once again, reliability estimates were only based on 68 of the 167 teachers who had sufficient data for computation; however, fixed effects and variance components were based on all the data. As can be seen in Table 4-5, there was a non-significant relationship between time and teacher collaboration (\(b=0.07, p=0.128\)), indicating that there was no change in the quality of teacher collaboration over the four years that data were collected.

| Table 4-4: Descriptive Information on Quality of Collaboration by Year |
|-----------------|-------------------|-----------------|-----------------|-----------------|
|                 | 2008              | 2009            | 2010            | 2011            |
|                 | N                 | M (SD)          | N               | M (SD)          | N               | M (SD)          |
| Quality of Collaboration | 139               | 3.99 (.68)      | 307             | 3.87 (.78)      | 349             | 3.96 (.63)      | 274             | 3.68 (.82)      |

| Table 4-5: Final Estimation of Fixed Effects for Quality of Teacher Collaboration |
|-----------------|-------------------|-----------------|-----------------|-----------------|
| Fixed Effect    | Coefficient       | Standard error  | t-ratio         | Approx. d.f.    | p-value         |
| For INTRCPT1, \( \pi_0 \) |                   |                 |                 |                 |                 |
| For INTRCPT2, \( \beta_{00} \) |                   |                 |                 |                 |                 |
| INTRCPT3, \( \gamma_{000} \) | 4.028563          | 0.051885        | 77.643          | 47              | <0.001          |
| For YEAR slope, \( \pi_1 \) |                   |                 |                 |                 |                 |
| For INTRCPT2, \( \beta_{10} \) |                   |                 |                 |                 |                 |
| INTRCPT3, \( \gamma_{100} \) | 0.067293          | 0.043415        | 1.550           | 47              | 0.128           |

Number of teams entered in the model = 48; teachers = 167
Table 4-6 displays the final estimation of level-1 and 2 variance components in this analysis.

Once again, based on the data in this table, not all teams look like the average initially ($\chi^2=107.03, p<.001$), but their change over time is similar ($\chi^2=53.06, p=.07$). These data indicate that there are significant differences in the initial team scores, but that the teams’ slopes do not vary much over time.

Table 4-6: Final Estimation of Level-1 and Level-2 Variance Components for Quality of Collaboration

<table>
<thead>
<tr>
<th>Random Effect</th>
<th>Standard Deviation</th>
<th>Variance Component</th>
<th>d.f.</th>
<th>$\chi^2$</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTRCPT1, $r_0$</td>
<td>0.39752</td>
<td>0.15803</td>
<td>39</td>
<td>107.02733</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>YEAR slope, $r_1$</td>
<td>0.07165</td>
<td>0.00513</td>
<td>39</td>
<td>53.05752</td>
<td>0.066</td>
</tr>
<tr>
<td>level-1, $e$</td>
<td>0.51425</td>
<td>0.26445</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Results for Research Question Three

The first part of question three hypothesized that there would be a relationship between principals’ actions in support of teacher teams and the quality of teacher collaboration. To examine this hypothesis, Pearson correlations were run between these two variables for each year of data collection. In support of the hypothesis, a statistically significant correlation was found for each of the four years, all at the $p<.01$ level (2008, $N=135$, $r=.58$; 2009, $N=298$, $r=.56$; 2010, $N=340$, $r=.34$; 2011, $N=274$, $r=.38$). According to Cohen (1988), these correlations represent a medium to strong relationship between the two variables.

A second component of the third research question was to further investigate the specific principal actions that have impacted the quality of collaboration in teacher teams. To examine this question, two methods of analysis were employed. First, frequencies were tallied for categorical responses to the following survey item: “In your experience, over the past 3 months
what role has your principal/administrator played in relation to your primary PLC? Check all that apply.” The following categories were provided in checklist format: (1) occasional observer, (2) attends most/all of our meetings, (3) visits at the beginning or at the end of our meetings, (4) occasionally facilitates our meeting, (5) requests and collects student achievement/performance data for our primary PLC, (6) provides feedback about how to improve the quality of our collaboration, (7) provides specific training/support that will improve the quality of our collaboration, (8) reconfigures the membership of our group, (9) shares with us his/her vision of teacher collaboration and student performance, (10) has publically recognized achievements of our primary PLC, and (11) has not been involved with our primary PLC to any great extent.

Second, qualitative responses to the survey item “In what specific ways have the actions of your Administration/Supervisor impacted the quality of your primary PLC?” were read and analyzed to uncover any high leverage principal behaviors that might emerge as having the greatest impact on the quality of teacher collaboration.

The annual results for each of the categories are displayed in Table 4-7 and a graphic depiction of change across time for each item can be seen in Figure 4-1. As demonstrated in the table, vision was category 9 and remained high across time with between 47-60% of participants indicating that their principal had shared his or her vision of teacher collaboration and student performance with them. These results support the hypothesis that the establishment of a clear vision was one of the biggest roles played by principals in the shift to a collaborative culture. Further, evidence from the qualitative data speaks to the importance of a principal’s vision with respect to high quality teacher collaboration. Participants repeatedly indicated that principals’ vision was a critical element to successful collaboration in their teams, as observed in comments such as:
• The high school principal has shared his vision for PLC groups.

• My administrator shares his vision of teacher collaboration and student performance…

• My administrator has shared his vision for how our PLC time should be used.

Table 4-7 – Frequencies of Responses over Time across Principal Action Categories in the Teacher Collaboration Survey

<table>
<thead>
<tr>
<th>Survey Category</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Occasional Observer</td>
<td>57%</td>
<td>48%</td>
<td>46%</td>
<td>48%</td>
<td>50%</td>
</tr>
<tr>
<td>2) Attends most/all of our meetings</td>
<td>19%</td>
<td>30%</td>
<td>32%</td>
<td>30%</td>
<td>28%</td>
</tr>
<tr>
<td>3) Visits at the beginning or at the end of our meetings</td>
<td>30%</td>
<td>16%</td>
<td>24%</td>
<td>17%</td>
<td>22%</td>
</tr>
<tr>
<td>4) Occasionally facilitates our meetings</td>
<td>35%</td>
<td>29%</td>
<td>34%</td>
<td>30%</td>
<td>32%</td>
</tr>
<tr>
<td>5) Requests and collects student achievement/performance data from our primary PLC</td>
<td>69%</td>
<td>37%</td>
<td>44%</td>
<td>37%</td>
<td>47%</td>
</tr>
<tr>
<td>6) Provides feedback about how to improve the quality of our collaboration</td>
<td>29%</td>
<td>23%</td>
<td>30%</td>
<td>24%</td>
<td>26%</td>
</tr>
<tr>
<td>7) Provides specific training/support that will improve the quality of our collaboration</td>
<td>20%</td>
<td>20%</td>
<td>24%</td>
<td>20%</td>
<td>21%</td>
</tr>
<tr>
<td>8) Reconfigures the membership of our group</td>
<td>4%</td>
<td>3%</td>
<td>2%</td>
<td>3%</td>
<td>3%</td>
</tr>
<tr>
<td>9) Shares with us her/his vision of teacher collaboration and student performance</td>
<td>60%</td>
<td>47%</td>
<td>49%</td>
<td>47%</td>
<td>51%</td>
</tr>
<tr>
<td>10) Has publicly recognized achievements of our primary PLC</td>
<td>43%</td>
<td>26%</td>
<td>25%</td>
<td>27%</td>
<td>30%</td>
</tr>
<tr>
<td>11) Has not been involved with our primary PLC to any great extent</td>
<td>13%</td>
<td>18%</td>
<td>17%</td>
<td>17%</td>
<td>16%</td>
</tr>
</tbody>
</table>
Also notable in these frequencies is a shift from the principal only visiting at the beginning or end of meetings, to attending meetings and becoming a more active participant in teacher teams. This change is also evident in participants’ open-ended responses, based on remarks such as:

- My administrator regularly visits to monitor if we are teaching the material collaboratively and keeping similar paces.
- Being present at most meetings makes my team feel that she is part of the process and is informed about students…
- Having the administrator present has demonstrated to all of us that the work we are doing in PLCs is truly important.
Teachers also stated that principal involvement had increased accountability for collaboration and results, and had helped to make team meetings a part of school culture. For example, one comment illustrating this point was: “Her expectation that these meetings occur and have an agenda and results that are reported back to her have helped the meetings become a regular part of our school culture.”

Overall, the frequency data indicate that the three most commonly used leader strategies were: (1) providing vision, (2) occasionally observing meetings, and (3) requesting/collecting student achievement data/performance data. Interestingly, teachers reported that principals played nine of the eleven roles at least 20% of the time. The two categories which had mean frequencies under 20% were “reconfigures the membership of our group” and “has not been involved with our primary PLC to any great extent.” This makes sense because most teams were kept intact as they were judged by principals to be in a good position to undertake this collaboration initiative and thus would not need to be reconfigured. Further, because collaboration was already valued in this school district, and because it was emphasized in the initiative rollout, it also makes sense that teachers would not report low involvement on the part of principals. Finally, there appeared to be an overall pattern wherein principal actions were highest the first year of the initiative and then dipped following the first year of implementation and stayed steady after that point in time. Although the reported frequencies for principal actions in Table 4-5 cannot speak directly to a change in culture within this district, they point to a combination of administrative actions that were judged by teachers as playing a part in facilitating collaboration within teacher teams. The pattern of frequencies that emerged in this analysis is also mirrored in the open-ended data, although these responses address the types of qualitative change that facilitated teacher collaboration over time.
Other categories that were aligned with the survey and emerged frequently in the qualitative data were: providing feedback and training, recognizing achievements, and collecting/using performance data. Some example responses from the open-ended data where teachers identified a specific principal action that had impacted their team’s quality of collaboration are presented in Table 4-8 below:

Table 4-8: Examples of High Leverage Principal Actions Identified in Open-Ended Data that Correspond with TCS Items

<table>
<thead>
<tr>
<th>Principal Action</th>
<th>Open-Ended Response</th>
</tr>
</thead>
</table>
| Requesting or collecting student achievement/performance data from team         | • Our music supervisor has challenged us to collect data and use it to improve the quality of instruction. This is the first time I have ever experienced this in my career.  
• His actions have impacted us greatly. We are doing a much better job of collecting and analyzing data this year, and he helps us to stay on track…Overall, our success has grown immensely this year as a group of data collection and reflection.  
• Collecting data at the class and student level and having 1:1 conversations with teachers about student growth.  
• Good feedback re: how to interpret data to impact instruction and how to use that data to set priorities for growth. |
| Providing feedback about how to improve team’s quality of collaboration          | • His feedback has been instrumental in building the confidence of the team that they are conducting the PLC meetings correctly.  
• Shared feedback from administration about the quality of our meeting held which was observed.  
• Our principal has helped provide feedback on our own collaboration…  
• Good feedback about how the individual PLC sessions have worked, from her standpoint. |
| Providing specific training/support to improve team’s quality of collaboration   | • We have had training and activities based on dialogue and protocols which has influenced our teaching practices.  
• He has helped us to attend an important conference.  
• Provided PD to supervisors and team leaders and has set up PD for the full faculty.  
• We have been encouraged to visit other schools and to attend professional conferences. |
| Publicly recognizing achievements of team                                        | • The recognition at staff meetings has helped my team experience a sense of success with PLCs.  
• He recognizes the hard work we have put into raising our students’ achievement and praises us!  
• He publicly recognizes our work as a group.  
• Has publically recognized our PLC by taping our session and sharing our work with others. |
In addition to the aforementioned categories of principal actions, there were some principal behaviors that teachers identified in the open-ended responses that did not appear in survey items, such as setting goals and actively participating in team meetings by answering questions, ensuring communication and providing information, diffusing conflicts or tension, creating agendas and coming up with ideas for organizing work, helping or acting as a resource or obtaining a resource, providing a different perspective on issues, showing care or concern, motivating and encouraging staff, providing the necessary time to meet, being knowledgeable and solving problems, recording meeting minutes, and acting as a role model. These principal behaviors described in the qualitative data seem to indicate active involvement on the part of the building administrator in an attempt to facilitate a cultural shift toward collaboration and to increase the quality of collaboration occurring in teacher teams.

Important to note, teacher descriptions about the principal actions that most improved their team’s quality of collaboration appeared to become more specific over time. Examples of responses from the 2008 data collection included:

- “Very supportive of our collaboration efforts and supports our topics for discussion.”
- “Maintained focus.”
- “Guidelines presented. Feedback given.”
- “Has used research to drive decision making.”
- “Helps in any way he can.”
- “Provides insights and suggestions.”

In contrast, some examples of responses from the 2011 data collection read:

- “Has been available to answer questions, provide suggestions, and assist us in maintaining or receiving resources that will improve the work we do. He has provided us
with technology supports as well as templates and ideas to help us organize and record our work.”

- “Our administrator/supervisor has been extremely supportive of our work to increase student achievement giving specific suggestions on how we can improve; has been supportive in developing ways to collect and report data; and has been extremely supportive and understanding with our struggle to fit it all in, offering suggestions and making arrangements to give us time to collaborate, plan, and carry out new initiatives.”

- “Has set expectations clearly to staff as to how they should run, connects staff meeting agendas to discussion about student engagement – the circle of PLC work – how t use student work to guide instruction – professional readings available to keep us current.”

- “* is a great supervisor. She has helped us become a more effective PLC in that she meets with us to articulate goals for our group, keeps us on track, provides us with agendas when necessary. She has also shared with us many strategies for student improvement and engagement. She is also very supportive and recognizes when we have worked particularly hard or have over cam an instructional obstacle. Additionally, * has been very supportive of our efforts to align our curriculum in addition to giving us guidance with regard to instructional strategies. All in all, I feel very well supported by Administration and Supervisor. I feel that their actions have positively impacted the quality of my primary PLC.”

As collaboration became more of a norm in the district culture, the type of administrative involvement also appeared to shift toward higher order roles and involvement beyond observation and monitoring. Further, once a collaborative culture became more ingrained in this
district, teachers appeared to be more accountable for their own success. Examples of teacher responses that speak to this include:

- “Created a professional atmosphere where everyone is expected to bring something to the table that will enhance student engagement and success.”
- “… determined that we were professionals and could set our own agenda based on grade level and district initiatives and the needs of our students. This ownership has allowed us to consider the needs of teachers and students and made each meeting more valuable…”
- “His actions have helped to guide us as we began the process and to challenge us as we became more adept at the process. He also knew when to let us fly on our own once we were a well-run group.”
- “By being a visible active participant, teachers have felt more motivated and accountable.”
- “Set the foundation for accountable collaboration.”

Overall, the results for research question three indicate that there is a significant relationship between principal actions in support of teacher teams and the quality of teacher collaboration. This was evidenced not only by statistically significant correlations across the four years of the study, but also by reported frequencies of principal behavior in the survey and by the qualitative data that were analyzed. Importantly, this qualitative data revealed some important trends and patterns that would not have been obvious using only quantitative data, and indicated that there are some key administrative behaviors that are paramount in facilitating a shift toward a culture of collaboration, including goal setting and active participation in teacher teams.
CHAPTER 5
DISCUSSION AND CONCLUSION

Introduction
Chapters 1 – 4 set the groundwork for an analysis of the high leverage actions that principals should consider when working in teacher teams. By considering theories of leadership, research on collaboration, and the role of leaders in collaborative environments, a mixed method study that examined the development of a culture of collaboration was conducted. This chapter will consider the implications of: (1) a statistically non-significant change for teacher perceptions of administrator involvement over time; (2) a statistically non-significant change in teacher perceptions of quality of collaboration over time; and (3) statistically significant positive correlations between administrative involvement and quality of collaboration. Additionally, the high leverage administrative behaviors (e.g., sharing vision and attending meetings) that were found to be most influential will be discussed. In considering the implications of the results, connections will be made to the literature review with the end goal of discussing future research on this important topic.

Overview of the Results and Connections to Existing Research

Research Question One – Examining whether Principal Actions in Support of Teacher Teams Changed over Time

Question one considered whether or not teachers believed that principal actions in support of teacher teams had changed over time. After examination of each item’s mean score on the “Principals’ Actions in Support of Teacher Teams Scale,” it appeared that principal actions had remained relatively stable over time. Further analysis conducted with HLM using the scale’s mean score as an outcome variable confirmed that there was no statistically significant change in principal actions across time. There are two likely explanations for this
lack of significance. The first is the high starting mean for the scale in the initial year of data collection. In 2008, the mean for this scale was 3.72 out of 5. The high starting mean produced a restriction of range in collaboration scale scores resulting in limited potential for growth. In other words, because this district was fairly collaborative at the beginning of the study, there was not much opportunity for a statistically significant increase in the mean score. Similarly, when conducting educational research in this district, Zito (2011) noted a “ceiling effect” or an artificial restriction of student achievement test scores based on the high-performance of this district. In essence, he suggested that when scores are already close the scale’s endpoint, there is little room for growth, and producing statistically significant evidence of growth becomes difficult. The second likely explanation for these non-significant results is that there was no baseline measure prior to the implementation of teacher teams and the rollout of the collaboration initiative. Thus, it is not possible to compare the level of principal actions in support of teacher teams prior to the district’s endorsement of this initiative with the level after rollout. It is likely that administrative support in teacher teams would have changed greatly after initial implementation and prior to the first year of data collection.

Because no significant change over time was found for principal actions in support of teacher teams over time, the first hypothesis was not supported. However, it is possible that teachers did not realize the extent to which principals’ actions in support of teacher teams changed when using the likert-type rating scales on the survey. Examination of their qualitative responses in research question three, which will be discussed below, suggests that teachers did indeed note more specific principal actions in support of teacher teams over time, and also showed an increased understanding of how principal actions had impacted their quality of collaboration.
Research Question Two – Examining Whether the Quality of Teacher Collaboration Changed over Time

Question two hypothesized that teacher perceptions of the quality of collaboration would increase over time. In 2008, the mean quality of collaboration scale score was 3.99 on a 5 point scale. In 2009, the average fell to 3.87, then rose to 3.96 in 2010, and fell again to 3.87 in 2011. This unclear pattern of results paired with a lack of statistically significant findings indicates that the quality of teacher collaboration did not increase over time. However, the possibility exists here, as with research question one, that teachers did not perceive the change over time. Another potential explanation for the lack of statistical significance is that this district was known for its high quality staff who already valued collaboration prior to the initiative. In fact, collaboration was admittedly discussed with job applicants prior to hiring them as something the district valued and expected from its teachers. The district embarked upon this collaboration initiative voluntarily, backed with full support and enthusiasm by the central office. It is quite possible that there would have been much more marked improvement in the quality of collaboration in a district that exhibited a higher degree of isolationism.

To investigate the notion that the quality of teacher collaboration had potentially changed over time without teachers realizing it, the results of an administrative survey that was conducted in this district in 2011 were obtained (see Appendix F). Administrators were asked:

What effects have the actions you've taken in relation to PLC development had on your school's culture and teacher practice? i.e., How has your learning about PLCs impacted teacher attitudes, behavior, and instructional practice?"

Responses to this question were examined to discover whether the quality of teacher collaboration had increased over time from an administrative perspective.
The responses from the qualitative administrator data were very telling. Principals’ feedback indicated that a collaborative shift was underway in this district. For example, one principal noted “a growing culture related to problem solving and collaboration that did not exist prior to PLC’s.” A second principal commented that PLC meetings were now part of the culture and the building’s dialogue had become more collaborative. Another principal explained how “PLCs are a non-negotiable in our school culture, and teachers know and expect that. Survey data reveal that teachers are asking for more time to collaborate with their grade level colleagues, which I welcome.” These statements suggest that collaboration has become more entrenched in this district, resulting in an increased expectation to collaborate on the part of both teachers and administrators.

Beyond mere collaborative dialogue, the use of data to guide decision-making was also reported by administrators as occurring more regularly. One principal noted that:

Teachers understand and take seriously their time in PLCs. They understand the importance of collecting the data, discussing and collaborating as a group. As a matter of fact they are upset if they lose time in their PLCs! (weather, etc). Teachers understand and take seriously our focus on student engagement.

In further reviewing other principals’ comments, a change in the behavior of building principals was noted. One leader observed how s/he had come to realize the importance of creating agendas, found evidence of specific shifts in instructional practice, and used those data to inform feedback when meeting with staff. Many principals also spoke about the usefulness of the teams in focusing on student mastery of content and engagement.

In sum, although there were no statistically significant differences in the quality of teacher collaboration over time according to the HLM analysis, a qualitative investigation of the
open-ended responses provided by principals in the administrator survey did seem to indicate that there had been a shift in expectations to collaborate on the part of principals, as well as change on the part of teachers in embracing collaboration as a way to increase student engagement and learning. According to these administrators, the language and philosophy of the collaboration initiative appears to have become a part of the district’s culture, with teachers having gained a deeper understanding of how to collaborate successfully and why it is important to do so.

**Research Question Three: Relationship between Principals’ Actions in Support of Teacher Teams and the Quality of Teacher Collaboration**

Findings revealed a moderate to strong correlation between principal actions in support of teacher teams and the quality of teacher collaboration across all four years. This indicates that as principals’ actions in support of teacher teams increased, the quality of teacher collaboration increased. This has important implications for administrators in this district as well as for future research. For the administrators in this district, it is clear that being involved in teacher teams was a valuable use of their time given the district’s commitment to fostering a culture of collaboration. More broadly, as will be discussed in the implications section, principal involvement in teacher teams should be emphasized in any type of change initiative geared toward increasing teacher collaboration.

In addition to these results, strategies that were most frequently enacted by principals were identified, and qualitative data uncovered the high leverage administrative actions that were most influential in impacting teacher collaboration. The three most frequently reported principal actions reported by teachers were: (1) sharing vision, (2) occasionally observing meetings, and (3) requesting/collecting student performance data. All three of these items were identified in
the literature review as principal actions that are important for facilitating teacher collaboration. The qualitative responses provided by teachers shed further light on how leaders impacted collaboration in teacher teams.

**Principal Action #1: Shared Vision.** On average, 51% of teachers reported that their principal shared a vision of teacher collaboration and student performance across the four years of this district initiative. Teachers also noted the importance of principals’ shared vision and its impact on the quality of their team’s collaboration in their qualitative responses. The frequency data reported above speak to how often principals enacted certain behaviors, in this case, sharing a vision of collaboration and student performance, however they do not speak to its importance. Through the qualitative responses, the importance of a shared vision can be seen and better understood. One teacher indicated that the established vision of collaboration had changed the culture of the school to the point where the principal did not need to attend meetings to ensure collaboration. These types of responses are a positive indicator that a collaborative school culture has been established because they imply that teachers expect to collaborate and value their collaboration regardless of whether the administration is present. When collaborative responsibilities are distributed among teachers, it suggests that a cultural shift has taken place (Waldron & McLeskey, 2010). Importantly, as the study progressed, vision was often noted in conjunction with other administrative behaviors, suggesting that providing a vision was not enough. Instead, providing a vision and supporting that vision with other leader strategies to increase collaboration appeared to be the most effective.

**Principal Action #2: Observing Meetings.** On average, 50% of teachers reported that their principal observed their meetings across the four years of this district initiative. Teachers also noted the importance of meeting observation with comments in their qualitative responses;
however, they often paired that with other forms of principal participation. Thus, it is unlikely that occasionally observing meetings was associated with higher quality teacher collaboration. Instead, meeting observation was likely one tool in principals’ arsenal that assisted them in monitoring the collaboration in teacher teams.

**Principal Action #3: Requesting/collecting student performance data.** On average, 47% of teachers reported that their principal requested/collected student performance data across the four years of this district initiative. Teachers also discussed the importance of data in their qualitative responses, noting that although teachers may have made decisions based on data informally prior to the collaboration initiative, administrators streamlined the process, ensuring that data were collected in a more systematic way and used properly to guide instruction. Impacting instruction and setting priorities for growth were two positive results frequently identified by teachers as part of the team process. Furthermore, teachers noted that principals’ collection of data drove future instruction. An important take away from this finding is how the use of data ultimately guided new initiatives in the classroom, school, and district.

**Additional Principal Strategies Identified.** The three categories described above had the highest mean frequencies, however principals appeared to use a wide range of strategies to increase collaboration, as evidenced by relatively high frequencies (≥20%) across categories. This indicates that one strategy enacted alone is not sufficient to produce high quality teacher collaboration. Instead, a combination approach to increasing collaboration appears to have the greatest impact on teacher teams. While the majority of these strategies identified in the survey were mentioned in teacher’s open-ended responses, they also introduced two other high leverage principal behaviors that had positively impacted their team’s quality of collaboration: active participation and goal setting.
While principal participation in teacher teams was noted across time as critical in establishing a collaborative culture, teacher responses were less sophisticated in the first wave of data collection. For example, in 2008, sample responses by teachers included comments such as: “My principal has been very supportive” or “My principal helps in any way he can.” The level of specificity in these responses can be contrasted with those from 2011, when typical responses were written in greater depth. For example, a teacher offered:

“My principal has been available to answer questions, provide suggestions, and assist us in maintaining or receiving resources that will improve the work we do. He has provided us with technology supports as well as templates and ideas to help us organize and record our work.”

Over time teachers were able to express a much greater degree of specificity and depth of understanding about the role of principals in influencing the quality of their collaborative teaming. This finding indicates that teachers were able to see how high leverage administrative actions impacted their quality of collaboration in teams more clearly over time.

Equally interestingly were teachers’ descriptions of what participation should not be, for example:

- “Our administrator has not played much of a role in our PLC. While our administrator gave us some great goals at the beginning of the year, she has been rather uninvolved as the year has continued.”
- “Just gives the ‘party line.’”
- “Supervisor is at most PLCs however is a dominator who once they start talking can’t seem to stop talking and finish one complete thought.”
These responses indicate that there is a delicate balance between not being involved enough and being too involved. Teachers’ qualitative data seem to indicate that principals who facilitate and offer resources or a different perspective on the issues of the team have the most impact on the quality of collaboration in teacher teams, whereas principals who are uninvolved or overly involved do not assist teachers’ collaboration, and could potentially serve as a detriment to it.

Goal setting was another important principal action that emerged in the analysis of open-ended participant responses. Once again, the evolution of goal setting can be seen over time by comparing qualitative responses from 2008 and 2009 with those from 2010 and 2011. In 2008/09, responses regarding goals included statements such as: “He has set the goals and guidelines for us.” All of the responses in the early waves of data collection talked about something the principal did or was doing. By “providing,” “setting,” and/or “giving” the teachers specific direction and guidance, the teams were able to keep on track. However, a shift in how teachers described principal goal-setting occurred in the 2010 responses, where teachers began to describe their principal as “guiding,” providing clarification,” “introducing concepts,” and “creating structure,” rather than explicitly mandating goals, for example:

- “Provides a roadmap of what we are doing, where we are going, etc.”
- “I believe they help the PLC become more positive about the arrangement of our group and help us make progress and work towards a common goal.”
- “Creating structure and focus to then be able to have a richer conversation/dialogue with regards to the PLC agenda points.”

In 2011, the responses had evolved even further, demonstrating that goal setting included teacher input. In fact, in some cases, the responses indicated that principals entrusted teachers to make their own decisions about goals. For example:
• “Sets direction in what topics we should be addressing. She looks for feedback from us as to how we are doing and how we applying what our goals are coming along that we set for ourselves.”
• “Kept us on track and clarified tasks at times.”
• “The expectations are clear and support is always available if needed.”

Rather than demanding what needed to occur, principals were now “available if needed.” Goals were more commonly set independently, with principals acting as a guide by providing ideas, clarifying, and focusing on a “cycle of continuous improvement.”

Implications, Limitations, and Future Research

The findings of this study suggest that principal actions can have an effect on the quality of teacher collaboration. It also identified some high leverage actions that principals should consider when fostering collaborative environments. Sharing a vision of teacher collaboration and student performance was the most frequently used strategy employed by principals in this district. From a policy standpoint, emphasizing the high leverage administrator actions discussed in this chapter would make sense for districts or schools that hope to foster increased collaboration within their environments. Clearly, the practice of encouraging active participation of building principals in teacher teams makes a great deal of sense. Equally important would be a principal’s ability to set goals but also to share the responsibility of goal setting with teachers. From a practical standpoint, the goals will be unsuccessful unless teachers feel connected to them. Interestingly, participants also reported that too much participation on the part of their principal was harmful to collaboration. Thus, it appears that principals must strike a delicate balance by being actively involved in teacher teams yet not micromanaging those teams and impeding their effectiveness.
In trying to isolate the most high leverage principal actions that facilitate collaboration, there is a natural link back to the leadership theories that were discussed in Chapter 2. Although the top three frequencies of principal actions in Chapter 4 were: (1) sharing vision, (2) observing meetings, and (3) requesting/collecting student performance data, it was a combination of these and other behaviors that were identified as contributing most to high quality teacher collaboration. The inherent connections between various principal strategies were emphasized in teachers’ responses. For example, vision and observation paired with facilitation were more useful together than as a stand-alone. Requesting and collecting data was most valuable when linked to a change in instructional practice. In short, these actions all speak to the importance of both instructional and distributive leadership.

In some cases, teachers explicitly mentioned that their principal was an instructional leader, as in the example below:

“My principal is well versed in the developmental expectations of elementary aged students. She is an instructional leader. She is up to date on research and offers instructional suggestions to improve student learning and/or to monitor student progress.”

In a handbook for supervisors, Zepeda (2007) noted the importance of instructional leadership trumping any other principal responsibilities. When principals function as instructional leaders they simultaneous are committed to two things: (1) high expectations for student learning alongside (2) a clear vision that includes collaboration. Under these conditions, strong teacher teams can emerge with shared norms and trust. In reviewing the results of this study, there appears to be a direct link between the qualitative responses for research question three and instructional leadership; specifically, teachers being a rich source for learning when lead by an
instructional leader (Zepeda, 2007). This was evidenced by specific principal actions such as linking discussions to student work, framing thinking, and facilitating an open dialogue.

Further, in reviewing teachers’ responses in this district over the four years of data collection, it appears that there was a shift over time from principals “dictating curriculum and instruction” by being “directive” to being “cultural builders” who shared responsibilities with teachers. This type of sharing ties back into the notion of distributive leadership that was discussed in Chapter 2, in which leadership is spread across individuals. Evidence of distributive leadership can be seen in teacher comments such as the following:

“Our principal modeled the framework and expectations of an efficient, effective PLC for the first two months of the school year. He then determined that we were professionals and could set out own agenda based on grade level and district initiatives and the needs of our students. This ownership has allowed us to consider the needs of teachers and students and made each meeting more valuable. It has allowed us to build a community of respect and responsibility where we feel free to express and share ideas. This has had a positive impact on student learning because we truly collaborate and fine tune methods for delivering instruction and share strategies for differentiation to best meet the needs of each student in our charge. By talking through the challenges with peers, we have been able to collaborate and help each other and our students.”

The increase in teacher accountability in this school district appears to have been facilitated by building principals who embraced the district’s theory of action and became both instructional and distributive leaders. While authors such as Leithwood et al. (2004) and Rost (1993) have noted that leadership matters, this finding suggests that the specific and more defined elements of instructional and distributive leadership truly matter within schools.
Although instructional leadership has been criticized for focusing too heavily on principals as central authorities (Cuban, 1984), the present study suggests that contemporary instructional leadership seems to have moved beyond Hallinger’s (2003) three dimensions of (1) development of school mission, (2) creation of school goals and, (3) communication of school goals. In fact, judging from the qualitative responses, it appears instructional leadership includes many *distributive* practices. Teacher responses indicated that instructional leadership evolved over time to entail more coaching and fewer directives. The teachers appeared to be empowered through the assistance provided by principals for them to do their work and think critically. Teachers valued administrative participation in their teams, and their definition of what it meant to be involved in teacher teams changed over time. It is clear that teachers appreciated a principal who was knowledgeable about the instructional work of teacher teams but also someone who supported the work of teacher teams. Some of these comments even reflected the creation of resources that would benefit future teachers. The involvement of principals appeared to be assisting teachers in seeing other perspectives in their classroom, generating meaningful dialogue and reflection. Indeed, the qualitative responses, aligned with the principal actions identified on the survey indicate that a strong collaborative culture became more pronounced in this district over time.

The implications for this research are important for all districts, but particularly for districts where teacher isolation is most evident. The results of this study suggest that a collaboration initiative can have a positive impact in a district where collaboration was already occurring in a less formally structured way. Although no statistically significant results were found for principal actions in support of teacher teams or the quality of teacher collaboration over time, there was a fairly strong and significant relationship documented between these two
variables across all four years of the study. Thus, districts embarking on any type of collaboration initiative should focus on principal actions and the impact they can have on high quality teacher collaboration. In particular, an emphasis on both instructional and distributive leadership are key, as well as specific principal actions such as active participation in teacher teams, goal setting, collecting and analyzing student data, and providing a shared vision of collaboration.

Limitations and Future Research

One of the biggest strengths of the present study was its longitudinal design. However, one weakness was the absence of a baseline measure of principal actions and quality of collaboration prior to the implementation of reform in this district. Thus, it would be wise for districts attempting to rollout future initiatives aimed at increasing teacher collaboration to first obtain baseline measurements of these variables so that they can be compared to scores obtained after professional development has occurred. This would also enable an examination of whether mean scores on these scales were inflated at the outset of the initiative.

Another potential limitation of the study is that the results are based exclusively on self-report data which introduces the possibility of common method variance (CMV). CMV has been a frequently cited concern in research, and it refers to the potential for false correlations among constructs that arise from systematic measurement error that is created by having all of the measures originate from the same method or source (e.g., a single self-report survey) (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). However, common method variance may exist without a large amount of common method bias, or the extent to which scores are inflated due to the methods used (Meade, Watson, & Kroustalis, 2007). In part, this concern is tempered by having teachers rate their current job and supervisor as opposed to imagining a hypothetical scenario or
person, and by having their responses remain anonymous. Additionally, the qualitative responses that were gathered from participants strongly support the correlational data and provide fairly in-depth accounts of how specific principal actions helped to increase the quality of their teams’ collaboration.

Future research should attempt to expand upon the measurement of the outcomes that were investigated in this study by utilizing other methods of data collection aside from self-report surveys to evaluate the initiative. For example, Elmore (2000) recommended that teachers and principals conduct “walkthroughs” of classrooms to evaluate whether specific elements were present in each classroom. Similar to classroom walkthroughs, impartial teams of teachers and administrators could conduct teacher team walkthroughs to consider the quality of collaboration in each teacher team. Perhaps, one step further, the team can hold rounds to examine the teacher team work (City, Elmore, Fiarman, & Teitel, 2009). Elmore described instructional rounds as mimicking the medical field model where teams of people share data to address a problem of practice. Another suggestion for future research would be to hold focus groups with teachers and/or administrators about the quality of collaboration occurring in teacher teams and the ways in which principals have supported collaboration as a way to measure cultural shift without using (or in addition to) a self-report survey.

A related issue is the scale construction. As was discussed in Chapter 3, the results of Lee and Randall’s (2011) analysis of the “Principal Actions in Support of Teacher Teams Scale” indicated that more items were needed to better separate people across items. Thus, one suggestion for future research would be to further develop this scale by adding some new items in hopes of increasing its validity. However, it is important to note that Lee and Randall found
the scale to have adequate separation for a scale consisting of twelve items. Further, the scale had high reliability across all four years of the study.

The scale’s rating anchors could also be a potential weakness in this study. The majority of the items were rated using a 5-point likert-type scale, with a sixth option of “don’t know/cannot determine.” Research on performance appraisals has documented that there are certain rating errors or rater biases that can occur when evaluating an employee, peer, or supervisor (Lunenburg & Ornstein, 2012). One of the most common types of rating errors is central tendency. Central tendency error occurs when raters try to avoid giving extreme ratings on the scale (in this case 1’s or 5’s), which results in everyone being rated as average, or toward the middle of the scale. Given the high starting means on both the principal actions scale and the quality of collaboration scale, it is likely that there was a skewed distribution, and that many teachers gave a rating of “4.” This could have contributed to the lack of change in scores over time on these scales. One solution to this problem would be to increase the number of anchors, or rating options, available for each item. This would increase the spread of scores and potentially reduce the restriction of range issue discussed earlier. With more variability in scores, it is possible that more change over time could be statistically detected.

Future research should investigate what effect this type of initiative would have in a less collaborative district to see whether greater increases in collaboration and more marked changes in principal actions might emerge. It might also be worthwhile to use additional predictors in the HLM model, such as years of teaching experience, gender, or type of school (i.e., elementary, middle, high). Another study of interest might examine whether changes in principal actions in support of teacher teams and/or quality of teacher collaboration varies across schools (e.g., elementary, middle, high) within a district to investigate whether change might occur
differentially based on the level of instruction. Another suggestion is for future studies to gather data across districts to increase sample size. Using a different type of coding system might also be beneficial in ensuring that participants could be tracked over time. In the present study, participants were either confused by the identification code fields or did not read the instructions carefully enough, resulting in some incomplete data across the four years of the collection. By generating a code that could be more easily generated, remembered, and replicated, tracking participants across time might become easier and reduce the number of missing cases.

**Conclusion**

This study reported on the high leverage principal actions that influence a district’s attempt to shift to a culture of high quality teacher collaboration. By employing a mixed methods examination of the relationship between principals’ actions in support of teacher team and the quality of teacher collaboration over time, specific roles that principals emphasized became evident. This study adds to previous literature emphasizing the important of leaders in fostering a collaborative environment. Further, it provides support for the study’s theory of action which asserted that if principals and teacher teams are provided with professional development focused on a cycle on inquiry, and are held accountable for using this knowledge, then the quality of collaboration in teacher teams will increase.

To date, little longitudinal data exist that consider principal involvement in teacher teams and the high leverage administrative actions that might influence the quality of teacher collaboration. The main takeaways from this research are the importance of principals in: (1) projecting a shared vision of teacher collaboration and student performance, (2) attending and becoming an active, involved member of teacher teams, and (3) collecting student achievement/performance data from teacher teams as one key element of instructional
leadership. While it is doubtful that the job of principal will get easier any time soon, what this study did is provide concrete strategies that could be implemented by administrators, highlighting the leadership roles that seem to matter most for improving the quality of teacher collaboration.
APPENDIX A

2011 NSDC STANDARDS FOR PROFESSIONAL LEARNING

**Learning Communities:** Professional learning that increases educator effectiveness and results for all students occurs within learning communities committed to continuous improvement, collective responsibility, and goal alignment.

**Leadership:** Professional learning that increases educator effectiveness and results for all students requires skillful leaders who develop capacity, advocate, and create support systems for professional learning.

**Resources:** Professional learning that increases educator effectiveness and results for all students requires prioritizing, monitoring, and coordinating resources for educator learning.

**Data:** Professional learning that increases educator effectiveness and results for all students uses a variety of sources and types of student, educator, and system data to plan, assess, and evaluate professional learning.

**Learning Designs:** Professional learning that increases educator effectiveness and results for all students integrates theories, research, and models of human learning to achieve its intended outcomes.

**Implementation:** Professional learning that increases educator effectiveness and results for all students applies research on change and sustains support for implementation of professional learning for long term change.

**Outcomes:** Professional learning that increases educator effectiveness and results for all students aligns its outcomes with educator performance and student curriculum standards.

http://www.learningforward.org/standards/standards.cfm
(2nd Iteration)

Previous NSDC Standards for Professional Learning

**CONTENT STANDARDS**

**Learning Communities:** Staff development that improves the learning of all students organizes adults into learning communities whose goals are aligned with those of the school and district.

**Leadership:** Staff development that improves the learning of all students requires skillful school and district leaders who guide continuous instructional improvement.

**Resources:** Staff development that improves the learning of all students requires resources to support adult learning and collaboration.

**PROCESS STANDARDS**
**Data-Driven:** Staff development that improves the learning of all students uses disaggregated student data to determine adult learning priorities, monitor progress, and help sustain continuous improvement.

**Evaluation:** Staff development that improves the learning of all students uses multiple sources of information to guide improvement and demonstrate its impact.

**Research-Based:** Staff development that improves the learning of all students prepares educators to apply research to decision making.

**Design:** Staff development that improves the learning of all students uses learning strategies appropriate to the intended goal.

**Learning:** Staff development that improves the learning of all students applies knowledge about human learning and change.

**Collaboration:** Staff development that improves the learning of all students provides educators with the knowledge and skills to collaborate.

**CONTENT STANDARDS**

**Equity:** Staff development that improves the learning of all students prepares educators to understand and appreciate all students, create safe, orderly, and supportive learning environments, and hold high expectations for their academic achievement.

**Quality Teaching:** Staff development that improves the learning of all students deepens educators’ content knowledge, provides them with research-based instructional strategies to assist students in meeting rigorous academic standards, and prepares them to use various types of classroom assessments appropriately.

**Family Involvement:** Staff development that improves the learning of all students provides educators with knowledge and skills to involve families and other stakeholders appropriately.
## APPENDIX B

### STATE LEADERSHIP STANDARDS

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<thead>
<tr>
<th>State</th>
<th>Leadership Standard that includes Collaboration</th>
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<tbody>
<tr>
<td>California</td>
<td>A school administrator is an educational leader who promotes the success of all students by collaborating with families and community members, responding to diverse community interests and needs, and mobilizing community resources.</td>
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</tbody>
</table>
| New York       | 4. *Leaders collaborate and cooperate with others.*  
Leaders communicate high expectations and provide accurate information to foster understanding and to maintain trust and confidence. Leaders reach out to others for support and assistance, build partnerships, secure resources, and share credit for success and accomplishments. School leaders manage change through effective relationships with school boards. |
| Florida        | Community and Stakeholder Partnerships – High Performing Leaders collaborate with families, business, and community members; respond to diverse community interests and needs; work effectively within the larger organization; and mobilize community resources. |
| Illinois       | STANDARD 4 – Collaboration with Families and Communities  
The competent school superintendent is an educational leader who promotes the success of all students by collaborating with families and community members, responding to diverse community interests and needs, and mobilizing community resources. |
| Pennsylvania   | III. Collaborating, communicating, engaging and empowering others inside and outside the organization to pursue excellence in learning.                                                                                                                                 |
| Ohio           | Candidates develop communications plans for staff that includes opportunities for staff to develop their family and community collaboration skills.                                                                                                                                 |
| Michigan       | Continuous Improvement – Staff engages in collaborative inquiry focused on continuous improvement to increase student achievement                                                                                                                                 |
| Georgia        | Lead others in a collaborative process to set high expectations for all learners  
4. Engage participants in collaborative work and provide support systems that personalize work and learning for both students and adults. |
<p>| North Carolina | 5. Collaboration and Empowerment  The superintendent is an educational leader who facilitates school improvement by engaging the school community's stakeholders in collaboration, team-building, problem solving, and shared decision making |
| New Jersey | Standard #4 Collaborating with families and community members, responding to diverse community interests and needs, and mobilizing community resources; |
| Virginia | 2. The school leader collaboratively develops and implements a School Improvement Plan that focuses on improving student performance, communicates a clear vision of excellence and results in increased student learning. [1A, 1C, 1D, 5E] |
| Maryland | * Promoting collaborative problem solving and open communication |
| Wisconsin | The administrator models collaborating with families and community members, responding to diverse community interests and needs, and mobilizing community resources. |
| Alabama | Standard 2: Teaching and Learning  Promotes and monitors the success of all students in the learning environment by collaboratively aligning the curriculum; by aligning the instruction and the assessment processes to ensure effective student achievement; and by using a variety of benchmarks, learning expectations, and feedback measures to ensure accountability.  Standard 7: Management of the Learning Organization  Manages the organization, facilities, and financial resources; implements operational plans; and promotes collaboration to create a safe and effective learning environment. |
| Louisiana | Teaching and Learning. The principal uses a knowledge of teaching and learning in working collaboratively with the faculty and staff to implement effective and innovative teaching practices which engage students in meaningful and challenging learning experiences. |
| Connecticut | VI School Culture – The school leader utilizes multiple strategies to shape the school culture in a way that fosters collaboration among the staff and the involvement of parents, students, and the community in efforts to improve student learning.  XII School-Community Relations – The school leader collaborates with staff to |</p>
<table>
<thead>
<tr>
<th>State</th>
<th>Standard</th>
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<tbody>
<tr>
<td>Iowa</td>
<td>Standard #4: An educational leader promotes the success of all students by collaborating with families and community members, responding to diverse community interests and needs and mobilizing community resources. (Family and Community)</td>
</tr>
<tr>
<td>Kansas</td>
<td>Standard 3: The teacher leader is able to improve the quality of colleagues’ collaboration and interaction with families and other stakeholders</td>
</tr>
<tr>
<td>West Virginia</td>
<td>Standard I: Demonstrates Interpersonal and Collaborative Skills</td>
</tr>
<tr>
<td>Rhode Island</td>
<td>Standard 4: Collaborating with Key Stakeholders</td>
</tr>
<tr>
<td></td>
<td>Standard 4: Education leaders ensure the success of each student by collaborating with stakeholders to respond to diverse community interests and needs and to mobilize community resources that improve student achievement.</td>
</tr>
<tr>
<td>Montana</td>
<td>Standard 4: Collaboration</td>
</tr>
<tr>
<td></td>
<td>Principals establish and sustain collaborative learning and shared leadership to promote student learning and achievement of all students.</td>
</tr>
</tbody>
</table>
APPENDIX C

*S THEORY OF ACTION FOR IMPROVING TEACHING AND LEARNING

Introduction
The theory of action for improving teaching and learning in the * Public Schools is a set of interrelated causal statements that describe how the work of teachers and administrators will cause improvements in student learning over time. This theory of action exists in the context of a cycle of continuous improvement that involves all members of the educational community in goal setting, action, reflection and the use of data to inform decision making. It also articulates the primary leverage points that are the focus of our work to improve student learning.

Theory of Action for Improving Teaching and Learning In the * Public Schools

If we develop and teach a guaranteed and viable standards-based curriculum that is focused on 21st century skills using research based, high impact instructional strategies, then student learning will increase.

If we establish rigorous end-of-course and end-of-grade standards with formative and summative assessments in relation to those standards, then teachers will have a clear focus for teaching, they will be able to respond to individual student needs in a timely way, and student learning will increase.

If we provide opportunities for teachers to engage in collaborative analysis of student work and assessment results, and teachers regularly work together to refine their instructional practice in light of those results, then student learning will increase.

If we provide ongoing, job-embedded opportunities for teachers to learn, practice and receive feedback regarding their use of agreed upon high-quality instructional practices that are specific to content and grade level and if we hold teachers accountable for using these techniques through professional learning communities, peer coaching, supervision, evaluation and Instructional Rounds then student learning will increase.

If leaders identify areas of strength and areas for improvement in relation to their leadership practice, and if they are provided with coaching, supervision and evaluation to increase their leadership effectiveness, then instructional leadership will improve, teacher effectiveness will improve and student learning will increase.

If students are given high quality, challenging tasks that incorporate 21st century skills; clear, specific expectations for quality work, and they understand the purpose of the work then student engagement and learning will increase.

If students are given the opportunity to assess and revise their work based on clearly defined standards for quality, then student engagement and student learning will increase.
If we use an improvement process focused on targeted areas of need, in which teams of teachers and administrators work collaboratively in cycles of improvement that include goal setting, action, and reflection, and they are held accountable for using the knowledge gained through this process to improve the overall quality of instruction in classrooms, then student learning will increase.

System Work That Supports Increased Student Achievement
There are several responsibilities that rest with the superintendent which increase the focus, coherence and capacity of the district and support the district theory of action. These responsibilities include:
• Developing a district vision and core beliefs in collaboration with all stakeholders that create a shared vision of success and focuses the work of the system on broad, enduring outcomes.
• Aligning the use of financial and human resources to support the district vision and core beliefs, goals and priorities.
• Ensuring that ample time is allocated to student, teacher and leader learning.
• Assuring that all professional staff, including teachers and leaders, are selected, inducted, and supported through a comprehensive system of coaching, supervision, and evaluation.
District Vision for the * Public Schools System

The * Public Schools community cultivates the mind, body, and character of each student.

We provide our students with a rich and rigorous academic foundation designed to stimulate the skills necessary to thrive in an ever changing and global society: critical and creative thought; problem solving; effective communication; artistic expression; an understanding and appreciation of diverse cultures; and physical, social, and emotional wellness.

Supported by an exceptional faculty, committed families, and a generous community, we create a safe and supportive environment that fosters deep and enduring personal relationships. Within this caring atmosphere, our students explore their talents and interests, set individual and group goals, and pursue courageous endeavors in all areas of their lives.

We value a culture of civility where students and adults are treated with fairness, are respected for their contributions, and are celebrated for their successes.

Above all else, we prepare our students to embrace their lives with integrity, compassion, and resilience, enabling them to act knowledgably, lead thoughtfully, share generously, and contribute meaningfully.
Core Beliefs of the * Public Schools

**Students**

We believe in the unlimited potential of each student by respecting and developing their unique learning styles and interests.

We believe in academic and extracurricular experiences that emphasize intellectual, physical, and social/emotional well-being.

We believe in setting challenging and demanding expectations of performance and supporting all students to achieve high standards.

We believe that effort makes a difference in achievement and that students should be provided with opportunities to pursue a rich and rigorous academic program.

We believe in developing students’ ability to problem solve, think critically, work collaboratively, express themselves creatively, and communicate effectively.

We believe in developing a passion for lifelong learning and in the importance of connecting students to the school, to post high school opportunities, to the community, and the world.

**Faculty**

We believe that our faculty is expert in instruction and content knowledge and that they use curriculum to instill joy and excitement about learning.

We believe in the value of collaboration and communication among faculty within and across grade and department structures.

We believe that commitment to and implementation of continuous learning lead to improved student performance.

We believe in collecting, analyzing, and sharing data to guide decisions to improve student learning; individualize instruction; and promote social, emotional, and physical development.

We believe in the power of personal connections and relations between staff and students.
Parents and Community

We believe that families are essential in establishing the foundation of lifelong learning.

We believe that families know their children best, and we value their knowledge and input.

We believe in the importance of effective communication between families and school personnel to foster a safe and nurturing educational experience.

We believe that active involvement of family and community members enhances and enriches the learning experiences for all students and staff.

We believe in the importance of community partnerships in the education of all students.

System

We believe that the school community must strive for continuous improvement in order to become a center of educational excellence.

We believe in preparing students for a global, interconnected society, which will require facility with relationships, higher order thinking, technology, and languages.

We believe that an understanding of and respect for diversity in beliefs, cultures, backgrounds, abilities, and perspectives enrich the lives and learning environment for all our students.

We believe in the importance of shared leadership, collaborative decision making, and the systematic examination of our practice.

We believe in the appropriate allocation of resources to provide a cohesive, guaranteed, viable and relevant curriculum for all students.

We believe in the importance of reasonable class size, which promotes a safe environment that ensures personal connections between students and staff.

We believe in the proactive recruitment, retention and ongoing professional development of exceptional staff, teachers, and administrators.
District Steering Committee
Teachers, admin., staff, parents & BOE members

School-Based Study Groups
School admin. & volunteers from faculty, staff, parents & students

Full Faculty

Vision Statement & Set of Core Beliefs
### APPENDIX D

#### TEACHER COLLABORATION ASSESSMENT RUBRIC

<table>
<thead>
<tr>
<th>DIALOGUE</th>
<th>DECISION-MAKING</th>
<th>ACTION</th>
<th>EVALUATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>a) Agenda for team dialogue is pre-planned, prioritized, and documented.</td>
<td>a) The process for making any decision is formal, transparent, understood by all.</td>
<td>a) The team collects and analyzes qualitative and quantitative information about student learning and member teaching practices.</td>
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<tr>
<td></td>
<td>b) All team members meet face-to-face.</td>
<td>b) Team regularly makes explicit decisions about the individual and collective instructional practices they will initiate, maintain, develop, and/or discontinue.</td>
<td>b) Data is also collected through peer observation of instruction.</td>
</tr>
<tr>
<td></td>
<td>c) Team dialogue is facilitated and focused on the structured examination and analysis of instructional practice and student performance.</td>
<td>c) All decisions are informed by data and directly related to the improvement of instructional practice and the cultivation of student learning.</td>
<td>c) The team uses student performance data to evaluate the merit of individual and collective instructional practices.</td>
</tr>
<tr>
<td></td>
<td>d) Professional tension exists, and controversy is resolved &quot;now&quot; or as close to now as possible.</td>
<td>d) All decisions are documented.</td>
<td>d) Evaluation data and findings are shared publicly and form the basis for team dialogue and decision-making.</td>
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<tr>
<td></td>
<td>e) Team members value and reaffirm their shared purpose - to improve instructional practice and student performance.</td>
<td>e) Select team members will initiate, develop, and/or discontinue instructional practices as a result of team decision-making.</td>
<td>e) The team infrequently collects and analyzes qualitative and quantitative information about student learning and member teaching practices.</td>
</tr>
<tr>
<td></td>
<td>f) All members contribute to group performance, there are no &quot;hibernators&quot; or &quot;dominators&quot;.</td>
<td>f) Actions are tangentially related to the improvement of instructional practice and the cultivation of student learning.</td>
<td>f) Data is rarely generated through peer observation of instruction.</td>
</tr>
<tr>
<td></td>
<td>g) A documented agenda for team dialogue exists.</td>
<td>g) Group decisions are generally transparent and understood by all, however they may not always be documented.</td>
<td>g) The team relies on &quot;hearsay,&quot; &quot;anecdotes,&quot; or &quot;recollections&quot; to evaluate the merit of their practices.</td>
</tr>
<tr>
<td></td>
<td>h) Most group members regularly meet face-to-face.</td>
<td>h) The team makes decisions about what instructional practices they will initiate, maintain, develop and/or discontinue.</td>
<td>h) The data that is collected is usually shared publicly and forms the basis for dialogue and decision-making.</td>
</tr>
<tr>
<td></td>
<td>i) The process for team dialogue is occasionally facilitated; conversation is somewhat improvisational and unstructured.</td>
<td>i) Some decisions are informed by data about student learning.</td>
<td>i) The team does not systematically collect or analyze information about student learning and the merit and value of their instructional practices.</td>
</tr>
<tr>
<td></td>
<td>j) Discussion is generally related to instructional practice and student performance.</td>
<td>j) The team infrequently collects data about student learning and the merit and value of their instructional practices.</td>
<td>j) The team relies almost exclusively on &quot;hearsay,&quot; &quot;anecdotes,&quot; or &quot;recollections&quot; to form the basis of their dialogue and decision-making.</td>
</tr>
<tr>
<td></td>
<td>k) Professional tension exists, but controversy is rare and/or may go unresolved.</td>
<td>k) The team does not systematically collect or analyze information about student learning and the merit and value of their instructional practices.</td>
<td>k) Team members do not publicly share the effects of their instructional practice.</td>
</tr>
<tr>
<td></td>
<td>l) Most team members express a belief in a common purpose - to improve instructional practice and cultivate student learning.</td>
<td>l) The team does not make decisions about what instructional practices they will initiate, maintain, develop and/or discontinue.</td>
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</tbody>
</table>
APPENDIX E

TEACHER COLLABORATION SURVEY

1. * Public Schools - Spring 2010 Teacher Collaboration Survey

Welcome to the 3rd Annual * Public Schools Collaboration Survey!

The * Public School District has been engaged in an intensive effort to support and improve teacher collaboration. These efforts have included an increase in resources devoted to improving collaboration and time for you and your colleagues to work with one another to examine student work and improve instructional practice. In addition, district administrators have been working with Dr. Rebecca Gajda, Associate Professor of Educational Leadership at UMass–Amherst, since the summer of 2007 to develop strategies to support collaboration.

This survey was developed by Dr. Gajda in consultation with the Administrative Council (all building principals and district directors). In it you’ll be asked about your experiences with collaboration in the * Public School District and how collaboration has or hasn’t impacted your instructional practice and student learning.

We recognize that there is a great deal of variance in how each of you are experiencing collaboration and understand that your survey responses will reflect where you are in the process. Your thoughtful and honest responses will help us determine the value and merit of our district-wide efforts to improve teacher collaboration and assist in determining how the district can best allocate resources, training, and support for teacher collaboration in the days ahead.

To maintain confidentiality and to encourage free and open sharing of honest responses, survey data will be collected and analyzed in the aggregate by Dr. Gajda at UMass-Amherst. At no time in the data analysis and reporting process will individuals, or small groups of individuals, be identified. Reports will be generated at the building and district levels, and you will have full access to a summary of the findings.

Should you have any questions or concerns about the survey or the district’s efforts to improve teacher collaboration, please do not hesitate to Dr. Rebecca Gajda (Rebecca.Gajda@educ.umass.edu), 413-545-1751.

Thank you in advance for your thoughtful and thorough responses to the survey questions.
2. Confidential Identification Code

In order to see big picture changes over time, this survey will be periodically re-administered. Please provide a unique tracking code that will enable the longitudinal analysis of responses. The tracking code is used solely to conduct valid statistical analyses. Be assured that your individual responses will remain COMPLETELY CONFIDENTIAL. No analysis or reporting will be conducted that would allow the identification of any individuals.

1. Indicate the LAST 2 LETTERS of your LAST NAME, followed by the 2 letter abbreviation of the STATE IN WHICH YOU WERE BORN, followed by the YEAR YOU GRADUATED from high school.

For example, Christine Gallagher, born in Ohio, who graduated in 1987, would enter:

EROH1987

3. Demographic Information

On this page you will be asked to provide demographic information. This information will be used to analyze responses by groups. Should too few data points show up for a particular response - the item will be eliminated. At no time will individuals be identified.

1. What is your current position?

Other (please specify)
2. What is your gender?
- Female
- Male

3. For how many years have you been licensed/certified to teach?

4. At what location is your primary teaching/administrative appointment?

5. What grade level(s) do you primarily teach/service students?

6. If applicable, what subject matter do you primarily teach?

7. What is your PRIMARY source of ideas for understanding and improving how you teach/service students?
- Graduate program courses/materials/faculty
- Professional off-site conferences/meetings
Professional books or journals

My administrator(s)

1 on 1 conversations with district reading/math specialists

District-wide, system-based professional development

My own professional experiences

On-line professional websites/blogs

My primary professional learning community (PLC) team

Informal conversations with colleagues

Other (please specify)

4. What is your "Primary PLC?"

In this section you will be asked to describe your participation in committee/group work with other teachers/service providers.

1. Out of all the teams and working groups that you belong to, what is the name of the group you belong to whose primary purpose it is to examine student work and improve instructional practice? This group is considered your primary professional learning community or "PRIMARY PLC." (e.g. 9th grade History team, grade level team, department team)

2. How often does your "primary PLC" meet?

1 hour per week

1-2 hours per week

1x per month

3 hours per week

Only on designated district/school PD
3. Including yourself, how many people belong to this "primary PLC?"

- 2
- 3
- 4
- 5
- 6
- 7
- 8+

4. Did this "primary PLC" of which you are a member exist in the previous academic year (2008-2009)?

- yes
- no
- don't know for sure

Comments:

5. Other than your primary PLC, about how many other committees or teams do you attend with some frequency in your school/district?

5. Quality of Collaboration in Your Primary PLC

1. The following elements are typical characteristics of high quality teacher collaboration. Rate the extent to which each description characterizes what generally takes place in your primary PLC.
CHARACTERISTICS of TEACHER COLLABORATION

a) All the members of my primary PLC share and express a vision for student learning.
b) The goal of our collaboration is clear - to systematically improve instruction and increase student learning.
c) The membership configuration of my primary PLC is appropriate – the right people are members of the group.
d) Our meetings are consistently attended by ALL members.
e) We always have a pre-planned agenda for our meetings.
f) We always keep a record of what happened in our meetings.
g) Our dialogue is focused on the examination of instructional practice and student performance data.
h) We utilize specific protocols to structure our dialogue.
i) We experience healthy professional inter-personal tension and directly address and resolve conflict.
j) There are no "dominators" or "hibernators" in the group - everyone participates/contributes equally.
k) We regularly make decisions about what instructional practices to initiate, maintain, develop, or discontinue.
l) All of our decisions are informed by group dialogue.
m) Decisions are transparent - everyone knows what the decision is and how and why it was made.
n) The decisions we make are clearly and directly related to the improvement of instructional practice and the cultivation of student learning.
o) As a result of group decision-making each one of us makes pedagogically complex adjustments to our instructional practice.
p) There is always an equitable distribution of workload among team members.
q) As a group we regularly collect and analyze information about member teaching practices.
r) As a group we regularly collect and analyze information about student performance.
s) We observe the classroom instruction of our colleagues.
t) We use student performance data to evaluate the merit of our instructional practices.
u) We regularly and publicly share evaluation data in our primary PLC.
v) The accomplishments of our primary PLC are publicly recognized.
2. Describe the GREATEST STRENGTH of your primary PLC?

3. Describe an aspect of your primary PLC that NEEDS IMPROVEMENT.

4. What support, resources, training, or changes would help improve collaboration in your primary PLC?

6. Perceptions About Collaboration

1. Please read each statement below about the role of your principal/assistant principal/program director and indicate your response using the rating scale provided.

ROLE OF THE ADMINISTRATOR/SUPERVISOR (PRINCIPAL/ASST PRINCIPAL/PGM DIRECTOR)

- Strongly DISAGREE
- Disagree
- Neither Disagree nor Agree
- Strongly AGREE
- Don't Know/Cannot Determine

a) My Administration/Supervisor promotes a shared vision for teacher collaboration.
b) My Administration/Supervisor observes my PLC participation.
c) My Administration/Supervisor monitors the actions and achievements of my primary PLC.
d) My Administration/Supervisor monitors how the work of my primary PLC impacts student achievement.
e) I have received individual feedback from my Administration/Supervisor about how I could improve my contribution to my primary PLC.
f) Our group has received feedback from the Administration/Supervisor about how to improve the quality of collaboration in our primary PLC.
g) I understand how to use Teacher Collaboration Assessment Rubric (TCAR) as a tool to improve the quality of collaboration in my primary PLC.
h) My Administration/Supervisor helps my primary PLC to set clear and measurable goals for student learning.
i) My Administration/Supervisor helps my primary PLC figure out how to monitor our progress and achievements on a continuous basis.
j) My Administration/Supervisor celebrates the achievements of my PLC.
k) My Administration/Supervisor uses evidence to identify areas that need improvement in my primary PLC.
l) My Administration/Supervisor effectively addresses individuals who are resistant to, or disruptive of, the development of high quality teacher collaboration.

2. In your experience, over the past 3 months what role has your principal/administrator played in relation to your primary PLC? Check all that apply.

- Occasional observer
- Attends most/all of our meetings
- Visits at the beginning or at the end of our meetings
- Occasionally facilitates our meetings
- Requests and collects student achievement/performance data from our primary PLC
- Provides feedback about how to improve the quality of our collaboration.
- Provides specific training/support that will improve the quality of our collaboration.
- Reconfigures the membership of our group.
- Shares with us her/his vision of teacher collaboration and student performance.
- Has publicly recognized achievements of our primary PLC.
- Has not been involved with our primary PLC to any great extent.
3. In what specific ways have the actions of your Administration/Supervisor impacted the quality of your primary PLC?

4. What other people have played an active role in the facilitation and/or development of your primary PLC? What influence have they had or what role have they played?

7. Collaboration, Your Instructional Practice and Student Achievement

1. Effect of Your Primary PLC

   a) My instructional practice has substantially improved as a result of participating in my primary PLC.
   b) The instructional practice of my colleagues has substantially improved as a result of participating in our primary PLC.
   c) I have evidence that student learning is increasing as a result of the work of my primary PLC.
   d) I believe that collaborating with colleagues is an essential part of my job.
   e) Working in my primary PLC has a greater positive effect on my instructional practice than working independently.
   f) My primary PLC is intellectually stimulating.
   g) I am more satisfied with my job as a result of being able to collaborate with colleagues in my primary PLC.
   h) The quality of collaboration in my primary PLC is better than the dynamics of most other working groups that I’ve been part of at my school/in my district.
2. Describe a specific instructional technique/approach that you used to do, that you now do differently as a result of the influence of your PLC. (Describe both what you used to do and what you do now.)

3. How has student learning been improved as a result of the work of your PLC? Be as specific as possible. Give an example of the specific knowledge and/or skills that student(s) have demonstrated as a result of the work of your PLC.

4. Describe one goal that your PLC set for itself and that it has achieved thus far during the 2009-2010 academic year.
5. It is the belief of the school district that...

"high quality teacher collaboration brings about improvements in instructional practice and increases in student learning that cannot be achieved by individual teachers working independently of one another."

To what extent, and in what ways, do you personally share this belief?

6. To what extent have you experienced an increase in an overall expectation to collaborate (work with colleagues to systematically improve instructional practice and student learning) in this school year as compared to previous years?

The expectation to collaborate is...

- MUCH GREATER now than in previous years.
- GREATER now than in previous years.
- ABOUT THE SAME as previous years.
- LESS than in previous years.
- MUCH LESS than in previous years.

7. What resources/information do you want or need that you believe would help improve collaboration and instructional practice for you and your colleagues?

8. Please feel free to share anything else that you wish here...
APPENDIX F

* PUBLIC SCHOOLS PLC PROFESSIONAL DEVELOPMENT

ADMINISTRATOR FEEDBACK SURVEY

The purpose of this survey is to hear your perspectives about the value of the PLC professional development work that the * Administrative Team has been engaged in over the past three years.

We are interested in learning about how the PLC development work, specifically the professional development work facilitated and or carried out by * in collaboration with #, # & #, have been of use to you as a school leader and to the district’s overall PLC development efforts.

Findings (themes of strengths and ways to improve) will be used by #, #, # and * to inform decisions about how best to move forward now and into the future.

Your responses will be analyzed in the aggregate, and responses will be kept confidential.

If you have any questions about this survey please contact * at * or by phone at *.

Thank you in advance for your thoughtful responses.
1. Please reflect on the following elements of our PLC professional development work over the past three years. Rate each in terms of its value/usefulness your work as a school leader.

<table>
<thead>
<tr>
<th></th>
<th>Extremely Valuable</th>
<th>Valuable</th>
<th>Some Value</th>
<th>Limited Value</th>
<th>No value</th>
<th>Not Applicable/Cannot Determine</th>
</tr>
</thead>
<tbody>
<tr>
<td>The overall Teacher Collaboration Improvement Framework</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>(raise literacy, map teams, reconfigure teams, assess quality, make corrections, celebrate accomplishments)</td>
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<tr>
<td>The book: Revisiting PLCs at Work (by Dufour, Dufour and Eaker)</td>
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<tr>
<td>The Teacher Collaboration Assessment Rubric (TCAR) in its multiple iterations</td>
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<tr>
<td>The District-wide * teacher collaboration survey results/reports</td>
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<tr>
<td>Use of protocols in * Admin. Team PLC meetings.(e.g. 4As, Save the Last Word, Consultancies/Dilemma)</td>
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<tr>
<td>Vision/direction/feedback from ** &amp; *** during PLC-focused AC meetings.</td>
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<tr>
<td>Vision/direction/feedback from peers/other school level administrators during PLC-focused AC meetings.</td>
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<tr>
<td>Vision/direction/feedback from * during PLC-focused AC meetings.</td>
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<tr>
<td>School-site visits with * (one-on-one meetings with * and you)</td>
<td></td>
<td></td>
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<tr>
<td>On site facilitation (or co-facilitation/participation) by * of faculty/staff meetings at your school.</td>
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<td></td>
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</tr>
<tr>
<td>Materials, visuals, directions provided by ** &amp; *** to support development and evaluation of PLCs.</td>
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<tr>
<td>The summer 2010 meeting with the ***, MA School District administrative team and the ** AC.</td>
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<tr>
<td>Follow-up collaboration/connections with colleagues from the ** * School district.</td>
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</tbody>
</table>

Other - please specify
2. Which elements of our PLC development work have been the most useful and beneficial to you? Please be as specific as possible.

Q3

3. What have been the most important "ahas!" and learnings about professional learning communities that you have acquired through (or as a result of) the PLC PD that has taken place over the past three years? Please be as descriptive/detailed as possible.

Q4

4. What effect has our * PLC professional development work had on your practice as a school leader? i.e. What do you do now that is different in some way from before engaging in district-level PLC PD? Please be as descriptive/detailed as possible.
5. What effects have the actions you've taken in relation to PLC development had on your school's culture and teacher practice? i.e. How has your learning about PLCs impacted teacher attitudes, behavior, and instructional practice? Please be as descriptive/detailed as possible.

6. Overall, how beneficial/important has the * PLC-focused professional development over the past three years been for you as an educational leader?

5 Most beneficial important PD I've experienced
4 3 Average benefit importance of PD I've experienced
2 1 Least beneficial important PD I've experienced
7. How might we improve our district-level professional learning community? i.e. What recommendations do you have for maintaining and improving the quality of our AC PLC? What should we start, stop and/or change?

8. If there are additional ideas or comments that you’d like to share, please feel free to do so here. Thank you!

Thank you!
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DuFour, R. (2004). What is a "professional learning community"? *Educational Leadership, 61*(8), 6-11.


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