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A Case Study of the Relationship between Collective Efficacy and Professional Learning Communities

A dissertation submitted in partial satisfaction of the requirements for the degree Doctor of Education

in

Educational Leadership

by

Robert Holland Voelkel, Jr.

Committee in charge:

University of California, San Diego

Professor Janet Chrispeels, Co-Chair
Professor Carolyn Hofstetter, Co-Chair

California State University, San Marcos

Professor Sue Moineau

2011

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2011

DEDICATION

This dissertation study is dedicated to the many people who have stood by my side during this long journey. Specifically, I thank my lovely wife, Kimberly Clay Voelkel, for her unwavering support and understanding throughout this process. You have sacrificed the most, and I am deeply indebted to you. Your kindness and encouragement helped me more than you will ever know.

To my four beautiful daughters, Lauren Holland Voelkel, born March 16, 2003, Sara Jo Voelkel, born May 23, 2006, Natalie Aileen Voelkel, born November 18, 2007, and Leah Jennifer Voelkel, born November 4, 2010, each of whom have shown me the true meaning of life, family, unconditional love, and what it means to be a father. You girls have always greeted me with a smile even when I could not be around to play.

This research is also dedicated to the memory of my brother-in-law, SSGT Daniel Clay, and sister-in-law, Jennifer Holzknecht, who both are waiting for our family in a better place. They are fondly remembered each and every day and continue to be deeply missed by so very many.

Most importantly, I thank God, my strength.

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ABSTRACT OF THE DISSERTATION

A Case Study of the Relationship between Collective Efficacy and Professional Learning Communities

by

Robert Holland Voelkel, Jr.

Doctor of Education in Educational Leadership

Professor Janet Chrispeels, Co-Chair
Professor Carolyn Hofstetter, Co-Chair

University of California, San Diego
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2011

The No Child Left Behind (NCLB) Act (2001) has created a high stakes accountability climate by setting federal mandates for increasing levels of student achievement in the Kindergarten through twelfth grade public education arena. Consequently, schools and districts who fail to meet Adequate Yearly Progress guidelines are subject to progressive degrees of corrective action. As a result, the role of educators takes on an even greater importance as educational researchers and policymakers seek reforms to meet the new demands placed on teachers. One model showing great promise is the professional learning community (PLC) model. Researchers continue to examine whether or not PLCs may be the impetus for increased student achievement and a

possible support structure leading to the closing of the achievement gap. While these studies have been crucial in identifying effective, research-based PLC practices, they have largely ignored the fact that many schools continue to struggle in implementing and sustaining PLCs. This seems to suggest that PLC success may be determined by other factors.

Using surveys, one-on-one interviews, and documentation to triangulate the data, this mixed-methods study examined the relationship between PLCs, collective efficacy, and transformational leadership. This study utilized the conceptual frameworks of DuFour and Eaker's (1998) PLC model, Goddard's (2002) collective efficacy construct, and Leithwood's (1994) transformational leadership model. This case study examined one district in Central California that successfully implemented the PLC model for the past five years.

The quantitative phase resulted in 297 usable surveys containing items exploring PLC and collective efficacy characteristics. Findings suggest that there is a positive relationship between PLCs and collective efficacy as reported by descriptive, correlation, multiple regression, and structural equation modeling tests. A qualitative phase was also conducted through one-on-one interviews with teachers and principals at two K-5 and two K-8 schools demonstrating higher and lower levels of collective efficacy and more and less effective PLC teams adding depth to survey results. The data indicated that transformational leadership is essential in building and sustaining the PLC process. Findings also provided evidence that the more effective PLC teams had higher levels of perceived collective efficacy.

CHAPTER 1: INTRODUCTION

Public education reform has continued to receive much attention within the last three decades. Currently, public schools face unprecedented state and federal mandates for accountability regarding student achievement. Now, more than any other time in American history, there is a universal call for increased student achievement as well as more rigorous systems of accountability as a result of global competition (Waters & Cameron, 2003). One example of heightened accountability in American public schools is the *No Child Left Behind* (NCLB) Act implemented in 2001.

According to the NCLB Act, by the 2014 school year, public schools are required to close achievement gaps that exist between minority students as well as students who are and are not socio-economically disadvantaged. Schools that are not making yearly progress are facing stiffer corrective actions and, to date, the number of schools in the United States under federal sanctions for not meeting Adequate Yearly Progress (AYP) guidelines continues to increase. Schools becoming designated as Program Improvement (PI) followed by specific, progressive corrective actions, creates a climate of high stakes accountability for all schools. As a result, schools today must discover ways to improve their craft and ensure high levels of learning for all students. The NCLB Act, coupled with state mandated achievement standards, has prompted educators and researchers to seek effective reforms to support the ever-increasing demands on educators to raise student achievement.

In addition to increasing achievement as measured by standardized tests, there is also a call to address the new skills that students need to be successful in the 21st century workplace. One only needs to look at the dramatic developments in the labor market to

see the need for school improvement. There have been many changes in employment opportunities over the past 100 years, and educators will also need to change in order to meet the demands of the 21st century. These changes are evidenced by looking at the job skills necessary to fill current positions. Since the 1960s, there has been a radical shift in the types of jobs available and the skills required to meet the demands of those positions (Pink, 2006). From the 1940s through the 1970s there was a greater demand for low skill positions such as factory and agricultural workers with fewer positions needing highly skilled workers. In the 21st century, however, there is a greater urgency for employees to possess specialized skills such as technical expertise; and, while there is still employment that requires lower skills, these positions are decreasing proportionally (Draves & Coates, 2003; Pink, 2006). Therefore, it is clear that students will need a new skill set including critical thinking, complex problem posing and finding, flexibility, oral and written communication, and teamwork skills to compete in a rapidly changing world (Wagner, 2008).

Teachers in American schools have been accustomed to a certain way of conducting business for years and changing the status quo is proving to be challenging. According to Harpaz (2005), there is evidence pointing to much needed radical change in the traditional "factory schools" model. Senge (2006) postulates that "education for the twenty-first century must change profoundly from education for the nineteenth and twentieth centuries" (p. 362). A major obstacle in translating school reform into the classroom is that teachers are accustomed to working in isolation (Ashton & Webb, 1986; Cuban, 1990; Fullan, 2001a; Goodlad, 1984; Huffman & Hipp, 2000; Little, 1990; Rosenholtz, 1989; Schmoker, 2005). Teachers who work in isolation often differ in their

perceptions of what constitutes best instructional practices (Ashton & Webb, 1986). Some of the past characteristics of schooling include: (a) individual autonomy of pedagogy and evaluation, (b) the teaching of content, and (c) teachers being encouraged and free to work in isolation (DuFour & Eaker, 1998). However, these practices no longer meet the needs of all students and in some cases do not prepare them for the work force. Researchers and practitioners need to look to highly effective schools and analyze what makes them successful (DuFour & Eaker).

Statement of the Problem and Rationale for the Study

The problem and rationale for this study are founded on the need for school reform that supports increased accountability in an era of limited funding. There is also an urgent call for accountability in America's public schools and a need to close the widening achievement gap. This accountability, coupled with a more demanding global market and high-stakes testing requirements, has led researchers to examine effective structures that accomplish the goals of meeting the federal mandate and closing the achievement gap. NCLB mandates that by 2014 100% of students in public schools must meet standards at the proficient level as defined by federal policymakers. Educators continue to feel these pressing demands to ensure all students are learning at high levels and are prepared for employment upon graduation.

As a result, school leaders continually search for ideas to improve student achievement and help close the achievement gap. Site administrators have attempted to redistribute resources, reorganize instructional staff, redesign curricula, restructure the school day, and provide interventions to under-performing students in the hopes of improving student achievement. Several of these efforts support a professional learning

community model. One example is the restructuring of the school day, which provides teachers embedded time to work in collaborative teams focused on students and their learning. Providing interventions for students struggling to meet the required standards being addressed at a proficient level is another critical element of a professional learning community. Additionally, working together in a professional learning community requires a new set of teacher skills and attitudes that may not be part of teachers' current repertoire since teachers have been groomed to work more in isolation and with much autonomy. There is little empirical evidence regarding the role of transformational leadership to best support an efficacious collaborative process within the DuFour and Eaker (1998) PLC model. This study seeks to explore this relationship.

The literature shows promise in the area of professional learning communities. DuFour and Eaker (1998) state that, "The most promising strategy for sustained, substantive school improvement is developing the ability of school personnel to function as professional learning communities" (p. xi). One reason to use the PLC model is to provide a necessary framework for all students to learn and achieve at high levels. However, for unknown reasons, professional learning communities are not being implemented and/or sustained in many schools across America (DuFour, DuFour, & Eaker, 2008). While the possibilities are apparent, there may also exist discrepancies between the operational realities of some schools that merely profess to be professional learning communities with schools which, on closer examination, are genuinely operating as effective PLCs. There is also an apparent lack of sustainability, which creates questions regarding why a structural reform that clearly shows such potential in helping students succeed has difficulty getting the necessary staff support and once there is

support, what are the reasons behind the lack of sustainability? This study explores this question while examining the link between collective efficacy and professional learning community implementation.

Furthermore, there is little empirical evidence linking the professional learning community model to student achievement (Louis & Marks, 1998; McLaughlin & Talbert, 2006). The efficacy construct, on the other hand, has been linked to student outcomes including higher student achievement. Moreover, a review of the literature does reveal that there appears to be a relationship between some of the professional learning community characteristics and efficacy. There is empirical evidence linking professional learning communities to efficacy (Lee, Dedrick, & Smith, 1991; Newmann, Rutter, & Smith, 1989; Rosenholtz, 1989), yet there is no empirical evidence linking the DuFour and Eaker (1998) model of professional learning communities to either efficacy or student outcomes. Therefore, it is informative in the school reform literature to identify possible links between the DuFour and Eaker PLC model and collective efficacy since there is empirical evidence suggesting that teacher efficacy is positively linked with increased student achievement (Armor, Conry-Osequera, Cox, King, McDonnell, & Pascal, 1976; Ashton & Webb, 1986; Gibson & Dembo, 1984; Goddard, 2001).

When reviewing the literature, collective efficacy shows great promise when teachers are working collaboratively, which is the essence of professional learning communities. However, research findings have not yet made a connection between the possible relationship between successful professional learning community implementation as defined by DuFour and Eaker (1998) and collective efficacy. Because

little is known about the possible relationship between PLCs and collective efficacy, this study also seeks to discover whether or not a relationship does indeed exist.

Purpose of the Study

According to Dooner, Mandzuk, and Clifton (2008), "…little educational research explores the difficulties that teachers experience in establishing and sustaining productive learning communities" (p. 565). As a result, the purpose of this study is to investigate if collective efficacy is a factor in building and sustaining a professional learning community. To date, there are no empirical studies looking at possible relationships between collective efficacy and professional learning communities. Neither is there empirical evidence linking transformational leadership to PLCs. Therefore, this study also explores the relationship between transformational leadership and PLCs. I work in a district where professional learning communities are expected at each site. Delving deeper into developing a PLC and observing it firsthand, I see challenges that may thwart efforts to move into a true professional learning community model. The secondary purpose of this study is to examine the degree to which a school, regardless of its claims, actually functions as a professional learning community. There may be gaps between the reality of schools claiming to be PLCs and whether or not they actually are PLCs. The final purpose of this study is to analyze if teachers' collective efficacy could influence the level of professional learning community implementation. These findings have the potential to inform professional learning community leaders concerning how to sustain the PLC model as defined by DuFour and Eaker (1998).

Professional Learning Community

In Buffum and Hinman's (2006) mixed-methods case study, they discovered a need for teachers to take and be given collective responsibility to determine the path that will lead to the academic success for all their students. To do this, a different model of schooling is needed to allow for the focus to change from one on pedagogy to one focused on student learning, from an environment where teachers work in isolation to an environment of collaborative inquiry, and a clear focus on the academic results of all students (Newmann & Wehlage, 1995). These ideas of collaboration and inquiry among teachers encompass the key components of a *professional learning community*. DuFour and Eaker (2007) define a professional learning community as one where educators are committed to working collaboratively in a continuous process of collective inquiry and action research to achieve better student results. Professional learning communities work with an understanding that the key to improved learning for all students is continuous learning for educators. DuFour and Eaker (1998) state, "If schools are to be transformed into learning communities, educators must be prepared first of all to acknowledge that the traditional guiding model of education is no longer relevant in a postindustrial, knowledge-based society" (p. 34).

The work of DuFour and Eaker (1998, 2008) will serve as the conceptual framework for this study. The authors developed a professional learning community model based on six key characteristics: shared mission, vision, values, and goals; collective inquiry; collaborative teams; action orientation and experimentation; continuous improvement; and results orientation. These characteristics are coupled with

three fundamental principles: (a) ensuring all students learn at high levels, (b) promoting ongoing teacher collaboration, and (c) clearly focusing on student results.

Despite the research on professional learning communities dating back to the early 1980s and the significance of collaboration and use of assessments for learning, many schools attempting to become PLCs are having difficulty with how to effectively implement the PLC model. In addition, some schools that truly become a professional learning community as indicated by DuFour and Eaker's (1998) model are unable to sustain the effort. One of many possible reasons for this may be because the professional learning community model does require restructuring the schools and changing the norms and culture of the organization, but may not provide sustained supportive leadership or sufficient coaching and opportunities for teacher development (Wahlstrom & Louis, 2008). Another reason may be the level of perceived collective teacher efficacy, which is what the researcher explores with this study.

Efficacy

Newmann et al. (1989) state, "Recent major attempts by state departments and school districts to reform schools have paid little attention to teachers' sense of efficacy and sense of community and how to enhance their expectations of students" (p. 224). Efficacy is grounded in social cognitive theory. The genesis of the teacher efficacy construct evolved from two competing conceptual strands. The first conceptual strand used the work of Rotter's (1966) social learning theory as the theoretical base. Researchers from the RAND Corporation first conceived teacher efficacy and studied "the extent to which teachers believed that they could control the reinforcement of their actions, that is, whether control of reinforcement lay within themselves or in the

environment" (Tschannen-Moran, Hoy, & Hoy, 1998, p. 202). Two types of control, external and internal, were introduced in this construct. External control included events that were perceived as fate or luck by an individual; thus, the person had no control over the event. Internal control, on the other hand, meant that the individual perceived that the event was contingent on his own behavior; the event can be controlled by the individual. The inception of efficacy studies originally focused on whether teachers believed they could teach unmotivated or at-risk students (internal control) or whether there were environmental factors that controlled teachers' ability to impact student learning (external control) (Tschannen-Moran & Hoy, 2001).

Bandura's (1977) social cognitive theory is the second conceptual strand and emerged from his work with self-efficacy. Bandura defined efficacy as the belief a person holds regarding his or her ability to accomplish a given task (1977). His construct differed from that of Rotter's internal-external locus of control. The difference in the two efficacy constructs as described by Bandura (1977, 1997) suggests that an individual's actions are determined by the desired outcomes. Individuals may believe certain actions will produce desired results, and individuals can also have serious doubts as to their ability to perform the needed actions (Bandura). For this reason, Bandura differentiates between efficacy and outcomes. Bandura (1997) explains four sources of efficacy-shaping information: (a) mastery experiences, (b) affective state, (c) vicarious experiences, and (d) social persuasion. According to Bandura, the most powerful source of efficacy is mastery experience. The research also suggests that these four sources of efficacy operate at the collective level (Goddard, 2001; Goddard, Hoy, & Hoy, 2004).

Though researchers have studied collective efficacy in schools over the past 10 to 15 years as a natural progression of nearly 30 years of positive teacher efficacy research (Goddard & Skrla, 2006), there is only limited empirical evidence supporting the significance of collective efficacy (Goddard & Goddard, 2001). The evidence that has been collected, however, shows great promise in increasing student achievement in schools if there are higher levels of collective efficacy (Leithwood & Jantzi, 2008; Wahlstrom & Louis, 2008). In educational organizations, collective efficacy is defined as teachers' shared beliefs that the entire staff can create and implement an action plan needed for students' success (Goddard, Hoy, & Hoy 2004; Goddard & Goddard).

Professional Learning Community and Teacher Collective Efficacy

While there is little empirical evidence linking professional learning communities as defined by DuFour and Eaker (1998) with efficacy, there are several studies that have found relationships between certain characteristics of professional learning communities in the area of collaboration and efficacy (Rosenholtz, 1989; Newmann et al., 1989; Lee et al., 1991). One researcher, Rosenholtz (1989), discovered gains in student reading and math scores when teachers worked together, which contributed to an increased sense of efficacy. Newmann et al., (1989) also found a strong connection between teachers' working together and teacher efficacy. Lee et al. (1991) found that community was the strongest predictor of efficacy.

Professional Learning Community and Leadership

As teachers seek strategies to increase student achievement for all learners, school leadership needs to focus on what they can do to more effectively support teachers in a collaborative learning environment with a focus on student results. One promising

construct gleaned from the literature is transformational leadership. Burns (1978) defines transformational leadership as the teachers' dedication to fostering organizational members' growth and enhancing their community by elevating their goals. Leithwood (1994) shares six transformational leadership characteristics: (a) intellectual stimulation, (b) high performance expectations, (c) individualized support, (d) appropriate modeling, (e) productive school culture, (f) and structure. Professional learning community research is beginning to emerge with regard to leadership and is discussed in the literature review. Less well understood and researched is the role of leadership in fostering PLCs. As a result, this study explored transformational leadership characteristics and their relationship to professional learning communities.

Overview of the Methods

The design of this study is based on a case study approach. The case study design was determined to be the best method for this study because, according to Yin (2003), "case studies are the preferred strategy when "how" and "why" questions are being posed, when the investigator has little control over events, and when the focus is on a contemporary phenomenon within some real-life context" (p. 1). As such, the embedded case study will allow the researcher to gain valuable insights into teachers' perceived levels of collective efficacy while working collaboratively as a professional learning community. Additionally the study will use a mixed-methods design, which complements a case study approach that requires multiple data sources. According to Rudestam and Newton (2007), the mixed-methods approach "combines the rigor and precision of experimental, quasi-experimental, or correlational designs and quantitative

data with the depth understanding of qualitative methods and data. Thus, the methods can help inform one another or deal with different levels of analysis" (p. 51).

Research Questions

The research questions will be answered using teacher and principal responses from surveys, interviews, and reviews of documentation collected at the individual sites within one school district in California that has explicitly chosen to implement the DuFour and Eaker (1998) professional learning community model. Surveys will be identified and modified to help answer the research questions regarding the degree of presence of professional learning community characteristics and the relationship between collective efficacy and PLCs. This quantitative data collection approach will be complemented with qualitative data gathered through one-on-one interviews and document reviews. The qualitative data will be coded to identify patterns and themes. Quantitative data will be analyzed utilizing a variety of statistical analysis such as: descriptive statistics, factor analysis, correlations, multiple regressions, and structural equation modeling. Using these three data collection methods will help triangulate the data and increase validity of the study (Patton, 1990; Yin, 2003). These methods will be utilized to answer the following research questions:

1.0 In what ways do teachers work in professional learning communities?

- 1.1 What PLC characteristics are demonstrated?
- 1.2 How do schools and PLC teams differ in their degree of implementation?

2.0 What is the relationship of collective efficacy to PLCs?

- 2.1 What is the level of collective efficacy in the case study district?

2.2 What is the relationship between PLC characteristics and collective efficacy?

3.0 What is the role of the site leader in fostering professional learning communities?

3.1 In what ways do teachers perceive the principal playing a transformational role in implementing the PLC model?

3.2 In what ways do principal leadership, PLC implementation and collective efficacy interact to contribute to PLC sustainability?

Hypotheses and Propositions

The following hypotheses and propositions were explored in this study:

Hypothesis 1a: There is a high level of implementation of PLC components perceived by teachers in the district.

Hypothesis 1b: There is variation in the level of perceived implementation among schools and grade level teams within schools.

Hypothesis 2a: There is a high level of collective efficacy in district schools.

Hypothesis 2b: There is a positive relationship between collective efficacy and professional learning communities.

Hypothesis 2c: PLC is a predictor of higher levels of collective efficacy.

Proposition 1a: There will be important differences in implementation strategies between more and less effective teams within the same school.

Proposition 2a: When perceived levels of implementation of PLC components are higher, teams work more effectively to ensure higher levels of student learning.

Proposition 3a: PLC teams that perceive themselves implementing PLC components at higher levels will perceive the principal as engaging in transformational leadership.

Proposition 3b: Schools and teams that exhibit more of the characteristics of a PLC model will have higher levels of teacher collective efficacy and perceive the principal's transformational leadership more positively.

Significance of the Study

According to a review of the literature, the professional learning community model of DuFour and Eaker (1998) shows great promise in developing a structure that allows teachers to work collaboratively with a clear focus on student results. Collective efficacy is also an important school property for explaining student achievement gains and school effectiveness. According to Hoy, Smith, and Sweetland (2002), collective efficacy can be viewed as one of the most significant factors in explaining positive organizational functioning. With the current pressures of the accountability measures, leaders should be aware of the possible relationship between PLCs and collective efficacy and the role site leadership plays in those efforts. The lack of research relating professional learning communities to collective efficacy and transformational leadership shows a clear need for further study.

Definition of Key Terms

The following terms will be used throughout the study. For the purposes of consistency and clarity, they are defined as follows:

Learning Organization: Organizations in which participants continually expand their capacities to create and achieve, where novel patterns of thinking are encouraged,

> where collective aspirations are nurtured, where participants learn how to learn together, and where the organization expands its capacity for innovation and problem solving (Senge, 1990, p.5).

Professional Learning Communities: Educators committed to working collaboratively in ongoing processes of collective inquiry and action research in order to achieve better student results (DuFour, DuFour, & Eaker, 2006).

Efficacy: The "…beliefs in one's capabilities to organize and execute a course of action required to produce a given attainment" (Bandura, 1997, p.3).

Teacher Efficacy: The extent to which the teacher believes he or she has the capacity to affect student performance.

Collective Efficacy: The teachers' shared beliefs that the staff as a whole has the ability to perform in such a way as to ensure a positive effect on students (Goddard, Hoy & Hoy, 2004).

Transformational Leadership: Dedication to fostering the growth of organizational members and enhancing their commitment by elevating their goals (Burns, 1978).

Organization of the Study

This dissertation is organized into six chapters. Introduction to the study, rationale for the study, statement of the problem, purpose of the study, a brief overview of professional learning communities, collective efficacy, leadership, overview of the methods, research questions, hypotheses and propositions, significance of the study, and definition of key terms were introduced in chapter one. Chapter two provides an overview of relevant literature that guided the development and focus of the study. Chapter two reviews literature that focuses on the reform movement in America over the

past 30 years, learning organizations, the evolution of professional learning communities and the specific fundamentals and characteristics of four PLC models are reviewed. Chapter two also provides an overview of collective efficacy and its evolution and explores the transformational leadership model.

Chapter three outlines the methodology of the research and procedures used for this study. A review of conceptual underpinning of the data analysis was included. Discussion of instruments used, sampling, data analysis, and district context are presented. Chapter three also addresses study limitations. Chapter four presents the analysis of the findings of this research by exploring the results of the quantitative data collect and chapter five presents the qualitative data collected. Chapter six includes a summary of this research study, discussion of the findings related to each of the research questions, conclusions, implications for practice, and recommendations for future research. Also, the findings are discussed in relationship to previous research.

CHAPTER 2: LITERATURE REVIEW

The current education reform movement began when *A Nation at Risk: The Imperative for Educational Reform* was released by the National Commission on Excellence in Education in 1983. Its publication has led to one of the longest sustained periods of reform in American educational history. This report called attention to the need to improve public education and resulted in Americans losing confidence in public schooling. This outcry prompted legislators to address the issue of America's eroding public education system. This spawned multiple school reform models and sometimes unwieldy change efforts to improve the levels of education provided to the students of America. The result has been a series of education reforms leading to a gradual implementation of greater accountability for excellence in leadership at school sites. This report started the excellence movement followed by the restructuring movement several years later.

The passage of the federally mandated No Child Left Behind (NCLB) Act legislation of 2001 represented one more step in this reform trajectory and was in response to continued failure of American students to achieve on a par with other industrialized nations and because of the gap in achievement of low-income and Latino and African American students (US Department of Education, 2001). With the inception of NCLB, there is increasing pressure for higher quality teachers, more scripted curriculum aligned to state standards, and more systematic assessments and interventions for those students who have not met each standard at the proficient level. To achieve these challenging goals and avoid corrective actions, districts and schools have adopted a

number of reform strategies. The one that is of interest and explored in this study is professional learning communities as defined by DuFour and Eaker (1998).

This chapter explores literature related to the research questions presented in chapter one. To begin, the researcher reviews relevant literature related to learning organizations as it relates to PLCs. Next, four PLC frameworks are reviewed and analyzed. The third area of focus is the development of collective efficacy as a construct. Finally, the researcher examines the kind of leadership necessary to build and sustain PLCs with a particular focus on transformational leadership. The theoretical underpinnings of PLCs are drawn from the literature on learning organizations.

Schools as Learning Organizations

Today's problems come from yesterday's "solutions"
Senge, 2006, p. 57

There is a plethora of literature in K-12 education advocating for certain organizational practices and structural transformation to ensure increased numbers of students are learning at proficient levels (Dean, Galvin, & Parsley, 2005; Fullan 2001a, 2003, 2005; Marzano, 2003; Reeves, 2000, 2004, 2005; Zmuda, Kuklis, & Kline, 2004). These educational reform experts share several organizational variables and structures under the umbrella of learning organizations: strong site leadership; shared vision and mission; teacher empowerment; teachers having requisite skills; teacher teams working collaboratively to examine student work, setting clear and specific instructional goals aligned to student academic needs; and teacher teams using data to evaluate the effectiveness of pedagogy.

According to Cook and Yanow (1996), "organizational learning refers to the capacity of an organization to do what it does, where what is learned is possessed not by individual members of the organization but by the aggregate itself. That is, when a group acquires the know-how associated with its ability to carry out its collective activities, that constitutes organizational learning" (p. 438). Peter Senge (1990) reintroduced the term "learning organization" and expands on the idea of learning organizations in his seminal book *The Fifth Discipline*. "At the heart of a learning organization is a shift of mind, from seeing ourselves as separate from the world to connected to the world, from seeing problems as caused by someone or something 'out there' to seeing how our own actions create the problems we experience. A learning organization is a place where people are continually discovering how they create their reality. And how they can change it" (Senge, 1990, p.12).

According to Senge (1990, 2006), there are five disciplines that learning organizations practice: (a) systems thinking, (b) personal mastery, (c) mental models, (d) shared vision, and (e) team learning. Senge believes that systems thinking, defined as a body of knowledge and tools that help teachers see underlying patterns and how they can be changed, is the cornerstone of a learning organization and how they view their reality. Personal mastery refers to people who are committed to their own personal growth and lifelong learning. In other words, if the organization is to learn, each member must continue to learn. Mental models are deeply ingrained assumptions and generalizations that influence how we understand the world and shape how we take action (Senge, 1990). Examining the images teachers hold in their minds about low-income and diverse students and their ability to achieve are critical to closing the achievement gap, and yet

the structure of schools rarely offer such opportunity. This study helps to explore how PLCs might create that space.

The next discipline, shared vision, refers to people in schools being able to hold a shared picture of the future they want to create (Senge, 1990). A shared vision is an ongoing process of focusing and refocusing on what the organization hopes to become. As will be seen, shared vision is a critical component of PLCs (DuFour & Eaker, 1998; Hord, 1997; Marzano, Waters, & McNulty, 2005; Wenger & Snyder, 2000). Senge believes that a shared vision is needed to clearly communicate its purpose. Team learning must start with group dialogue and meaningful conversations around student success and best teaching practices. This is often difficult as each member of the team must suspend assumptions and think as a team.

Professional Learning Communities

Sergiovanni (1992) states that "The idea of a school as a learning community suggests a kind of connectedness among members that resembles what is found in a family neighborhood, or some other closely knit group, where bonds tend to be familial or even sacred" (p. 47).

Professional learning communities emerged in part from learning organizations (Leibman, Maldonado, Lacey, & Thompson, 2005). According to Thompson, Gregg, and Niska (2004), teachers must understand and practice the five disciplines of a learning organization as defined by Senge (1990) to be a true professional learning community. As schools began to build collaborative work cultures, the term learning organizations came to be known as professional learning communities in schools (DuFour & Eaker, 1998; Hughes & Kritsonis, 2006). DuFour and Eaker state:

> Each word of the phrase "professional learning community" has been chosen purposefully. A "professional" is someone with expertise in a specialized field, an individual who has not only pursued advanced training to enter the field, but who is also expected to remain current in its evolving knowledge base…"Learning" suggests ongoing action and perpetual curiosity…The school that operates as a professional *learning* community recognizes that its members must engage in ongoing study and constant practice that characterize an organization committed to continuous improvement…In a professional learning *community*, educators create an environment that fosters mutual cooperation, emotional support, personal growth as they work together to achieve what they cannot accomplish alone (p xi-xii).

Historical Overview of PLCs

The first study involving professional learning community characteristics was sponsored by the Progressive Educational Association (PEA) and was conducted from 1930-1942. This study was called the "eight year" study and was the first of its kind in American education (Bullough, 2007). This study analyzed American high school students and sought to discover effective methods for supporting students who transferred to higher education. For the first time, teachers "…inevitably confronted limitations in their content knowledge [and] found themselves dependent on other teachers" (Bullough, p. 171). The idea of deprivatizing educators began and is similar to professional learning communities where teachers are moved from isolation to a collaborative culture. Through this study, there were five lessons gleaned for school reform. The findings included the need for: (a) teacher education and capacity building, (b) teacher action-research, (c) trust and relationship building, (d) mutual quest for change and improvement, and (e) reflection (Bullough).

The term professional learning community was first used as early as the 1960s when researchers wanted to move teachers from isolation to a collaborative culture

(AllthingsPLC, 2008). More specific research took place in the 80s and 90s with a stronger emphasis on collaboration (AllthingsPLC; Boyd & Hord, 1994; Hord, 1997). One example is the study conducted by Rosenholtz (1989) who attempted a large-scale statistical analysis of the relationship between teacher collaboration and student achievement. In her exploration of effective schools as determined by math and reading achievement, she found collaboration to be a strong predictor of student achievement gains. Rosenholtz focused on teacher workplace factors and found that teachers who felt supported in their classrooms were more committed and effective.

Then, beginning in 1993, more in-depth characteristics were reported after several additional studies on effective schools were conducted. A multi-school study conducted by McLaughlin and Talbert (1993) confirmed Rosenholtz's findings that teachers gained shared knowledge when they were given opportunities for collaborative inquiry. Darling-Hammond (1996) agrees with Rosenholtz and McLaughlin and Talbert and states that "policymakers increasingly realize that…only teachers, in collaboration" can transform schools (p. 5). She also found that when teachers engaged in collaborative inquiry, their knowledge allowed for greater shared understanding.

As a result of the research on professional learning communities, conversations and work in schools continue to change. Even though there is convincing empirical evidence of effective schools using of professional learning community models, many schools have not taken the necessary steps toward becoming professional learning communities. LaRocco (2008) claims that empirical evidence suggests schools struggle with developing structures to support the growth of professional learning communities and the acquisition of the necessary knowledge and skills to ensure their success. One

possible reason for this could be the long-standing tradition of teachers practicing their craft in relative isolation (LaRocco). Another reason may be the lack of teachers' sense of collective efficacy, which this study explores.

Liebman et al. (2005) agree and add that if teachers wish to accomplish reform goals effectively, schools will need to move teachers from an environment of isolation. Researchers such as DuFour and Eaker (2007) travel the country working with schools who say they are professional learning communities. Through their work, DuFour and Eaker have discovered that there indeed are schools claiming to be professional learning communities that actually are not true PLCs. When reviewing a professional learning community model, it bears mentioning that organizations do not "do" a professional learning community; they "become" a professional learning community (DuFour & Eaker, 2007).

The Nature of Professional Learning Communities

The review of the literature revealed four professional learning community models the researcher explored. They are: (a) DuFour and Eaker's (1998) PLC model, (b) Hord's (1997) PLC model, (c) Marzano, Waters, and McNulty's (2005) purposeful community model, and (d) Wenger and Snyder's (2000) communities of practice model.

According to DuFour (2004) and DuFour and Eaker (1998) professional learning communities have three fundamental principles: (a) all students learning, (b) collaborative culture, and (c) focus on student results. Of the four models, only the work of DuFour and Eaker discusses fundamental principles, while Hord (1997, 1998) and Marzano, Waters, and McNulty's (2005) models imply them. The first principle is to ensure that all students learn with the focus on students and not teachers. Educators

expect high levels of learning for all students as the main purpose of the school and, as a result, are willing to examine all practices with each practice's impact on student learning in mind. This idea of not focusing on students being taught but rather on ensuring they learn is a significant shift in the thinking of educators. Ensuring that all students learn must be a strongly held conviction by everyone in the organization in order for the professional learning community to become part of the culture of the school (DuFour, 2004).

The first fundamental principle, ensuring that all students learn, can be a lofty goal and one that will require courageous conversations. As a leader, it is important to consider whether or not the staff believes all students can learn. One way leaders can accomplish this task is to consider the discipline of mental models described by Senge (1990). Thompson et al. (2004) explain that a comprehensive, meaningful data picture of the student population must be shared with teachers. This should help teachers see gaps and injustices that will lead to changing their thinking and then the culture. Even knowing that not all teachers believe all students can learn does not limit the many case studies that looked at student populations and their clear academic growth when the PLC model is implemented (Hughes & Kritsonis, 2007; Lynn, 1994; Taylor, Pressley, & Pearson, 2000; Vescio, Ross, & Adams, 2008). These studies present powerful evidence of student gains and the closing of the achievement gap at their schools. For example, the quantitative study conducted by Hughes and Kritsonis (2007) looked at 64 schools in Texas that functioned as a professional learning community. One of their findings was that over a three year period, 90.6% of the professional learning community schools studied achieved higher math test scores with 42.3% increasing by more than 5 points.

A qualitative case study conducted by Lynn (1994) looked at three schools, one elementary, one middle, and one high school, each of which successfully implemented the professional learning community model. The elementary school studied had 83% Hispanic students with a school population of 988. There were also a high percentage of students from low-income families, with most of them having low state test scores. The case study findings were equally as convincing with all students in 5th grade reading at grade level by the time they went to middle school.

Taylor et al. (2000) conducted a meta-analysis to examine the characteristics of high poverty schools that increased learning and achievement for students. They also studied how and why some schools in the U.S. are attaining greater results with student populations typically at risk for failure by virtue of poverty. The researchers looked at five studies about effective, moderate- to high-poverty elementary schools published between 1997 and 1999. They found increased learning for students of professional learning communities when using four characteristics: (a) collaborative communities with shared responsibility for all students' learning, (b) monitoring student progress, (c) helping each other learn more about teaching, and (d) reaching out to families for support. According to these researchers, using a professional learning community model served to offset economic and other factors that put students at-risk for failure through empowering teachers in a collaborative culture to help all students succeed in school.

DuFour and Eaker's (1998) second fundamental principle of a professional learning community is creating a culture of continuous collaboration. There is a growing body of literature supporting the importance of collaboration (Boyd & Hord, 1994; Buffum & Hinman, 2006; Bullough, 2007; Darling-Hammond, 1996; Dooner, Mandzuk,

& Clifton, 2008; Graham, 2007; Hipp, Huffman, Pankake, & Olivier, 2008; Hord & Rutherford, 1998; Little, 1982; Senge, 2006). According to Hord and Rutherford (1998), "Much of the current literature on school reform extols the importance of school staffs working collegially to increase successful results for students" (p. 1). Teachers need to be committed to achieving high levels of learning for all students by working and learning together. These interactions can have a profound impact on student achievement (Buffum & Hinman, 2006; Hipp et al., 2008; Hord & Rutherford, 1998; Hughes & Kritsonis, 2007; Kruse, Louis, & Bryk, 1994).

The collaborative culture grows through the development of high-performing teams. Little (1982) found that in successful schools, teachers worked collaboratively and discussed instruction. Collaboration is the most researched aspect of professional learning communities and may be the most difficult for teachers to achieve. Historically teachers have been permitted to teach in isolation and not share what they were doing outside the classroom (DuFour & Eaker, 1998). In addition to rethinking the general pattern of isolation, collaboration implies that teachers will grow to trust the people with whom they are collaborating. In a quantitative study looking at collaboration and the need for trust by Tschannen-Moran (2001), she found that trust is a necessity if schools are to benefit from collaboration.

The third principle of a professional learning community as explained by DuFour and Eaker (1998) is focusing on student results by using a variety of commonly agreed upon assessments and data. This should be addressed while working in a collaborative culture by using *common formative assessments*. Common formative assessments help teachers see learning gaps during a unit of study, by allowing for instructional

adjustments that increase the likelihood of learning for all students (DuFour & Eaker). These assessments are also examples of assessments *for* learning (Stiggins, 2006). *Assessment for learning* means that teachers assess throughout a unit and make instructional decisions based on those results. Typically, teachers have taught entire units without checking for understanding as the unit progressed and have assessed only at the end of the unit; this type of assessment is called *summative assessment*. After teachers grade the summative assessment, they usually move to another unit whether or not students have proficiently met the standards being previously addressed.

Common formative assessments are created collaboratively by a team of teachers responsible for the same course or grade level and are administered to all students in a course or grade level at a commonly agreed upon time (DuFour & Eaker, 1998). The team scores the assessment, puts the results together using a variety of formats, and looks for students who have met the objectives and those who need further instruction. The results are then used to share teaching strategies that might be effective in helping students acquire the intended knowledge and skills, discover areas where students are having difficulty achieving the desired outcomes, devise strategies to improve pedagogy for individual teachers as well as the team, and identify students who need additional time and support for learning. This leads to the creation of methods to reteach those students needing support (DuFour & Eaker). The impetus for the team's intervention plan is to ensure that all students actually learn the standards being addressed before moving on to the next unit. Common formative assessments are used repeatedly throughout the year (DuFour & Eaker). When looking at results, teachers assess effectiveness on the basis of results instead of merely the best intentions of the teachers.

Teachers seek relevant data and information and use them to promote continuous improvement.

In addition to the three fundamental principles of professional learning communities, DuFour and Eaker (1998) and DuFour (2004) identify six characteristics of a PLC that are deeply intertwined: (a) shared mission, vision, values, and goals, (b) collaborative teams focused on learning, (c) collective inquiry into "best practices" and "current reality", (d) action orientation/experimentation, (e) commitment to continuous improvement, and (f) results orientation. According to them, teachers should begin by building a shared mission statement, vision, values, and goals as the necessary foundation of their professional learning community. These should be referred to regularly as teachers "advance toward development of communities of continuous inquiry and improvement" (Morrissey, 2000, p. 43).

Another characteristic of a school that is a professional learning community is collaborative teams. These teams include both vertical and horizontal teaming and are clearly focused on student learning. Still another PLC characteristic is collective inquiry, which comes with the building of shared knowledge that should lead to an increased likelihood that team members will arrive at the same conclusion. Next, action orientation/experimentation refers to learning by doing. None of this is possible if the teachers do not get started. Knowing this and the fact that there will be setbacks is important when building the confidence of teachers to take risks. Therefore, the teachers' commitment to continuous student improvement is the next logical goal in the PLC process. A strong indicator of this will be the analysis of student results; an ongoing look at how each student performed. These characteristics should be evident on a campus

using DuFour and Eaker's (1998) professional learning community model. The purpose of this study is to explore the presence or absence of these qualities in a district that has been following the DuFour and Eaker (1998) model of PLCs.

Hord (1997, 1998), on the other hand as shown in Table 1, outlines five characteristics of professional learning communities: (a) shared and supportive leadership, (b) shared vision and values, (c) collective learning and application, (d) supportive conditions, and (e) shared personal practice. Hord's first characteristic of shared and supportive leadership refers to principals sharing both decision-making power and leadership with teachers. Hord discusses the importance of everyone working together to solve problems. Hord's next characteristic of shared vision is a clear focus on student learning and the collaborative work of the staff. This study explores teachers' perceived level of shared leadership even though it is not explicitly one of the DuFour and Eaker (1998) characteristics.

Hord's (1997, 1998) third characteristic is collective learning and the application of learning. According to Hord, staffs that learn together take action on their learnings to better address the needs of their students. When Hord talks about supportive conditions, she describes the physical conditions. This includes: (a) time to meet and discuss students' learning and other issues facing educators, (b) size of the school and the way teachers are located, (c) and effective communication. Hord's fifth characteristic is shared personal practice, which refers to the behaviors and attitudes of teachers working together in the professional learning community. Both of these components will be assessed in this study through the survey and one-on-one interviews. In general, schools

that do follow the DuFour and Eaker (1998) model address the time issue. However, little work has been done today on what would constitute effective communications.

In addition to the models described by Hord (1997, 1998) and DuFour and Eaker (1998), there are two other models to explore. Purposeful communities, developed by Mid-continent Research for Educational Learning (McREL), are defined as "one with collective efficacy (defined later) and capability to use all available assets to accomplish purposes and produce outcomes that matter to all community members through agreed-upon processes" (Waters & Cameron, 2003, p. 46). They concluded that almost everything in school improvement occurs within the context of a community. There are four characteristics of the purposeful community model as shown in Table 1: (a) outcomes that matter to all stakeholders, (b) using all available assets, (c) agreed-upon processes, and (d) collective efficacy (Waters & Cameron).

The first characteristic, outcomes that matter to all stakeholders, refers to the development of a vision having meaningful outcomes that will only result when teachers are working as a community. The second characteristic, using all available assets, refers to assets that are both tangible (such as computers and textbooks) and intangible (such as leadership and innovation). These assets are necessary in order to accomplish the first characteristic of a purposeful community (Waters & Cameron, 2003). Third, agreed-upon processes are those that support stability within the community. The processes help support the focus and maintain the work (Waters & Cameron). Finally, collective efficacy, in brief, is the community's belief in its ability to succeed. When the community members perceive they can successfully complete the task, their collective efficacy increases. However, when the community believes members of the group cannot

successfully accomplish the task, collective efficacy decreases. This study is significant because it will add to the limited literature on collective efficacy by investigating not only the implementation of PLC characteristics, but also explore the relationship between the strength of a PLC and collective efficacy.

Another model to consider, communities of practice, is defined as "groups of people informally bound together by shared expertise and passion for a joint enterprise" (Wenger & Snyder, 2000, p. 139). Of the four models, the communities of practice model is more commonly used in organizations outside of education. It is a loose system in which members choose when to attend. The meetings are sometimes held regularly, though they can be held infrequently. Some meetings are face-to-face while others are e-mail networks. In these communities, the members of the group share their knowledge and experiences that lead to new approaches to problems (Wenger & Snyder). These communities could have hundreds of participants, though they usually have a core group which has the passion for the topic along with the leadership (Wenger & Snyder). The purpose of a community of practice is to develop members' capabilities and to build and exchange knowledge around a common theme (Wenger & Snyder).

The review of the literature revealed that the four models represent similarities and differences within their characteristics as noted in Table 1. All four approaches clearly recognize the need for a shared vision and collective action. The DuFour and Eaker (1998) model is the most focused and explicit about actions and student results. While DuFour and Eaker's characteristics focus mainly on teacher responsibilities, Hord's (1998) work balances teacher and leadership responsibilities in a professional learning community. DuFour and Eaker do, however, acknowledge the importance of

leadership. Hord uses a slightly broader model and recognizes the significance of principal leadership and the use of both distributed and shared leadership in the decision-making process. She believes that leadership is essential in building and sustaining a professional learning community. It could even be argued that the work of Hord places a heavier emphasis on leadership than that of DuFour and Eaker.

In addition to the characteristics, three critical questions for teachers involved in professional learning communities to help guide the collaborative process are shared by DuFour (2004), DuFour and Eaker (1998), and Buffum and Hinman (2006). They suggest teachers use them as a guide when considering the first fundamental principle of professional learning community practice: All students learn. The questions are: (a) What is it we want students to know and be able to do, (b) How will we know they have learned it, and (c) What will we do if they don't learn it or if they already know the material to be covered. Ten years after their seminal work on professional learning communities, DuFour, DuFour, and Eaker (2008) divided the third question into two distinctive questions: What will we do if students already know the material and what will we do for students who do not learn the material. These questions help guide discussions during collaborative time that, when possible, is embedded within the school day. According to Buffum and Hinman (2006), the first two questions have already been partially answered by state and national standards and districts' scope and sequences, which are assessed through state testing and district benchmarks. Though this may be the case, teachers still need to decide on the essential standards with the understanding that it is difficult to teach every standard to proficiency without adding more years to students'

schooling. What makes professional learning communities different is the collaborative process used to address these questions.

Table 1.1 illustrates the different conceptions of these professional learning community models; however, each one shares some common characteristics of the other models.

Table 1.1: Conceptions of Professional Learning Community

Professional Learning Community DuFour and Eaker (1998)	Professional Learning Community Hord (1997, 1998)	Purposeful Community Waters, McNulty & Marzano (2005)	Communities of Practice Wenger & Snyder (2000)
• Shared mission, vision, values, and goals	• Shared values and vision	• Accomplish a purpose and produce outcomes that matter to all stakeholders	• Joint enterprise
• Collective inquiry into "best practices" and "current reality"	• Collective learning and application of that learning		• Passion, commitment and identification with group's expertise
• Collaborative teams focused on learning			• Build and exchange knowledge
• Action orientation and experimentation	• Shared personal practice		
• Commitment to continuous improvement	• Supportive conditions- structures and relationships	• Agreed-upon processes	
• Results orientation			
	• Shared and supportive leadership		
		• Use all available assets	
		• Collective efficacy	
			• Informal, optional, flexible meetings

Similarities and Differences of PLC Ideas

It is apparent the researchers who study professional learning communities have numerous shared beliefs. First, they all believe in the importance and power of professional learning communities. For example, Buffum and Hinman (2006) share both quantitative and qualitative data that support the power of professional learning communities. Kruse et al., (1994) believe that now is the time to look to professional learning communities as a major reform in today's schools. Also, they agree with DuFour and Eaker (1998) that traditional models of schools no longer meet the needs of our students, so we must look to reforms that work. The researchers agree that collaboration is critical for the success of professional learning communities (Buffum & Hinman, 2006; DuFour, 2004; DuFour & Eaker, 1998). This passion for creating a new school system that clearly focuses on student achievement should be done through the use of collaboration. It is also apparent that professional learning communities have been proven to work successfully for students at a variety of schools (Buffum & Hinman, 2006; Hord & Rutherford, 1998; Kruse et al., 1994).

While the researchers' results share many similarities, there are some differences within the scope of their studies. One example is the terminology used to describe characteristics explained by DuFour and Eaker (1998). Kruse et al. (1994) call them critical elements and believe there are five: (a) reflective dialogue, (b) de-privatization of practice, (c) collective focus on student learning, (d) collaboration, and (e) shared norms and values. Additionally, Kruse et al. (1994) are the only researchers to describe two conditions necessary for the success of professional learning communities: (a) structural conditions and (b) human or social resources. They found that human or social

conditions were more important than the structural/technical conditions to the development of a professional learning community. The condition of human or social resources is similar to the work of Hord (1997) and Marzano et al. (2005). Several of the studies, conducted by Buffum and Hinman (2006), Hipp, 2001, and Tschannen-Moran (2001) discussed the importance of trust in collaboration. Trust is a necessary component if collaboration is to work successfully. In addition to trust, this study will examine whether or not collective efficacy is another necessary component of successful PLCs.

Social Cognitive Theory and Efficacy Construct

Development of Efficacy Construct

Albert Bandura (1994) defined perceived self-efficacy as "people's beliefs about their capabilities to produce designated levels of performance that exercise influence over events that effect their lives. Self-efficacy beliefs determine how people feel, think, motivate themselves and behave" (p. 1). Two critical elements to this definition are presented. First, is the individual's belief about his/her ability that may align with one's true ability in a particular task. Bandura calls this efficacy expectations. Second, is the idea that individuals use their efficacy judgments when referring to the task or outcomes.

Efficacy is grounded in social cognitive theory and evolved from two competing conceptual strands found in the literature. The concept of teacher efficacy was first coined with the work of Rotter's social learning theory as the theoretical base in 1966 (Tschannen-Moran et al., 1998). The genesis of efficacy studies originally focused on whether teachers believed they could teach unmotivated or at-risk students, internal control, or whether there were environmental factors that controlled teachers' ability to impact student learning, external control (Tschannen-Moran & Hoy, 2001). RAND

Corporation researchers first conceived teacher efficacy and studied "the extent to which teachers believed that they could control the reinforcement of their actions, that is, whether control of reinforcement lay within themselves or in the environment" (Tschannen-Moran et al., 1998, p. 202). Thus, high levels of teacher efficacy meant teachers believed they could control or strongly influence student motivation and achievement (Tschannen-Moran et al., 1998). Teacher efficacy has since been defined as "teachers' belief or conviction that they can influence how well students learn, even those who may be difficult or unmotivated" (Guskey & Passaro, 1994, p.4).

This construct introduced two types of control, external and internal. External control meant that environmental influences overwhelmed a teacher's ability to positively impact students' learning thus holding the belief that teachers' efforts were outside their control (Tschannen-Moran & Hoy, 2001). Internal control, on the other hand, meant that teachers were confident in their abilities to teach unmotivated and difficult students thus holding the belief that teaching activities where within the control of the teacher (Tschannen-Moran & Hoy, 2001). The level of teachers efficacy in this study was based on a simple measure of just two items using a five-point Likert scale: (a) "When it comes right down to it, a teacher really can't do much because most of a student's motivation and performance depends on his or her home environment"; and (b) "If I really try hard, I can get through to even the most difficult or unmotivated students" (Rotter, 1966).

The second conceptual strand, Bandura's (1977) social cognitive theory, emerged from his work with self-efficacy. Bandura defines efficacy as the belief a person holds regarding his or her ability to accomplish a given task (1977). Self-efficacy beliefs are the future-oriented beliefs of individuals about their level of competence in a given

situation. These beliefs influence emotions and thought patterns that allow individuals to expend effort to obtain goals, persist when the task is difficult, recover from setbacks, and exude some control over their life events (Bandura, 1986, 1993, 1996, 1997). His construct differed from that of Rotter's internal-external locus of control. The difference in the two efficacy constructs as described by Bandura (1977, 1997) suggests that an individual's beliefs about ability to produce certain actions, perceived self-efficacy, are not the same as beliefs about actions affecting outcomes, locus of control. Bandura further proposes that individuals may believe certain actions will produce desired results, and also have serious doubts as to their ability to perform the needed actions. As a result, Bandura distinguishes between efficacy and outcomes.

Self and Teacher Sense of Efficacy

Self-efficacy refers to a person's belief about his or her capabilities to control his or her own level of functioning in response to events (Bandura, 1977). According to Bandura, the level of self-efficacy determines how much effort will be used, whether coping behavior will be initiated, and the length of sustainability in the face of obstacles and other adverse experiences. "Self-efficacy has to do with self-perception of competence rather than actual level of competence" (Tschannen-Moran et al., 1998, p. 211). Teacher's efficacy belief refers to one's judgments of his or her ability to ensure desired outcomes of student engagement, especially unmotivated or difficult students (Tschannen-Moran & Hoy, 2001; Armor et al., 1976; Bandura, 1977). According to Tschannen-Moran et al., (1998) teacher efficacy is the extent to which teachers believe they have the capacity to affect student performance. Bandura (1977) later identified teacher efficacy as a type of self-efficacy. Newmann et al. (1989) found that high

efficacy reduces teacher isolation. Woolfolk and Hoy (1990) report that teachers' sense of efficacy affects their instructional practice and overall attitude toward the educational process. Bandura postulates that stronger perceived efficacy results in more active efforts (1977).

Bandura's (1997) seminal work titled *Self-Efficacy, The Exercise of Control*, postulates four sources of efficacy-shaping information introduced in previous work: (a) mastery experiences, (b) vicarious experiences, (c) affective state, and (d) social persuasion. Goddard and Skrla (2006) state that these four sources of efficacy-shaping information suggested by Bandura operate at both the individual and collective levels. Bandura (1977, 1986) believes that the four sources of efficacy-shaping information are formed through both cognitive processes and reflective thought.

Mastery Experiences

Mastery experiences are the most influential source of efficacy because personal experiences provide evidence of whether the person has what is needed to succeed (Bandura, 1997). Mastery experiences refer to how the individual performed specific tasks in the past and the outcomes of each task. Teachers believe that they can be successful with their students because of past personal success (Skrla, 2002). When someone perceives a task in the past to be successful, they are more efficacious leading to increased efficacy; likewise, when someone perceives a past task to be a failure, their efficacy decreases. There are several factors that determine how individuals perceive past experience: (a) preconception of their capabilities; (b) perceived difficulty of the task; (c) the amount of effort needed; (d) the amount of external support received; (e) the circumstances under which they perform; (f) the temporal pattern of their successes and

failures; and (g) the way these enactive experiences are cognitively organized and reconstructed in memory (Bandura, 1997). The level of anxiety or excitement adds to the feeling of mastery or failure (Tschannen-Moran et al., 1998).

Hoy and Woolfolk (1990, 1993) analyzed two dimensions of teacher efficacy, general and personal teaching efficacy, and the relationships between them and school climate. Their quantitative study included 179 teachers, randomly selected from 37 elementary schools, which included five teachers from each school in New Jersey. They found that teachers with more teaching experience and higher levels of education had higher levels of personal teaching efficacy. Thus, teacher experience improved the possibility that teachers believed they could motivate difficult students (Hoy & Woolfolk, 1993). These seasoned teachers have had more opportunities in the educational arena to develop mastery experiences. Goddard (2001) conducted a study and found that the reading achievement of various schools proved that mastery experience is an important positive indicator of differing levels of collective efficacy in schools rather than the school's socioeconomic status (SES) and demographics.

Vicarious Experiences

Bandura's (1997) second source of efficacy-shaping information, vicarious experiences, are those in which someone else models the skill in question. When the model is found to meet the school's needs, the efficacy of the observer increases. On the other hand, if the model does not perform as desired, the efficacy of the observer decreases. This holds true in both individual and collective efficacy as illustrated by Goddard et al, 2004 as follows:

> Perceived collective efficacy may also be enhanced by observing successful organizations, especially those that attain similar goals in the face of familiar opportunities and constraints. Organizations may also learn from somewhat dissimilar counterparts provided they have attained highly valued outcomes (p. 5).

One example of a vicarious experience in the educational arena is when schools use a successful model or program to achieve their campus goals by observing programs that have proven successful at a higher-achieving school (Goddard et al., 2004) or by watching others teach (Tschannen-Moran et al., 1998). Dutton and Freedman (1985) found that using programs from successful organizations is just as important as firsthand learning.

Affective State

Bandura's (1997) third source of efficacy-shaping information, affective state, can be seen as the level of arousal, either anxiety or excitement, that either adds or depletes one's efficacy. This source of efficacy deals with the physical and emotional states of individuals. When someone is excited about a task, his level of efficacy increases. On the other hand, when someone experiences anxiety, the level of efficacy decreases. Organizations react to stress just as individuals do. Performance can either increase or decrease depending on the extent of organizations' level of arousal. Affective states are very influential on how individuals and organizations respond to the many challenges they encounter (Goddard et al., 2004).

Social Persuasion

Bandura (1986) states that social persuasion is someone's ability to convince another to influence student outcomes and entails feedback from colleagues, community, administration, conferences, book studies, and other gatherings where educational ideas

are discussed regarding teachers influencing students toward higher levels of achievement (Goddard, 2003; Skrla, 2002). When observing someone having success, it increases the observing person's efficacy. Social persuasion is most influential in increasing levels of teachers' perceived collective efficacy when combined with models of success and mastery experiences. This coupling increases a staff's conviction of attaining goals (Goddard, 2003; Goddard & Skrla, 2006).

Taken together, the four efficacy-shaping sources of information provide a means by which personal belief of self-efficacy is developed. Of the four, the most powerful source of efficacy is mastery experience. Teachers who feel they have exhibited past success with a specific task believe they have the ability to successfully perform the task again sometime in the future. Self-efficacy beliefs play a role in emotions and thought processes that enable people to act or not (Tschannen-Moran et al., 1998). Teachers who have a stronger sense of efficacy are more open to new ideas and more willing to try new methods to meet student needs than those with a lower sense of efficacy. Teachers' sense of efficacy significantly predicts productive teaching practices (Goddard et al., 2004). The research suggests that the four sources of efficacy-shaping information also operate at the collective level (Goddard, 2001).

Collective Teacher Efficacy

Collective efficacy is a relatively new concept with properties analogous to self-efficacy (Goddard & Goddard, 2001; Goddard, Hoy, & Hoy, 2004). Goddard et al., (2004) state:

> Indeed, collective efficacy beliefs are far more strongly related to teachers' perceptions of self-capability than many more common measures of school context. Moreover, these findings also suggest that collective

> efficacy beliefs may influence student achievement indirectly through their relationship with teachers' sense of efficacy (p. 9).

Perceived collective efficacy is most appropriately attributed to Bandura (1997) who developed the social cognitive theoretical underpinnings that support much of the research on efficacy (Goddard & Skrla, 2006). "According to social cognitive theory, efficacy is key to the operation of agency because individuals and collectives are more likely to pursue activities for which they believe they have the capability to succeed" (Goddard & Goddard, p. 809). Collective efficacy refers to the beliefs that organizational members hold about their work groups' capability to reach desired goals (Goddard & Skrla; Tschannen-Moran et al., 1998).

In the educational arena, collective efficacy is the teachers' perceptions that the entire faculty can organize and execute a plan of action necessary to have a positive effect on student outcomes (Goddard et al., 2004; Goddard & Goddard, 2001). In the case of educators working in a professional learning community, the desired goal focuses on all students learning. According to Goddard and Skrla (2006), the stronger an organization's collective efficacy beliefs, the more organizational members will put forth the sustained effort and persistence necessary to reach the goals. Looking at a learning organization as a whole, collective efficacy measures teachers' beliefs in their perceived ability to accomplish educational goals for students. One way to describe collective efficacy is to characterize it as the social influence of a school's organization (Goddard & Goddard). This study seeks to explore a possible relationship between collective efficacy and PLCs and their link to increased student achievement.

While researchers have studied levels of perceived collective efficacy in schools for the last 15 years as a natural progression of almost 30 years of positive teacher efficacy research (Goddard & Skrla, 2006), only limited empirical evidence supporting the significance of collective efficacy exists (Goddard & Goddard, 2001). The evidence collected thus far, however, shows much promise in increasing student achievement in schools that have higher levels of collective efficacy. In educational arenas, teachers' sense of collective efficacy is their shared beliefs that the group as a whole can create and implement an action plan needed for students' success (Goddard et al., 2004; Goddard & Goddard; Wahlstrom & Louis, 2008).

Figure 1 summarizes the construct of collective efficacy as modeled by Goddard, Hoy, and Hoy (2000, 2004). The four sources of collective efficacy beliefs were found to be the same four sources as with self-efficacy and teachers' sense of efficacy. Goddard et al. (2000) proposed that collective efficacy has two additional, key components in the development of teachers' sense of collective efficacy: analysis of the teaching task and assessment of teaching competence.

- Analysis of teaching task is when teachers analyze the task by determining what is needed to succeed and decide how effective they will be both individually and collectively to accomplish the task. As a result, teachers analyze what constitutes successful teaching at their site, determine barriers or limitations that must be addressed and overcome, and discover what resources are available to successfully complete the task.
- Teachers' assessment of teaching competence is when teachers look to the other members in their group and decide whether or not the group has the

necessary skills to successfully complete the task. Teachers make inferences regarding the competency of the team in the areas of teaching skills, methods, training, and expertise in relation to students' ability within their school.

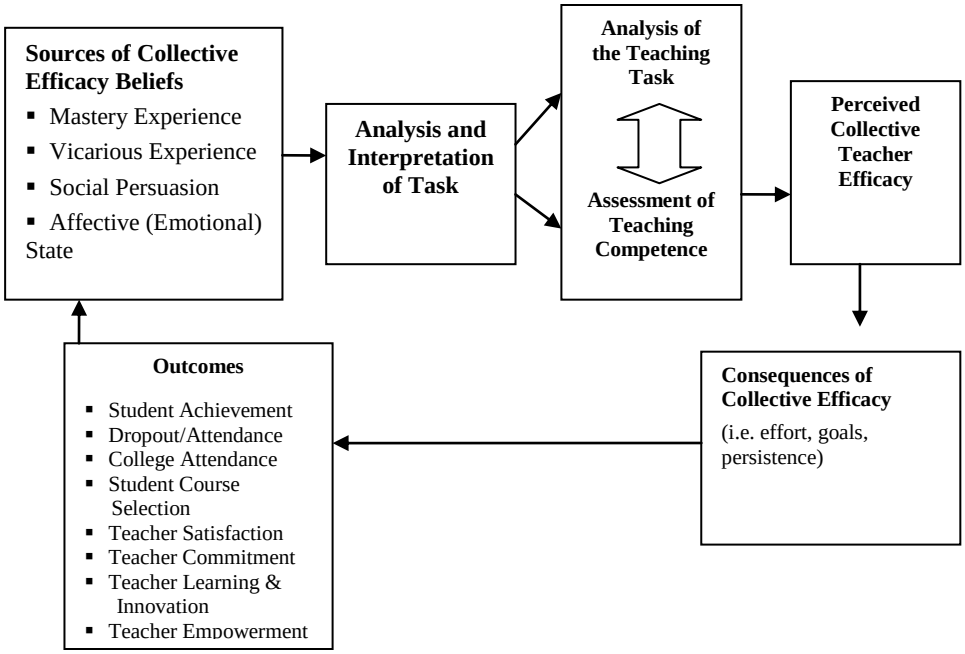

Figure 1.1: Simplified model of collective teacher efficacy. Adapted from the work of Goddard, Hoy, and Hoy, 2000, 2004.

Reviewing the literature on professional learning communities and teachers' sense of efficacy found a relationship between them (Lee, Dedrick, & Smith, 1991; Newmann, Rutter, & Smith, 1989; Rosenholtz, 1989).

Professional Learning Community and Efficacy

While there is limited empirical evidence linking professional learning communities as defined by DuFour and Eaker (1998) to teacher efficacy, some characteristics of professional learning communities have been associated with increased teacher efficacy, especially between collaboration and teacher efficacy. Rosenholtz

(1989), for example, conducted a mixed methods study and found that when teachers worked together in a collaborative culture and celebrated their successes, teachers' sense of efficacy contributed significantly to gains in student learning in reading and math over a two-year period. This was one of the first major studies investigating characteristics of professional learning communities and teacher efficacy. The study looked at 78 elementary schools and 1,213 teachers in Tennessee. Rosenholtz looked at five specific measures: shared goals, collaboration, learning opportunities, instructional certainty, and commitment. Rosenholtz also found that "teachers' efficacy…is one of the most powerful predictors of collaboration" (p. 46).

Newmann et al. (1989) studied the impact of ten organizational factors of efficacy, community, and expectations in 353 public high schools and collected data on principals and over 10,000 high school teachers. In this study, efficacy refers to teachers' perceptions that teaching is worth the effort, leads to student success, and is personally satisfying. A sense of community "conveys a relationship of unity, belonging, and cooperative interdependence among peers…" (p. 223). The researchers controlled for school size, location, students' ability when enrolled, and the percentage of disadvantaged and minority students. They found five strong organizational effects: (a) students' orderly behavior, (b) the encouragement of innovation, (c) teachers' knowledge of one another's courses, (d) the responsiveness of administrators, and (e) teachers' helping each other. They found two of the most powerful organizational effects relating to efficacy are teachers' willingness to support one another and encourage innovation, a characteristic of DuFour and Eaker's (1998) and Hord's (1997) professional learning community models. In fact, the results for community and efficacy demonstrated a

powerful role in learning organizations. They therefore concluded that there was a strong relationship between efficacy and community.

Lee et al. (1991) examined links between self efficacy and school organization of secondary school teachers. They sampled over 8,400 teachers in public and Catholic high schools. The elements they found to influence efficacy included: (a) principal leadership, (b) communal school organization, (c) orderly environment, and (d) teacher control. The researchers found that the strongest predictor of teacher efficacy is community. They identified a sense of community to be that in which teachers shared beliefs and values, developed supportive relationships, and felt respected and accepted. This formed the foundation to teachers' perceptions of their efficacy. These characteristics align with all four professional learning community models examined previously.

Boyd and Hord (1994) conducted a case study using interviews as the method for the qualitative research and examined four principals over a twenty-year period. The researchers focused on four essential functions to change in a learning community: (a) reducing isolation, (b) increasing staff capacity, (c) providing a caring, productive environment, and (d) promoting increased quality. They found that there was a heightened sense of efficacy that evolved as the staff developed and maintained a school-wide learning community. Specifically, they found that having a common vision, deprivatizing teaching practices, promoting supportive conditions and sharing leadership were the main characteristics that helped the school reform process. These are similar characteristics to those found within the DuFour and Eaker (1998) and Hord (1997) models of professional learning communities.

Indeed, while limited, research has shown increased levels of teacher efficacy when professional learning community characteristics were present, which include collaboration (Rosenholtz, 1989), willingness to support one another and encourage innovation (Newmann et al., 1989), and development of a sense of community (Lee et al., 1991; Boyd & Hord, 1994). This study seeks to add to this limited research base by examining the relationship between professional learning communities and collective efficacy.

The review of the literature on professional learning communities also found an important connection between PLCs and the leadership role of the principal in the transformation process.

Professional Learning Communities and Site Leadership

Never in the history of American education has there been such a need for leaders who can create and sustain both student and adult learning and include all stakeholders in leadership responsibilities (Thompson et al., 2004). Site leadership is an essential component for schools becoming and sustaining a professional learning community model. Several researchers agree that the principal's leadership is one of the most important factors underlying the creation and ongoing success of a professional learning community (Boyd & Hord, 1994; DuFour and Eaker, 1998; Graham, 2007; Morrissey, 2000; Thompson et al., 2004). Boyd and Hord found that the principal is essential for the creation and sustainability of a learning community.

Researchers have found several characteristics of principals who support continued improvement of a professional learning community model within their schools. A principal's ability to create an environment of shared leadership (Boyd & Hord, 1994;

Bullough, 2007; Graham, 2007; Hipp et al., 2008; Hord & Rutherford, 1998; Huffman & Hipp, 2000; Leithwood, Leonard, & Sharratt, 1998; Liebman et al., 2005; Thompson et al., 2004), shared decision making (Boyd & Hord; Huffman & Hipp; Hipp et al., 2008; Lee et al., 1991; Leithwood et al., 1998; Morrissey, 2000), and creating opportunities for teacher interaction (Boyd & Hord; Hipp et al.) are essential for professional learning communities. For a principal to share leadership, it requires letting go of some power (Hord, 1997). Newmann, Rutter, and Smith (1989) found that principals who offer teachers support, help and recognition, apparently develop a greater sense of unity among and cooperation between teachers. They also found that principal leadership is highly correlated with both efficacy and community. These findings were recently supported by a study by Wahlstrom and Louis (2008) that showed the importance of shared leadership. These collective decisions helped strengthen their instructional practice and led to higher levels of efficacy and a sense of empowerment.

The literature suggests that principals should begin by identifying the current values, beliefs, and norms of the staff (Boyd & Hord, 1994). Without following this advice, principals cannot guide their staff in the development of a clear vision focused on student learning. According to Thompson et al. (2004), "A leader cannot dictate a vision, no matter how lofty or appropriate that vision may be. The vision must truly be shared" (p. 3). Team and staff norms can also be anchors for success and should be established early in a principal's tenure. The principal must guide and at times persuade teachers in order to remain focused on student learning. The principal needs to model what is expected and hold high expectations for staff and students (Leithwood et al., 1998; Senge, 2006). The principal's relationships with the staff are the underpinnings of a

professional learning community. The principal must be open and trust the staff, must give frequent, meaningful, and positive feedback, and encourage teachers to partake in leadership responsibilities. Building relationships and trust are important in leadership and professional learning communities (Thompson et al., 2004). Hoy and Woolfolk (1993) stated, "[Principals] must find ways to develop teacher loyalty, trust, motivation, and commitment" (p. 358). Visibility on campus, interacting with teachers and students, and frequent classroom visits are also important because these activities allow the principal to monitor the school's culture and adjust leadership styles as needed.

Thompson et al. (2004) also found the importance of the principal sharing his/her vision early on and reminding the staff of that vision regularly. This vision must be aligned with that of the teachers in order to enhance consensus on what the school hopes to become. This shared vision must also be referred to often as teachers and administrators work together to help students succeed. Teachers and administrators should also work together to create shared goals and maintain ongoing communication. According to Boyd and Hord (1994), "Leaders who shape culture, recruit teachers and staff who share their view of the mission of the school and whose values and beliefs are consistent with those being established" (p. 9). According to Olsen and Chrispeels (2009), a greater sense of a shared vision happens when leadership was shared. The leadership team is a place to start for a principal coming into an already established school culture. Working and learning together will help shape the vision leading to a truly shared vision of what the school hopes to become. The shared vision then helps guide the work of teachers and administrators (Olsen & Chrispeels, 2009). Effective leaders of a professional learning community should also publicly celebrate successes

(Boyd & Hord). The principal should be strong in direction and support and also empower the staff in ideas and implementation (Hipp et al., 2008). Principals become part of the professional learning community process and its culture.

Liebman et al. (2005) conducted a qualitative case study and made several findings regarding principal behaviors that seemed to facilitate leadership in others, such as: (a) needs the ability to recognize leadership characteristics in others and help guide them into those leadership roles, (b) connect the school's mission and vision to student learning, (c) recognize the importance of developing a leadership team to support and maintain the professional learning community, (d) value the importance of two-way communication and collaboration, (e) empower others to take leadership responsibilities, and (f) establish a learning organization that promotes learning, growth, and the development of all stakeholders.

Leaders need to provide teachers with time within the teaching day to meet and discuss, improve communication, and increase interdependent teaching roles (Liebman et al., 2005) if they want to create a professional learning community culture. Principals should participate in the dialogue without dominating the conversation (Little, 1982). Ross and Gray (2004) suggest that to foster professional learning communities, principals are *transformational leaders*. Transformational leadership as defined by Bass (1985) and Leithwood et al. (1998) focuses on fostering the growth of teachers and enhancing their commitment by elevating their goals. Transformational leaders look for permanent solutions that prevent the problems from reoccurring in the learning organization. Transformational leadership is essential to the building and sustaining of a professional learning community (Liebman et al., 2005).

Reviewing the literature on PLCs and transformational leadership clearly demonstrates a link between them. These similarities between professional learning communities and transformational leadership are especially apparent when comparing Hord's (1997, 1998) five characteristics and DuFour and Eaker's (1998) six characteristics to Leithwood, Leonard, and Sharratt's (1998) eight characteristics and Bass' (1985) four characteristics of transformational leadership. The characteristics presented by Leithwood et al. are: (a) vision, (b) group goals, (c) intellectual stimulation, (d) high performance expectations, (e) individualized support, (f) appropriate modeling, (g) productive school culture, and (h) structure. The characteristics described by Bass include: (a) idealized influence; (b) inspirational motivation; (c) intellectual stimulation; and (d) individualized consideration. Table 1.2 demonstrates the similarities and differences between professional learning communities and transformational leadership.

Table 1.2: Relationship between Transformational Leadership and Professional Learning Communities

Transformational Leadership (Bass, 1985)	Transformational Leadership (Leithwood et al., 1998)	Professional Learning Communities (Hord, 1997, 1998)	Professional Learning Community DuFour and Eaker (1998)
• Idealized influence • Inspirational motivation	• Vision • Group goals	• Shared values and vision	• Shared mission, vision, values, and goals
• Intellectual stimulation	• Intellectual stimulation • High performance expectations	• Collective learning and application of that learning	• Collective inquiry into "best practices" and "current reality"
• Individualized consideration	• Individualized support		• Collaborative teams focused on learning
	• Appropriate Modeling	• Shared personal practice	• Action orientation and experimentation
	• Productive school culture • Structure	• Supportive conditions- structures and relationships	• Commitment to continuous improvement
			• Results orientation
		• Shared and supportive leadership	

Adapted from the work of Olsen and Chrispeels, 2009

Summary of Literature Review

This literature review examined the empirical foundation of professional learning communities, collective efficacy, and leadership for PLCs and has demonstrated the significance of a professional learning community as a possible model for school reform. The federal NCLB Act (2001) coupled with rigorous state standards have increased

teacher accountability for ensuring consistent growth toward proficiency for all students. Previous empirical studies have found an important role professional learning communities might play in efforts to increase student achievement for all students and help close the achievement gaps between minority students and those who are and are not socioeconomically disadvantaged. While the models vary depending on the researchers, they all emphasize closing the achievement gap through a collaborative culture. The literature review also shows that previous research on relationships between professional learning communities, efficacy, and transformational leaders often failed to acknowledge the similar characteristics of these three components.

Facilitating and sustaining the necessary transformation in schools is an area of concern in the educational arena with recent reform efforts. Teachers have typically been allowed and even encouraged to work in isolation with minimal communication and sharing of pedagogy with other teachers. Professional learning communities are one possible solution to overcoming the obstacle of isolation. In PLCs, teachers ensure learning for all students and thus help close the achievement gap, create a culture of collaboration that allows teachers to learn together by sharing best practices and researching concerns, and use the right data to focus on student results, which allow for adjustments to teaching.

Through the analysis of quantitative, qualitative, and mixed methods studies, this review of the relevant literature explored the history, definition, and models of professional learning communities along with necessary leadership responsibilities. An examination of the evolution of collective efficacy was also shared. Exploring the research on efficacy studies shows the importance of how a teacher's present beliefs

about their effectiveness in accomplishing tasks impact their beliefs about their ability to help students attain future success. Tschannen-Moran et al., (1998) and Goddard and Skrla (2006) found that collective efficacy in schools appears to play a powerful role that merits further research, such as: the role of teacher beliefs in school reform, how leaders create conditions that counter deficit thinking, and the interrelationship between self-efficacy and collective efficacy. Since as early as the 1930s, the characteristics of PLCs have been viewed in educational arenas. This review suggests that professional learning communities hold great promise as one possible reform to help close the achievement gap and promote social justice for all students. The review also demonstrates a clear link between professional learning communities, collective efficacy, and transformational leadership. The researcher's study will contribute to this small empirical base and help fill a gap in the literature through a robust mixed methods case study of PLC attributes as well as collective efficacy.

The framework for the study is based on DuFour and Eaker's (1998) professional learning community model along with Goddard's (2002) collective efficacy model. Despite the growing literature on both professional learning communities and collective efficacy separately, there is little, if any, empirical evidence on the role collective efficacy might play in a professional learning community. It could be important to bring the construct of collective efficacy to the forefront of professional learning communities to see if there is a positive relationship. LaRocco (2008) stated, "Researchers should continue to explore and describe the inner workings of individual schools' efforts toward becoming a professional learning community" (p. 19). The empirical research related to both models is limited and warrants further exploration. The intent of this literature

review was to provide an overview of professional learning communities, efficacy, and leadership and to examine their possible relationship. The following chapter describes the methodology used to study the possible relationship between collective efficacy and PLCs and the role of site leaders.

CHAPTER 3: METHODOLOGY

Teachers are faced with increasing accountability and pressure from federal and state mandates to support diverse student populations to perform at higher achievement levels. A review of the literature on professional learning communities, collective efficacy, and transformational leadership suggest that PLC schools have a better chance of student and staff success in schools with greater levels of perceived collective efficacy than those who have low levels of collective efficacy. The literature further supports the role of leadership as being important. While there is limited evidence to support increased student achievement for those schools implementing a PLC model (Leithwood & Riehl, 2003; Louis, Marks, & Kruse, 1996), there is evidence demonstrating increased student achievement in schools that have high levels of collective efficacy. This study sought to explore the possible relationship between teachers' perceptions about their schools as a professional learning community and their sense of collective efficacy. This study also explored the role of leadership in a PLC model.

Purpose of the Study and Research Questions

The purpose of this study was to gain a deeper understanding of the relationship between the construct of collective efficacy and the reform efforts of professional learning communities as defined by DuFour and Eaker (1998). In addition, the researcher was interested in the possible influence collective efficacy has on professional learning community teams and the role of transformational leadership. The researcher has observed firsthand, challenges that may thwart or side-step efforts to move into a true PLC model. Additionally, there may exist discrepancies between the realities of some schools claiming to be professional learning communities with schools who, with close

examination, are operating as effective PLCs. After exploring the relevant literature regarding professional learning communities, collective efficacy, and transformational leadership, the researcher has found that collective efficacy and transformational leadership could be effectively embedded into a PLC culture but the scant amount of empirical evidence available on PLCs does not currently support this claim.

To examine a possible relationship between professional learning communities and collective efficacy and the role of leadership more in-depth the following research questions guided the study:

1.0 In what ways do teachers work in professional learning communities?

- 1.1 What PLC characteristics are demonstrated?
- 1.2 How do schools and PLC teams differ in their degree of implementation?

2.0 What is the relationship of collective efficacy to PLCs?

- 2.1 What is the level of collective efficacy in the case study district?
- 2.2 What is the relationship between PLC characteristics and collective efficacy?

3.0 What is the role of the site leader in fostering professional learning communities?

- 3.1 In what ways do teachers perceive the principal playing a transformational role in implementing the PLC model?
- 3.2 In what ways do principal leadership, PLC implementation and collective efficacy interact to contribute to PLC sustainability?

To further support the research questions, hypotheses and propositions were explored.

Hypothesis 1a: There is a high level of implementation of PLC components perceived by teachers in the district.

Hypothesis 1b: There is variation in the level of perceived implementation among schools and grade level teams within schools.

Hypothesis 2a: There is a high level of collective efficacy in district schools.

Hypothesis 2b: There is a positive relationship between collective efficacy and professional learning communities.

Hypothesis 2c: PLC is a predictor of higher levels of collective efficacy.

Proposition 1a: There will be important differences in implementation strategies between more and less effective teams within the same school.

Proposition 2a: When perceived levels of implementation of PLC components are higher, teams work more effectively to ensure higher levels of student learning.

Proposition 3a: PLC teams that perceive themselves implementing PLC components at higher levels will perceive the principal as engaging in transformational leadership.

Proposition 3b: Schools and teams that exhibit more of the characteristics of a PLC model will have higher levels of teacher collective efficacy and perceive the principal's transformational leadership more positively.

This research study focused on K-12 public school teachers and principals within one school district in Central California regarding their perceptions of perceived collective efficacy and the leadership role within a professional learning community model as defined by DuFour and Eaker (1998). Thus, this study aims to explore the relationship between professional learning communities, collective efficacy, and transformational leadership. Specifically, the researcher seeks to establish a link between creating and sustaining a professional learning community model, collective efficacy and transformational leadership. Analysis of the relevant literature of the professional learning community model, collective efficacy construct, and transformational leadership have the potential to explain why so many schools have difficulty building and sustaining a PLC model leading to increased student achievement. Currently, there are no empirical

studies regarding the significance between professional learning communities as defined by DuFour and Eaker (1998), the construct of collective efficacy, and transformational leadership.

Design of the Study

The design of this study is based on a case study approach. The case study design was determined to be the best method for this study because, according to Yin (2003), "case studies are the preferred strategy when the investigator has little control over events and when the focus is on a contemporary phenomenon within some real-life context" (p. 1). In this study, the phenomena of study are the relationships between collective efficacy, leadership, and professional learning communities. Yin (2003) defines a case study as "an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between the phenomenon and context are not clearly evident" (p. 3). Merriam (1998) similarly states that "a qualitative case is an intensive, holistic description and analysis of a single instance, phenomenon or social unit" (p. 17). The specific case study design is exploratory. Case study research is preferred when examining contemporary events within its real-life context in which the researcher collects a variety of data to yield information (Creswell, 2008; Yin, 2003). Case study research offers an opportunity for the researcher to collect multiple sources of different types of evidence with a methodology that requires triangulation of data. Case study research is beneficial when the context of the person's environment is important, and context was established as important in the literature review and when using the theoretical framework of professional learning community as defined by DuFour and

Eaker (1998), the social cognitive theory as defined by Bandura (1977, 1997), and Leithwood's (1994) transformational leadership.

Additionally, the study used a mixed-methods design, which complements a case study approach that requires multiple data sources. According to Rudestam and Newton (2007), the mixed-methods approach "combines the rigor and precision of experimental, quasi-experimental, or correlational designs and quantitative data with the depth understanding of qualitative methods and data. Thus, the methods can help inform one another or deal with different levels of analysis" (p. 51). Patton (2002) adds that either type of research alone provides limitations. The research questions for this study were answered using the results from surveys, one-on-one interviews, and reviews of documentation collected at the individual sites within one school district in Central California that has explicitly chosen to implement the DuFour and Eaker (1998) professional learning community model as their only reform effort to increase student outcomes.

Context of the Study

This study was conducted in the Sunnyvale School District[1] in the Central Valley of California. SVSD covers approximately 180 square miles and includes one main city, five communities, and the suburban and rural areas of five additional cities. Sunnyvale Unified adjoins seven school districts. SVSD's Eastern and Southern areas are rich in agriculture while the Northern and Western portions are largely suburban with some agriculture.

Sunnyvale Unified serves approximately 10,200 students. The district contains 19

[1]Sunnyvale School District used throughout this study is a pseudonym for the school district in this study to ensure the anonymity of the participants, as are all the associated names.

schools four of which are K-6 elementary schools, six K-5 elementary schools, one K-8 elementary school, one 6-8 middle school, one 9-12 comprehensive high school, one 9-12 continuation high school, one K-12 alternative school, which by district policy serves 7-12, one 7-12 community school, one K-12 regional charter school, one K-8 environmental charter school and one K-8 academic charter school. Sunnyvale Unified and all of its schools operate on a traditional school year calendar.

In addition to the district implementing the PLC model as defined by DuFour and Eaker (1998) for the past five years, it was chosen because the district contains both high-poverty and high-minority student populations and has successfully boosted student achievement and reduced achievement gaps within the district since implementing the PLC model. The ethnic breakdown of students within the district includes: Hispanic or Latino (69%), White (18%), African American (2%), Asian/Pacific Island (10%), and Other (1%). A review of the demographic data revealed a diverse student population with 70% receiving free or reduced lunch (low socio-economic status), 29% are classified as Limited English Proficient, and 7% of the student population are classified as Students with Disabilities.

Furthermore, a review of student test scores on the CSTs reveal much growth since the implementation of the PLC model. Since implementation of the professional learning community model as defined by DuFour and Eaker (1998), Sunnyvale's district API state scores have increased from 599 to 766 points, a growth of 167 points. Additionally, the percent of students proficient in English Language Arts has increased from 29% to 55.3% between 2003 and 2007 and during the same time period in math, scores increased from 60% to 75% obtaining proficiency. After the 2003-2004 school

year, Sunnyvale District was designated as a Program Improvement (PI) District, one of the first 98 districts in the state to be so designated, as a result of the district's failure to meet minimum proficiency levels for their English Learner population. Since implementing the PLC model, the district has been successful in exiting from PI status, which includes three of their schools, two of which were classified as PI 4. The district has also been able to consistently outperform state averages in all areas and has met all federal AYP targets since 2006.

The Mission of Sunnyvale Unified School District, the cornerstone of education choice, is to guarantee that each student attains his or her personal and academic goals through a dynamic and positive learning community characterized by intimate, challenging environments that celebrate creativity and diversity.

According to Creswell (2008) purposeful sampling is when individuals are intentionally selected to learn about a central phenomenon because the participants are "information rich." In this study the sample is one California district known to have successfully implemented the DuFour and Eaker (1998) PLC model and sustain the effort for five years. This form of purposeful sampling was used because participants were able to tell the stories of their experiences with professional learning communities that illuminate the role of leadership and a high level of collective efficacy as important conditions to ensure all students are learning at high levels.

Participants

Permission and support from the superintendent and site principals were obtained prior to conducting this study. There were two major sets of participants for this study. The first set was teachers and principals in Sunnyvale School District who were asked to

voluntarily complete a survey. The second set of participants were a purposeful sample of teachers and principals from four schools in the district demonstrating high and low levels of collective efficacy and PLC characteristics within and between schools.

Survey participants. All principals with the district were solicited to conduct the voluntary survey (Appendix A) during a staff meeting. All teachers and principals were asked to complete the survey if they have had more than one year experience with the district's PLC program. The survey respondents disclosed their site and grade-level team so that follow-up interviews may be conducted. To ensure a higher response rate, the superintendent informed principals during a leadership retreat of the study and importance of most staff responding. The survey was voluntary and participants remained completely anonymous. Participants were in control of their involvement in the survey at all times and were able to opt out anytime. Participants were assured that there are no consequences if they declined to participate or opt out after beginning the survey.

Interview participants. After survey responses were returned and the data initially analyzed, invitations for in-depth one-on-one interviews (Appendix B) were sent to four schools within the Sunnyvale School District that showed a combination of both higher and lower levels of collective efficacy within their professional learning community teams and among schools. Since all schools that participated in the survey showed consistently high levels of both collective efficacy and PLC characteristics overall, the researcher further analyzed site demographics, student populations, and like grade levels to ensure the comparison was between similar schools. As a result of this analysis, two K-5 schools and two K-8 schools were selected for the interview and document phase of this study. Therefore, the sampling was a purposeful sub-set of the purposive original

sample where only revelatory or unique participant teams were asked to participate based on survey results. Members from two teams within the four selected schools were invited to participate in the interviews in addition to the principal. Interviews were scheduled and conducted in February 2010.

The researcher contacted each site principal once surveys were initially analyzed and extended an invitation to participate in the interview and document phase of this study. Working with site principals, two higher grade-level teams were chosen to participate in the one-on-one interviews. Each participant was contacted and agreed to the interview regarding collective efficacy within a professional learning community model. One-on-one interviews were held with 23 participants in the Sunnyvale School District. Each interview lasted between 30 minutes and one hour and were conducted during participants' contractual school day. Interviews were conducted at each site, one site each day, with up to five teachers and the principal at each site participating. Again, staff were able to opt out of the study and were assured that there were no consequences if they declined to participate. Questions focused on the construct of collective efficacy through the lens of a professional learning community model as defined by DuFour and Eaker (1998) and leadership and were facilitated by the researcher who is trained in the research protocol and confidentiality.

Data Collection Methods

The inquiry of this study was conducted using a case study approach. As is typical in case studies, multiple data sources are used to explore the phenomena of interest (Yin, 2003). Three major data sources were tapped in this study. First, was a districtwide survey conducted with all teachers and site administrators. The second

source of data collection was one-on-one interviews with teacher teams demonstrating high and low levels of collective efficacy. The final source of data collection was site documents further supporting participants' professional learning community work. This section describes each data source and how the data was collected, including the survey instrument. Using the three data collection methods helped triangulate the data and increased validity of the study.

Surveys. The timeline of survey data collection for this study is a single staff meeting in Fall 2009. All teachers and principals were asked to complete all three sections of the survey (Section one: demographic information; section two: professional learning community characteristics; and section three: perceived collective efficacy). The survey contained a cover letter/consent form (Appendix D). Prior to sending the surveys to site principals, the survey was designed and activated using Cardiff Teleform Designer software to be scanned using Teleform Scan Station and Verifier at the University of California, San Diego. Survey data collected was then imported into Statistical Package for the Social Sciences (SPSS) and structural equation modeling (SEM) for statistical analysis.

Interviews. A standardized open-ended interview protocol (Appendix B) was developed for one-on-one interviews with teachers and principals who have volunteered to participate in an approximately 30 to 60-minute interview. Prior to beginning each interview, two consent forms were reviewed. The first consent form reviewed was the participant's consent to participate in the interview (Appendix E). The second consent form reviewed was to allow for audio taping (Appendix F) during the one-on-one interview. After reviewing, participants were asked to sign both forms prior to beginning

the interview. The researcher conducted each interview at the participant's site during the instructional day in February 2010. Questions were developed to allow the researcher to delve deeper into the perceived sense of collective efficacy within professional learning community teams. Interview questions were not shared prior to the interview. Once questions were developed, a pilot study (Appendix G) was conducted which lead to the modification of several questions to better answer the research questions posed.

Documents. Using the information indicated in the surveys and interviews, documentation data was also gathered seeking additional evidence of professional learning community characteristics as defined by DuFour and Eaker (1998) along with proof of collective efficacy supporting increased student achievement. Document analysis included a review of site mission and vision statements, state test results, intervention plans, team meeting agendas and minutes, and other documents supporting the research questions. These document collections augmented the surveys and interviews and provided deeper insights into the level of collective efficacy in a professional learning community model. Collecting three sources of data helped triangulate the data and reduce bias in the study (Patton, 1990; Yin, 2003). Furthermore, gathering data from a variety of sources is important because every data collection method has some limitations and when utilized in isolation would not provide enough detailed information to capture the full perspective. The data was analyzed to identify common themes to determine the relationship between leadership, teachers' perceived sense of collective efficacy, and professional learning communities.

Measures/Instrumentation

Once surveys were identified, a pilot study (Appendix G) was conducted which resulted in several modifications to the survey instrument that would better support answering the research questions regarding the degree of presence of professional learning community characteristics as defined by DuFour and Eaker (1998) and the relationship between collective efficacy, leadership, and PLCs.

Participants in this study were asked to respond to a PLC survey in order to determine their perceptions of professional learning community characteristics as defined by DuFour and Eaker (1998) and the level of perceived collective efficacy within the PLC model. The survey design consisted of a Likert scale ranging from 1 (Not at All) to 5 (A Great Deal) for 25 of the 34 questions. According to Goldberg and Velicer (2006), using a rating scale of five to seven choices increases the likelihood that the participants will carefully review rating scales and will be less likely to rush through the items. The survey that had been developed to use with participants includes nine demographic statements that sought information regarding age, gender, ethnicity, number of years of teaching, number of years of teaching at current site, highest educational level completed, school name, current professional learning community team, and grade levels currently teaching. These questions allowed the researcher to discover if any of the personal characteristic factors play a role in the level of collective efficacy.

There are thirteen professional learning community questions that seek to determine the characteristics of the PLC model as defined by DuFour and Eaker (1998) present within PLC teams. The PLC section centers around three themes: establishing collective goals, organizing for collective actions, and collective focus on results.

Question examples include: “My team works together to establish common pacing for each unit of instruction” and “Students are required rather than invited to devote extra time and receive additional support until they are successful.” This part of the survey was found in a dissertation by Grider (2008) titled, *Elementary, Middle, and High School Teachers' Perceptions of PLC and Sense of Efficacy*. Grider created this survey with 52 original items. DuFour and DuFour, two experts in the area of PLCs, provided the researcher with professional learning community survey content validity because, according to Groves, Fowler, Couper, Lepkowski, Singer, and Tourangeau (2004), it is significantly important to evaluate the survey content validity with other expert ideology within the field. Using DuFour and DuFour's PLC recommendations in terms of survey content validity, the original 52 items were reduced to the final 12 items found in Grider's dissertation.

The third section of the survey includes twelve questions relating to perceived levels of collective efficacy within their professional learning community teams. Sample collective efficacy questions include: “Teachers in this school work together to meet the needs of challenging students” and “Teachers provide so many engaging lessons that the students here are bound to learn.” This section of the survey has been adapted from the work of Goddard (2002) titled, *A Theoretical and Empirical Analysis of the Measurement of Collective Efficacy: The Development of a Short Form*. The original measure of Goddard et al. (2000), consisting of 21 items, was constructed at the Ohio State University and reviewed by a panel of three experts at the University. As a result, changes in response to the panel's concerns were addressed by Goddard et al.'s study, which included 498 usable surveys collected. An analysis of the instrument's reliability

revealed an alpha reliability coefficient of .96 (Goddard et al., 2000). The researchers found that their indeed was a high correlation between the school efficacy score and school success on standardized achievement tests (Goddard et al., 2000).

Goddard (2002) reexamined the 21-item measure Collective Efficacy Scale seeking to construct a more conceptually pure version. A total of 452 usable surveys were collected from 47 schools located in one large urban Midwestern school district. An alpha reliability coefficient yielded scores with a high internal consistency of .94. The new study also revealed a single factor having an eigenvalue of 7.69 and explaining 64.10% of the variance was extracted. As a result of this study, the original 21-item scale was reduced to 12 items. When comparing the short and long forms, the correlation between these scales ($r = .983$) suggests that the short scale is very strongly related to the original longer scale. In the 12-item Collective Efficacy Scale, three of the statements reference Task Analysis (TA+) positively and three statements reference Task Analysis (TA-) negatively; three statements measure Group Competence (GC+) positively, and three statements reference Group Competence (GC-) negatively.

Interview questions were asked to extend survey responses, allowing for a more thorough and in-depth analysis of the relationship between collective efficacy and professional learning community, and provide evidence for a rich case study description for collective efficacy levels within a PLC. Interview questions may also be necessary to better understand incomplete or contradictory statistical survey results or to validate trends in professional learning community and collective efficacy characteristics targeted in the research questions. All interview questions were designed to collect sufficient evidence to answer the research questions and to write the case study. They were

structured in accordance with best practices recommendations from methodology experts and researchers (Creswell 2005; Kvale, 1996).

This study is intended to have implications for educators at all levels (national, state, county, district, site) and policymakers. Educators need to think in nontraditional ways about how to best meet the needs of all learners in an ever increasingly demanding global society. This study is intended to inform educational practices and inspire new ways of thinking about how to deprivatize our current practice and eliminate the achievement gap by focusing on student learning, working in a collaborative culture, and analyzing student results to ensure all students learn at high levels and are prepared for employment once graduated.

Proposed Theoretical Framework Model

Figure 3.1 illuminates the proposed model tested using the data collected and analyzed in this mixed-methods study. The model demonstrates the role of demographic information and the characteristics of professional learning communities, collective efficacy, and transformational leadership and a range of paths between the variables measured leading to increased student achievement. The proposed model postulates a positive relationship between the role collective efficacy plays in a professional learning community and the significance of site leadership to help support the building and sustaining of the model, which leads to increased student achievement. During the structural equation modeling analysis of these relationships, the researcher analyzed the goodness-to-fit of each characteristic of this proposed model.

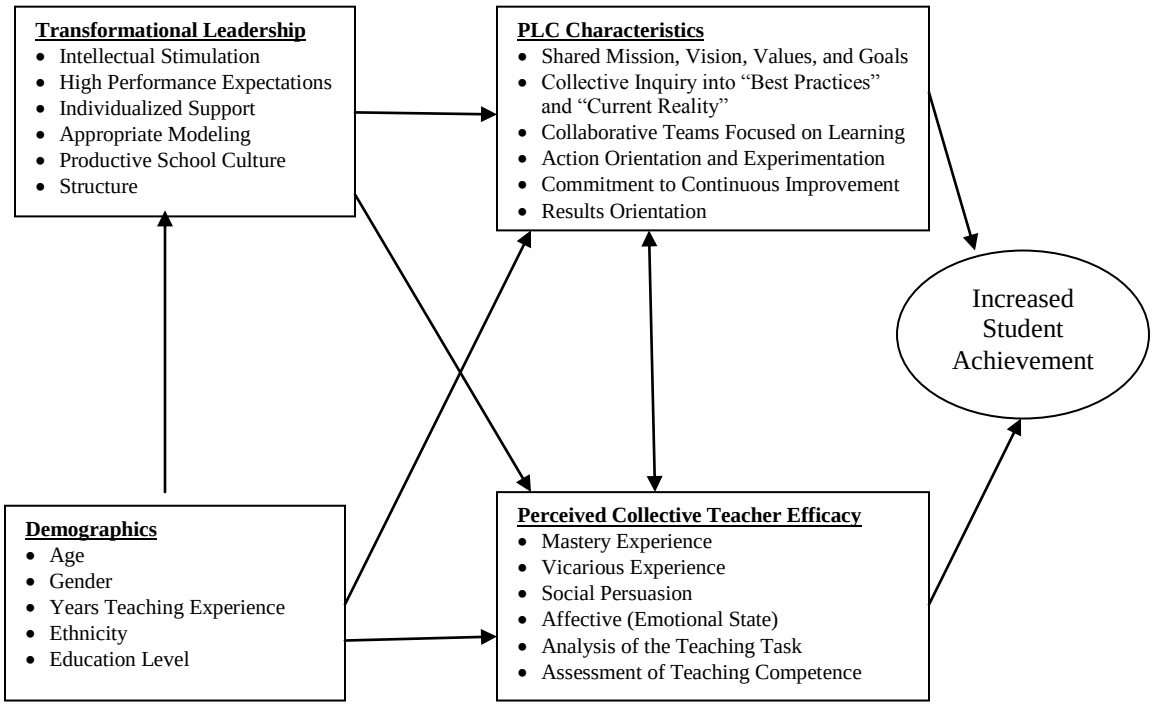

Figure 3.1: Proposed Theoretical Framework Model depicting the relationships between collective efficacy, professional learning community, and site leadership necessary leading to increased student achievement.

Data Analysis

This section explains the strategies the researcher used to analyze survey, interview, and document data. Survey responses underwent five types of statistical tests for this study. First, descriptive statistics illuminated basic features of the data. Summaries included mean, median, mode, variance and standard deviation. Second, factor analyses were conducted to better understand the validity of the survey responses. Third, the data were analyzed using correlation tests to examine significance within groups of variables. In addition, multiple regression tests were conducted to further explore significance within groups of variables. Finally, SEM tests were completed to explore paths between variables.

The qualitative data analysis process involved preparing data for analysis, using different analysis to allow the researcher to move deeper into understanding the data, deciding how to present the data, and interpreting the larger meaning of the data (Creswell, 2008). All interviews were digitally recorded then transcribed using CastingWord, a transcription service, and coded that does not include pauses, repetitions or nonsensical fill words such as "um." To ensure easy location of important themes and passages during analysis, the transcriptions were time stamped. Interview transcriptions were coded using best practices recommendations according to Yin (2003) and Miles and Huberman (1994) and analyzed using HyperRESEARCH software. Miles and Huberman explain three steps of the data analysis process. First, data reduction, involves placing the collected data into themes. Second, data displays, include condensing the information to draw initial conclusions. The third step is the conclusions drawn and verified based on confirmable evidence. These steps were utilized for both interview and document analysis and allowed the researcher to understand, provide evidence, and suggest information based on the collected data.

Merriam (1998) postulates that data analysis and data collection should be done simultaneously and suggest using a step-by-step process allowing the construct of categories from the data collected. It is important that categories reflect the research purpose and allow answers to the research questions. As a result, the researcher used step-by-step data analysis throughout the study.

Limitations of the Study

Limitations are limiting conditions or restrictive weaknesses that occur in part when the study design cannot control for all factors (Locke, Spirduso, & Silverman,

2000). To begin, because the case study is being conducted in one school district within a limited geographical area, the findings are not statistically generalizable, so the research findings cannot be assumed for the larger population of all teachers. The range of teachers that will be surveyed, K-12 public and charter school teachers in one state in the United States, will limit the study because the sample will not represent teachers from all states or other countries, nor will it represent teachers in higher education. However, the study does offer the potential to contribute to building of the theoretical framework of DuFour and Eaker (1998). The framework offered by DuFour and Eaker does not include collective efficacy nor has collective teacher efficacy levels been tested in the arena of a professional learning community model as defined by DuFour and Eaker. Therefore, this study has the potential to add to the DuFour and Eaker professional learning community model.

A second limitation of this study is that it only investigated one professional learning community model. This model does not represent the other models of professional learning communities: (a) professional learning community as defined by Hord (1997); (b) purposeful community as defined by Marzano, Waters, and McNulty (2005); and (c) communities of practice as defined by Wegner and Snyder (2000). While each PLC model has similarities, they also present differences in certain characteristics and may or may not represent all professional learning community models.

A third limitation is the time of the year this study was conducted. Reviewing the literature reveals that teachers' sense of collective efficacy tends to decrease as the school year progresses. By collecting data on collective efficacy in the winter, the study may

over-estimate teachers' sense of efficacy. However, given the demands of teaching, it seems appropriate to gather data from teachers when they may be at their best.

A fourth limitation of this study arises from the nature of qualitative research, which can present significant problems in terms of validity and reliability because it depends heavily on the interviewing and interpretive skills of the researcher. To help improve the validity and trustworthiness of this study, multiple sources of evidence were used, a chain of evidence was established, and key experts reviewed the analysis (Yin, 2003). To help increase the reliability, the procedures were well documented allowing the researcher to arrive at the same findings and conclusions if the same case was repeated. Yin (2003) reminds researchers that "the goal of reliability is to minimize the errors and biases in a study" (p. 37). The researcher therefore intends to carefully document each step used and keep impeccable files of the collected data to ensure higher reliability.

CHAPTER 4: QUANTITATIVE FINDINGS

As explained in chapter one, the purpose of this study was to address the concerns regarding building and sustaining a professional learning community as an approach to increased student achievement. As a result, this study set out to examine the possible relationship and role the construct of collective efficacy plays in a professional learning community as defined by DuFour and Eaker (1998). This chapter presents the analysis of the quantitative data from the PLC and efficacy surveys described in chapter three. Chapter five presents the qualitative data collected from interviews and document analysis. The purpose of conducting the mixed-methods study was to investigate not only if there is a relationship between collective efficacy and a professional learning community model as defined by DuFour and Eaker but to also understand how these two variables may interact. Additionally, the study sought to examine the role of transformational leadership within a PLC model.

The study began with a survey instrument that included demographic, PLC and collective efficacy questions. The survey addressed two of the three research questions posited in this study and was administered at a staff meeting to increase response rates. To seek more depth in survey responses, once the surveys were returned and initially analyzed, four schools out of sixteen were selected to allow the researcher to conduct one-on-one interviews with up to five teachers and one principal at each site. In addition to the interviews allowing the researcher to ask questions regarding site leadership, which encompassed the last research question, the qualitative data also provided more insights to answer the how and why aspects of the other research questions than quantitative data alone could have provided. Additionally, at the request of one of the site principals, one

focus group interview was conducted at the end of the teachers' work day. To help gather as complete a picture as possible, supporting documentation was also collected and analyzed to explore continuity between the surveys and interviews and find confirmatory evidence of teacher and principal perceptions.

Following a description of the participants, quantitative data from participant surveys are presented. The remainder of chapter four is arranged around research questions 1.0 and 2.0 and subquestions 1.1, 1.2, 2.1, and 2.2. The last section of chapter four contains the researcher's summary of the data. Chapter five presents the qualitative data from participant interviews along with document analysis that supported the survey and interview data. Chapter 6 presents conclusions, implications, and suggestions for future research.

Analysis of the Quantitative Data

To analyze the quantitative data and answer two of the research questions, a variety of statistical analyses were conducted including: descriptive statistics, factor analysis, bivariate correlation tests, multiple regression, and structural equation modeling (SEM). All of the statistical procedures were conducted using the statistical package SPSS 17.0 for Windows with the exception of the Structural Equation Models tested using EQS (Byrne, 2006). The range of these statistical tests allowed the researcher to analyze the data in depth. Table 4.1 shows the data analysis used to address the research questions posed in this study.

Table 4.1: Data Analysis Used to Answer Quantitative Research Questions/Subquestions

Research Question	Hypothesis	Data Collection	Data Analysis
1.0 In what ways do teachers work in PLCs?			
1.1 What PLC characteristics are demonstrated?	1a. There is a high level of implementation of PLC components perceived by teachers in the district.	Teacher and principal surveys, interviews, and documentation.	Descriptive Statistics HyperRESEARCH
1.2 How do schools and PLC teams differ in their degree of implementation?	1b. There is variation in the level of perceived implementation among schools and grade level teams within schools.	Teacher and principal surveys, interviews, and documentation.	Descriptive Statistics HyperRESEARCH
2.0 What is the relationship of collective efficacy to PLCs?			
2.1 What is the level of collective efficacy in the case study district?	2a. There is a high level of collective efficacy in district schools.	Teacher and principal surveys.	Descriptive Statistics HyperRESEARCH
2.2 What is the relationship between PLC characteristics and collective efficacy?	2b. There is a positive relationship between collective efficacy and PLCs.	Teacher and principal surveys.	Correlation, Multiple regression, Structural equation modeling
	2c. PLC is a predictor of higher levels of collective efficacy.	Teacher and principal surveys.	Structural equation modeling

Participants

This quantitative phase of the study included invitations to all teachers and principals from all elementary, K-8, middle, and high schools within one moderate sized district in Central California. This district was selected because it has successfully implemented the DuFour and Eaker (1998) PLC model for the past five years and has narrowed the achievement gap within its significant subgroups. Out of 20 possible schools, 16 participated in the surveys conducted during a staff meeting. The district's only middle school declined to participate, the only school to do so, and three additional schools were removed by the researcher because teachers at these sites go to students' homes and seldom meet as a team or staff on campus. Table 4.2 represents the school

level (Elementary = E.S., K-8 School = (K-8), Day School = (D.S.), High School = H.S.), the number of teachers, the number of surveys returned, and each participating site's response rate percentages usable.

Table 4.2: Participant (teachers and principal) Survey Response Rate

Schools	Number of Teachers	Number Returned	Percentage Returned/ Used
Elementary Schools (E.S.)			
E.S. 1	14	13	93
E.S. 2	18	18	100
E.S. 3	24	23	96
E.S. 4	17	16	94
E.S. 5	24	22	92
E.S. 6	23	21	91
E.S. 7	13	11	85
E.S. 8	18	13	72
E.S. 9	25	24	96
E.S. 10	25	21	84
K-8 Schools (K-8)			
K-8 1	20	12	60
K-8 2	21	18	86
K-8 3	20	19	95
Day School (D.S.)			
D.S. 1	5	5	100
High Schools (H.S.)			
H.S. 1	7	7	100
H.S. 2	106	67	63
Total	380	310	82%

The return rate among teachers at all the elementary schools was consistent as is evidenced in Table 4.2. Six of the elementary schools had a usable return rate in the 90% range, two in the 80% range, one in the 70% range, and one of the elementary schools returned 100% of the surveys. Within the K-8, day school, and high schools, while the response rate varied more among the individual schools, it is noteworthy that there are only three K-8 schools, one community day school and two high schools used in this

study. The K-8 data revealed that one of the schools usable surveys returned in the 90% range, one in the 80% range, and one in the 60% range. Similar results were found when looking at the high schools. One had a 100% return rate with a teacher staff of seven while the other high school had a response rate of 63% with a teacher staff of 106. While the community day school had 100% of the teachers complete the survey, it is worth mentioning the site consisted of only five certified teachers.

A total of 380 surveys were sent via federal mail to principals in all of the 16 schools along with an envelope for returning the completed surveys. Principals worked closely with the researcher prior to and during the staff meeting to ensure teacher clarity and purpose of the survey. Principals presented the survey to the teachers along with a letter from the researcher explaining the study. The researcher was available via telephone to answer questions prior to and during the completion of the survey. Teachers were asked to complete the survey during a staff meeting after reading the letter. Completed surveys were then placed directly into the return envelope, sealed and returned to the researcher via federal mail. Depending on the site, most surveys were returned within approximately two months of mailing them to each site. Several factors including upcoming holidays (the surveys were mailed close to Thanksgiving), and lack of regular staff meetings (which has been implemented to increase teachers' department, subject area or grade level collaborative work time) caused some delays and required repeated reminders from the researcher. Within the two-month window, 310 or 82% of the completed surveys were returned. All of the surveys returned were used for this study.

While the return rate was high at 82%, several of the surveys contained missing data, most of which was within the demographic section of the survey. For individual surveys missing one or two values within the professional learning community and collective efficacy sections, mean imputation was used to fill in the missing values (Fowler, 2009). While there were no surveys returned missing more than two values, had there been, they would have been excluded from the study. Therefore, none of the surveys returned were removed from the study.

At the elementary school level, the number of teachers completing surveys from their respective schools ranged from a low of 13 to a high of 25 (Table 4.2). Each of the elementary schools surveyed were likely to have several grade levels with two or three teachers per PLC team with some of the smaller schools having only one teacher per grade level. In these cases, the researcher discovered that the teachers would meet in PLC teams with another grade level either one grade higher or one grade lower than their current teaching assignment. The overall percentage of returned and usable surveys at the elementary level was 90.3%.

The K-8 schools had either 20 or 21 teachers at each site (Table 4.2). Similar to elementary schools within the district, the researcher learned that most grade levels at the K-8 schools consisted of two or three teachers in different content areas working together. For example, each site may have one math teacher and one science teacher working together. Similarly, English Language Arts (ELA) teachers might work with history teachers during PLC time. The overall percent of returned and usable surveys from the K-8 level was 80.3 %, slightly less than that of elementary.

There are two high schools within the district used for this study. The first high school has seven teachers while the second high school has 106 teachers (Table 4.2). The smaller high school used a similar model to the K-8 schools as previously explained. The other high school did have teams working together based on similar grade level and content areas. The overall percent of returned and usable surveys from the high school level was 81.5%, a similar percentage to that of the K-8 schools.

Outliers and Violation of Assumptions

Once surveys were returned and data entered into SPSS, the data were examined for outliers and violations of assumptions prior to the statistical analysis conducted in this study. To review each variable's distribution of scores, box plots were generated. The results showed a total of 13 outliers from the data set. Regression tests conducted with and without the outliers revealed an impact on the results. As a result, the remainder of the data analysis were conducted with the 11 univariate and 1 multivariate outliers removed resulting in a reduction of the number of cases from 310 to 297. Normality tests were also conducted to assess the mean values using the 5% Trimmed Mean feature. The data revealed no strong influence on the mean when reviewing the extreme scores. In order to explore possible interrelationships among PLC and collective efficacy variables, the 25-item professional learning community and collective efficacy scale were analyzed using a factor analysis. The data revealed many coefficients of .3 and above. The Kaiser-Meyer-Olkin value was .90, which exceeds the recommended value of .6 or above. Additionally, the Bartlett's Test of Sphericity was statistically significant at .000 demonstrating $p<.05$. Principal component analysis showed the presence of five

components with eigenvalues greater than 1, explaining 56.73% of the variance. Examination of the screeplot showed a clear break after the fifth component.

Based on the data, groups of variables were combined to create five new composite variables. The PLC variables were placed in one of three groups: collective goals (item numbers 3, 5, 11, 12, 13), collective actions (2, 4, 9, 10), and focus on results (1, 6, 7, 8). The collective efficacy variables were placed in one of two groups: task analysis (6, 7, 8, 9, 10, 11, 12) and group competency (1, 2, 3, 4, 5). Once this step was completed, another factor analysis was conducted. This data set revealed all coefficients at .3 or above. According to Pallant (2007), many coefficients should be above .3. The Kaiser-Meyer-Olkin value was .78 exceeding the recommended value of above .6 (Pallant). The Bartlett's Test of Sphericity revealed statistical significance at .000 demonstrating $p<.05$. A review of the total variance explained showed one component with an eigenvalues greater than 1, explaining 62.40% of the variance. An analysis of the screeplot revealed a clear break after the first component. The variables loaded as expected based on prior researchers who used the surveys.

Once the factor analysis was analyzed, the first assumption the researcher considered prior to multiple regression analysis was the sample size. Tabachnick and Fidell (2007, p. 123) suggest the following formula for calculating sample size by taking into account the number of independent variables used: $N > 50 + 8m$ (where m = number of independent variables). This study has three independent variables as explained above; therefore, the sample size should be at least 74, which is well within the ratio suggested by Tabachnick and Fidell.

To investigate any further remaining violation of assumptions, two multiple regression tests were conducted with task analysis as the composite dependent variable and collective goals, collective actions, and focus on results as the composite independent variables. The second set of data reviewed included the same composite independent variables with a change of composite dependent variable to group competence. According to Pallant (2007), a check of the independent variables should reveal some relationship with the dependent variable between .3 or above. All of the independent variables were above .3. The researcher further checked the correlation between the independent variables to ensure there was not a bivariate correlation of .7 or higher. Two independent variables, Collective Goals and Collective Action, contained a correlation of .745, which was previously recognized when conducting the factor analysis.

Since both correlations and collinearity diagnostics explore multicollinearity, the researcher then reviewed both the Tolerance and Variance inflation factor (VIF). According to Pallant (2007), a tolerance of greater than .10 is required along with a VIF of less than 10.0. Both data scores in this study represented numbers (tolerance = .4 and VIF = 2.4) that are well within the acceptable range. Therefore, there were no violations of the multicollinearity assumption. To review for major deviations from the assumptions of normality, linearity, and homoscedasticity, Pallant suggests analyzing the Normal P-P Plot and the Scatterplot. The Normal P=P Plot should show a relatively straight diagonal line from bottom left to top right (Pallant, p. 156). Also, the Scatterplot should show a relatively rectangular shape with most scores around the 0 point. A review of the Normal P-P Plot and the Scatterplot showed no deviation of assumptions regarding normality, linearity, and homoscedasticity.

Data Analysis of the Research Questions

Research Question 1.0: In what ways do teachers work in professional learning communities? (Subquestion 1.1: What PLC characteristics are demonstrated?)

To address the first research question and subquestion 1.1 one of the hypotheses was tested, number 1a (Table 4.1). Hypothesis 1a, there is a high level of implementation of PLC components perceived by teachers in the district, was explored in order to ascertain PLC characteristics present within teams and schools. The researcher analyzed the district mean scores for each of the PLC survey questions to examine the overall levels of professional learning community characteristics employed within teacher PLC teams (Table 4.3). This section of the instrument, comprised of 13 questions, asked participants to state their perceived level of participation with specific activities based on the six PLC characteristics as defined by DuFour and Eaker (1998) that occur during their collaborative team time.

A five point Likert scale was used with the following ratings: 1 Not at All, 2 Very Little, 3 Some Degree, 4 Quite A Bit, and 5 A Great Deal. A Cronbach Alpha reliability test was conducted resulting in a reliability of .89, suggesting strong internal consistency (Pallant, 2007). Based on the 5.0 Likert scale, the district's overall PLC mean score was 4.44. This is evidence of the level of PLC characteristics implemented within this district. The fact that this district has implemented the DuFour and Eaker (1998) PLC model for the past five years is further proof that the PLC model has been sustained within this district.

In order to analyze teachers' perceptions of each of the professional learning community characteristics, teachers responses were grouped into three categories: 1)

positive perceptions (those who responded with a 4, Quite a Bit or 5, A Great Deal); 2) negative perceptions (those who responded with a 1, Not at all or 2, Very Little); and 3) average (those who responded with a 3, Some Degree) (Table 4.3). Teacher responses were further grouped based on each of the PLC questions. Over 75% of participants responded with a 4 or 5 for each of the PLC questions suggesting that the vast majority of respondents perceive that most activities associated with their PLC teams are happening in their schools. It is notable that fewer than 6% of participants put a 1 or 2 with any of the questions.

The descriptive findings indicate the district as a whole conducts business using the professional learning community characteristics as defined by DuFour and Eaker (1998). One example of evidence of high levels of PLC characteristics is the first question that received the greatest agreement among participants. Ninety-four percent (94%) of participants surveyed responded with a 4 or 5 out of a Likert scale of a possible 5 stating that their team works together to clarify the essential outcomes for each unit of instruction using state and local standards and resources as well as student achievement data (Table 4.3). Regardless of each unit, most survey participants work together regularly with the goal to improve student learning.

Table 4.3: District Descriptive Professional Learning Community Statistics

Survey Questions	Mean	Std. Deviation	% 1/2 Not at all/ Very little	% 3 Some degree	% 4/5 Quite a bit/ A great deal
1. Essential outcomes	4.51	.657	3	4	94
2. Common pacing	4.53	.835	4	6	90
3. Judge student work	4.29	.836	2	15	83
4. Practice #3	4.19	.895	5	15	80
5. Monitor learning	4.60	.721	1	7	92
6. Interventions	4.55	.665	0	9	91
7. Additional support	4.22	.832	1	23	76
8. Use student data	4.47	.740	1	10	89
9. Practice #8	4.53	.676	1	6	93
10. Norms/Protocols	4.54	.731	1	9	90
11. S.M.A.R.T. goals	4.50	.714	1	8	91
12. Celebration	4.42	.719	1	10	89
13. Shared vision	4.35	.778	1	15	84

N=297 district teachers and principals.

As seen in Table 4.3, six additional questions received the highest ratings of 90% or higher. For example, 93% of teachers responded with a 4 or 5 that their PLC team members use student achievement results from a variety of assessments to improve their effectiveness in helping all students learn. Participants in this study have a clear focus on helping all students learn and do what is necessary to ensure they do indeed learn the intended materials. The third highest overall percentage was question 5 in which 92% of participants put a 4 or 5 score. Question 5 sought to determine if PLC teams monitor all students' learning at least four times each year on essential outcomes through a series of team-developed (common) formative assessments that are aligned with district and state standards. It is apparent that most teachers work together in part to create common formative assessments that lead to data comparison between students.

To further consider the percentage of question 5 referring to common assessments, the researcher reviewed the score referencing common pacing as assessment and pacing should be used in conjunction with each other. Question 2 asked participants if their PLC team works together to establish common pacing for each unit of instruction. The data revealed that 90% of participants put a 4 or 5 score indicating that there is little discrepancy between the use of common pacing guides and teachers creating common assessments.

Question 7 received the lowest percent of participants (76%) putting a score of 4 or 5 and the highest percent (23%) of participants scoring a 3. This question was designed to unwrap the extent to which students are required, rather than invited, to devote extra time and receive additional support until they are successful. Thus many of the respondents believe their schools need to focus on a system of interventions to better support students who are having academic difficulty. The high percentage of a 3 score, Some Degree, demonstrates that several schools within the district are attempting to implement a pyramid of interventions to support all learners.

Table 4.3 also shows that the question receiving the lowest mean score among participants of 4.19 was survey question 4 referring to teams practicing working together to clarify the criteria used to judge the quality of student work consistently, and the highest mean of 4.60 was question 5, their team monitors student learning at least four times each year on essential outcomes through a series of team-developed (common) formative assessments that are aligned with district and state standards. Most of the mean scores, 9 out of the 13 PLC survey questions, were in the range of 4.42 or higher out of a possible 5.0 scale. Interestingly, the highest percentage of teachers and

principals selecting a 4 or 5 score was question 1 at 94% and the lowest was question 7 at 76%. Overall, the high mean scores for each of the PLC questions demonstrate that teachers agree or strongly agree that their school is implementing the professional learning community practices as defined by DuFour and Eaker (1998). This is also evidenced by reviewing Table 4.5. As a result of the data, the hypothesis is excepted and will remain.

Research Question 1.0: In what ways do teachers work in professional learning communities? (Subquestion 1.2: How do schools and PLC teams differ in their degree of implementation?)

To further analyze the quantitative data and better address research question 1.0 and subquestion 1.2, descriptive statistics are presented for each of the participating sites. The researcher tested one hypothesis, 1b (Table 4.1), which stated that there is variation in the level of perceived implementation among schools and grade level teams within schools. To test this hypothesis, participant responses were analyzed by individual participating sites. Table 4.4 provides a breakdown of participants' responses to each site's overall PLC mean, overall collective efficacy mean, overall PLC and collective efficacy percentage of participants putting a 3, 4, or 5 score, 2004 API, and API change over the last five years since implementing the PLC model as defined by DuFour and Eaker (1998).

Table 4.4: Overall Site Descriptive Professional Learning Community (PLC) and Collective Efficacy (C.E.) Statistics

School	Overall PLC Mean	Overall C.E. Mean	Overall PLC %3-5 Some degree/ Quite a bit/ A great deal	Overall C.E. %3-5 Some degree/ Quite a bit/ A great deal	API 2004	5 Year API Change
Elementary Schools (E.S.)						
E.S. 1	4.72	4.67	98	100	577	+171
E.S. 2	4.82	4.74	100	99	N/A	+32*
E.S. 3	4.29	4.25	97	96	702	+45
E.S. 4	4.58	4.30	100	98	640	+132
E.S. 5	4.44	4.33	100	98	673	+77
E.S. 6	4.79	4.64	100	98	697	+89
E.S. 7	4.10	4.63	79.6	100	676	+116
E.S. 8	4.91	4.80	100	99	786	+40
E.S. 9	4.11	3.72	96	93	613	+93
E.S. 10	4.44	4.10	99	98	601	+171
K-8 Schools (K-8)						
K-8 1	4.34	4.54	100	99	778	+78
K-8 2	4.37	4.28	100	98	829	+76**
K-8 3	4.36	4.31	99	99	721	+100
Day School (D.S.)						
D.S. 1	4.38	4.20	100	98	N/A	+124
High Schools (H.S.)						
H.S. 1	4.28	4.18	100	94	359	+193
H.S. 2	4.33	4.25	98	97	680	+28

Scores based on a five-point Likert Scale.
*School opened in 08-09 school year. Data indicates two years growth. School's API was above 800 first year scores were reported. The API is the Academic Performance Index used by the state of California to assess student growth in achievement.
**School's API was above 800 five years ago.

Overall, the results of this data show that the PLC mean and the collective efficacy mean are positively related. E.S. 1, E.S. 2, E.S. 6, and E.S. 8, for example, have very high levels of both PLC characteristics and levels of collective efficacy. For instance, E.S. 2 has an overall PLC mean of 4.82 and an overall collective efficacy mean of 4.74, both means represent the second highest scores within the district. The highest overall PLC mean of 4.91 and the highest overall collective efficacy mean of 4.80 was found in E.S. 8 showing further evidence that teams have higher levels of PLC

implementation coupled with higher levels of collective efficacy. E.S. 1 has an overall PLC mean of 4.72, the fourth highest PLC mean within the district. E.S. 1 also has an overall collective efficacy mean of 4.67, the second highest within the district. E.S. 6 had an overall PLC mean of 4.79 the third highest mean along with a collective efficacy mean of 4.64 the fourth highest. Each of these schools demonstrate both high levels of PLC characteristics and high levels of collective efficacy.

When analyzing the sites with the lowest PLC and efficacy levels, the data revealed they indeed were consistent with the hypothesis. For example, one of the lowest overall PLC means was found in E.S. 9 at 4.11. The data also reveal a lower level of collective efficacy mean score of 3.72. H.S. 1 had a PLC mean of 4.28 and a collective efficacy mean score of 4.18. K-8 2 had a PLC mean of 4.37 and a collective efficacy mean of 4.28. While these schools represent lower levels of PLC characteristics and collective efficacy, their mean scores are still rather high.

The evidence is further supported when analyzing the percentages of teachers and principals selecting a score of 3-5. E.S. 1, 2, 6, and 8 had between 98 and 100% as an overall PLC percentage of 3, 4, or 5 scores. Similar results of 98-100% placing a 3, 4, or 5 were discovered with the overall levels of collective efficacy within each of these schools. An analysis of this data show that the percentage of 3, 4, or 5 scores and the overall mean are indeed aligned and show very strong relationships between professional learning community characteristics and levels of perceived collective efficacy. Conversely, E.S. 9, H.S. 1, and K-8 2 had between 96 and 100% of their teachers responding with a 3 score or higher in overall PLC and between 93 and 98% with regard

to overall levels of collective efficacy. The overall percentages of both PLC characteristics and collective efficacy are further support of the hypothesis.

Out of the 16 schools that participated in this study the only instances when the data showed a higher mean for collective efficacy than for PLC characteristics was when reviewing E.S. 7 and K-8 1. While this was indeed the case there was still a relationship between both constructs. The remainder of the sites showed the PLC mean to be somewhat higher than their level of perceived collective efficacy. For example, 9 of the 14 sites had an overall higher PLC mean than collective efficacy within .11, 2 sites were within .18, and the remainder of the sites were within .39.

Additional support is found when analyzing the API change over the past 5 years. One example is E.S. 1 with a high overall PLC mean of 4.72 and a high overall collective efficacy mean of 4.67. This site's API has increased by 171 points since implementing the PLC model. On the other hand, E.S. 3 has a lower overall PLC mean of 4.29 and collective efficacy mean of 4.25. While E.S. 3 has shown an API gain of 45 points over the past 5 years, their API increase when compared to E.S. 1 is 126 points less, their PLC mean score is .43 less, and their collective efficacy is .42 less. This is clear empirical evidence that when PLC teams work together to implement the PLC characteristics of DuFour and Eaker (1998) and demonstrate higher levels of collective efficacy, student achievement improves. Overall, the hypothesis for this research question is supported by the data and thus accepted. It is important to note that the similarities and differences between the PLCs, subquestion 1.2, will be further explored in detail in chapter five through the qualitative data collected from the eight grade level teams.

Research Question 2.0: What is the relationship of collective efficacy to PLCs? (Subquestion 2.1: What is the level of collective efficacy in the case study district?)

To explore the second research question regarding the relationship between collective efficacy and PLCs, hypothesis 2a, there is a high level of collective efficacy in district schools, was examined. Similar to addressing the first research question, descriptive statistics were used to determine the level of collective efficacy within PLC teams. The researcher reviewed the overall data to determine the strength of collective efficacy within PLC teams, which was gleaned from the collective efficacy section of the survey. Similar to the PLC section of the survey instrument, findings indicate that overall the district has high levels of perceived collective efficacy. Table 4.5 reveals district mean scores by question, standard deviation, percent of participants responding with a 1 or 2 score, 3 score, and a 4 or 5 score.

Table 4.5: District Descriptive Collective Efficacy Statistics

Survey Questions	**Mean**	**Std. Deviation**	**% 1/2 Not at all/ Very little**	**% 3 Some degree**	**% 4/5 Quite a bit/ A great deal**
1 challenging students	4.47	.662	0	9	91
2 motivate students	4.35	.712	0	13	87
3 master curriculum	4.62	.600	0	5	95
4 hard work	4.54	.846	4	4	92
5 have needed skills	4.30	.908	5	11	84
6 close learning gap	4.18	.718	1	14	85
7 engaging lessons	4.17	.759	2	15	83
8 motivated to learn	4.19	.801	3	14	83
9 structures/practices	4.56	.614	0	6	94
10 safety concerns	4.71	.556	1	1	98
11 home life difficulties	3.81	.893	6	30	64
12 critical thinking	4.06	.834	3	21	76

Note: Items 4, 5, 8, and 10 were reverse coded.

There are 12 collective efficacy questions utilizing the same 5-point Likert scale, as described above, asking participants to determine their perceived level of collective efficacy within their PLC team. The collective efficacy questions contain two subscales with 7 task analysis questions and 5 group competency questions relating to specific aspects of working collaboratively. Task analysis refers to each teacher determining the degree to which their team can complete the task. For example, in a PLC model, how much do teachers truly believe they can help ensure all students learn when working collaboratively. This factor will determine whether teachers posses higher or lower levels of collective efficacy. Group competency is when teachers decide how well the PLC team can accomplish the task. Using the same example above, if a teacher does not believe the other members in his team can reach all students, his collective efficacy will be lower than if he believes his group can help all students achieve at higher levels. A review of a Cronbach Alpha reliability test for the collective efficacy section of the survey instrument revealed a reliability of .86 demonstrating very good internal consistency among the collective efficacy questions. As previously stated, Pallant (2007) suggests values of .8 or above.

To examine teachers' level of perceived collective efficacy within their PLC team, teacher responses were divided into three groups as described above (4/5, 3, or 1/2). These responses were further grouped by collective efficacy question. Over 82% of respondents placed a 4 or 5 score with 10 of 12 collective efficacy questions. The analysis also revealed an overall district level of perceived collective efficacy mean score of 4.33. Both the district PLC mean score of 4.44 and the collective efficacy mean score of 4.33 represent high levels of collective efficacy within their PLC teams when using the

PLC characteristics proposed by DuFour and Eaker (1998). It is also important to review the percentage of participants scoring a 1 or 2 on the collective efficacy section of the survey. Fewer than 7% of respondents scored a 1 or 2 with any of the questions with no participant choosing a 1 or 2 score on 4 of the questions.

The results of Table 4.4 demonstrate the district has overall high levels of collective efficacy within their PLC teams as is evidenced by 7 of the 12 collective efficacy questions revealing a mean score of at least 4.30 out of a possible 5.0 scale. Additionally, four of the remaining 12 questions showed a mean score between 4.06 and 4.19. One example of high collective efficacy levels is question 10 which received the greatest agreement among participants. Ninety-eight percent (98%) of participants responded with a 4 or 5 stating that learning for students is more challenging because they worry about their safety. While the surrounding neighborhoods are unsafe at all of the schools within this district, teachers, administrators, and support staff work hard to ensure a safe environment conducive to their students learning, which is taking place in part because of the PLC model implementation.

There were four additional questions receiving a 4 or 5 score of 91% or higher. The second highest percentage of 4 or 5 response was question 3 (95%) stating that teachers in their school believe it is their responsibility to help every child master grade-level standards. This survey item also received the second highest mean score of 4.62. Clearly this response aligns with the PLC model of ensuring all students learn. This response also aligns to the PLC survey question 9 as mentioned above. The third overall highest percentage was question 9 where 94% of participants put a 4 or 5 score. This question looked at the structures, practices, and procedures in place to help ensure all

students learn. This survey item also received the third highest mean score of 4.56 demonstrating that teachers believe the PLC model is helping all students thereby resulting in higher levels of collective efficacy among the teachers and better outcomes for the students.

The fourth highest percentage of 4 or 5 responses was question 4 (92%) seeking to determine the degree to which teachers believe the PLC teams give up if a student does not want to learn. The analysis also revealed the fourth highest mean score of 4.54. An overwhelming number of teachers feel they work hard to ensure all students are academically successful. The fifth highest percentage was 91% of teachers placing a 4 or 5 score on question 1. Question 1 also had the fifth highest mean score of 4.47. This question taps into teachers' perceptions of working together to meet the needs of challenging students. Apparently, teachers feel they work together to reach all of their students, which is an expectation of the DuFour and Eaker (1998) PLC model.

The data also revealed two questions showing a lower percentage of respondents putting a 4 or 5 with question 11 at 64% and question 12 at 76%. These two items also had the highest number of 3 score responses, *Some Degree*, with 30% and 21% respectively. The 3 score shows that while teachers may not have accomplished what these two questions are seeking, teachers feel they are implementing strategies to work towards them. The question receiving the lowest percentage of 4 or 5 scores, 64%, and lowest mean, 3.81, was question 11. Question 11 asked to what degree teachers perceived their team as having strategies for supporting students who face difficulties at home. Clearly, some teachers feel they have strategies to support their students while others do not feel as strongly. Teachers further understand that their students face

difficulties outside both teachers' and students' locus of control. Knowing that outside support is limited, teachers indicate they continue to work in collaboration to ensure high levels of learning for all students in their schools. The large percentage of teachers scoring question 11 with a 3 demonstrates that teachers may only be moderately focusing on strategies to support students who have home life difficulties.

Question 12 received the second lowest percentage of 4/5 scores, with 76%, along with the second lowest mean of 4.06. Question 12 also netted the second highest percentage of 3 scores at 21%. Question 12 tapped into the degree of critical thinking opportunities incorporated into student lesson planning. The data showed that while the majority of the teachers felt their team was successfully implementing critical thinking into their lessons, not everyone agreed; however, a large percentage believe they are trying to incorporate critical thinking as is evidenced by the high percentage of 3 scores. Questions 11 and 12 demonstrate that while there is work to do in these areas, teachers believe they are implementing procedures to address them.

Overall, the high mean scores and high percentage of participants scoring a 4/5 for each of the collective efficacy questions demonstrate that teachers agree or strongly agree that their school has high levels of collective efficacy when implementing the professional learning community practices as defined by DuFour and Eaker (1998). This is also evident in Table 4.4 discussed previously. Analyzing both sections of the survey provides evidence that hypothesis 2a is demonstrated through the descriptive analysis and thus will remain.

Research Question 2.0: What is the relationship of collective efficacy to PLCs? (Subquestion 2.2: What is the relationship between PLC characteristics and collective efficacy?)

The second research question and subquestion 2.2 contains two hypotheses, 2b and 2c (Table 4.1). Hypothesis 2b states there is a positive relationship between collective efficacy and PLCs and 2c claims PLC is a predictor of higher levels of collective efficacy. In order to explore these hypotheses, several tests were conducted for the PLC and collective efficacy components of the survey. The first set of data collected was from the Pearson Product Moment Correlation Coefficient Test represented in Table 4.6. This test was developed to evaluate the degree of linear relationships between two variables. It yields an r coefficient that calculates a confidence level (Weinberg & Goldberg, 1979). Cohen (1988) suggests the following guidelines: r = .10 to .29 (small); r = .30 to .49 (medium); and r = .50 to 1.0 (large).

Table 4.6: Correlations Among Professional Learning Community Subscales and Collective Efficacy Subscales (n=297)

	1	2	3	4	5	6	7
1. PLC Total	-						
2. CE Total	.533**	-					
3. Collective Goals	.918**	.535**	-				
4. Collective Actions	.900**	.421**	.762**	-			
5. Collective Results Focus	.839**	.455**	.646**	.624**	-		
6. Group Competence	.383**	.880**	.399**	.284**	.329**	-	
7. Task Analysis	.563**	.931**	.554**	.458**	.479**	.647**	-

** Correlation is significant at the 0.01 level (2-tailed) p<.01

All 13 statements of the PLC survey section were combined to represent a PLC total score; the same procedure was carried out for the 12 collective efficacy statements. Additionally, the PLC survey section was divided into 3 subscales and the collective efficacy into 2 subscales as previously mentioned. In analyzing the PLC total with the CE total, a significant correlation was discovered ($r = .533$; $p<.01$) suggesting a positive relationship between teachers' self-perceived degree their team functions as a professional learning community as defined by DuFour and Eaker (1998) and their level of perceived collective efficacy.

The PLC total was also found to be significantly related to group competence ($r = .383$; $p<.01$) and task analysis ($r = .563$; $p<.01$) demonstrating further evidence that professional learning community team work as perceived by teachers is related to their level of collective efficacy. As a result, when teachers view themselves as a functioning PLC team, their level of perceived collective efficacy may be increased. Overall, the researcher's analysis found a strong, positive correlation between the following variables as demonstrated in Table 4.6.

To further analyze the research question, multiple regression analyses were conducted (Table 4.7) to determine the selection of variables and their paths used for the postulated model tested using structural equation modeling (SEM) and to examine the effect of collective efficacy on PLCs. As previously mentioned, the dependent variables of task analysis and group competence and collective goals, collective actions, and focus on results as the independent variables were analyzed. The tests confirmed a low correlation between collective actions and group competence discovered when conducting the Pearson correlation tests previously described. The final regression

revealed that 17.1% of the variance in group competence is explained by PLC characteristics and 33.2% of the variance in task analysis is explained by PLC characteristics. These variables were used in conducting the SEM tests.

Table 4.7: Multiple Regression Results

Dependent measures	R^2	Independent Measures	B	SE B	β
Group Competency	.171	Collective Goals	.378	.089	.385**
		Collective Actions	-.093	.097	.106**
		Focus on Results	.143	.090	.178*
Task Analysis	.332	Collective Goals	.406	.104	.538**
		Collective Actions	.022	.114	.033*
		Focus on Results	.203	.105	.331**

*p<0.05 **p<.01

The skewness was also reviewed and found to be acceptable with a range from -0.3249 to -0.9586 as shown in Table 4.8.

Table 4.8: Skewness of Grouped Variables (n=297)

	Group Competency	Task Analysis	Collective Goals	Collective Actions	Results Focus
Skewness	-0.9367	-0.3249	-0.6565	-0.9586	-0.6878

Once multiple regression tests were sufficiently reviewed, SEM model testing was conducted using the same five grouped variables explained previously. SEM is a series of statistical methods testing the goodness of fit of data to a proposed model. Certain criteria must be met to ensure mediation in the model. The independent and dependent variables must all be correlated (Baron and Kenny, 1986). Further, SEM is extremely sensitive to sample size as discussed above. The researcher used SEM with EQS 6.1 for Windows to fit the hypothesized path model to data and to address the main research question.

Figure 4.1 displays the goodness of fit statistics of the relationship between the independent variables, Collective Goals/Collective Actions/ Results Focus, and the dependent variables, Group Competency and Task Analysis. Model fit decisions were based on four indices: comparative fit index (CFI), normed fit index (NFI), goodness of fit index (GFI), and root mean square error of approximation (RMSEA). SEM literature suggests that model fit is excellent when the coefficient for CFI, NFI, and GFI is greater than 0.95; and model fit for the three is considered adequate if the coefficient is greater than 0.90 (Byrne, 2006; Hu & Bentler, 1999), with a perfect fit indicated with a score of 1.00. A coefficient less than 0.05 demonstrates an excellent fit and a coefficient under 0.08 indicates an acceptable fit for the RMSEA (Kline, 1998) and should fall between the range indicated by the 90% Confidence Interval of RMSEA. Cronbach's Alpha should be at least .70. For the proposed model, all model fit indices demonstrate an adequate fit of the data to the model, with the CFI = .902, the NFI = .903, and the GFI = .911. The data revealed the RMSEA of .515 to be greater than the recommended .08 but within the 90% Confidence Interval of RMSEA. Cronbach's Alpha of .834 indicates strong reliability of the model.

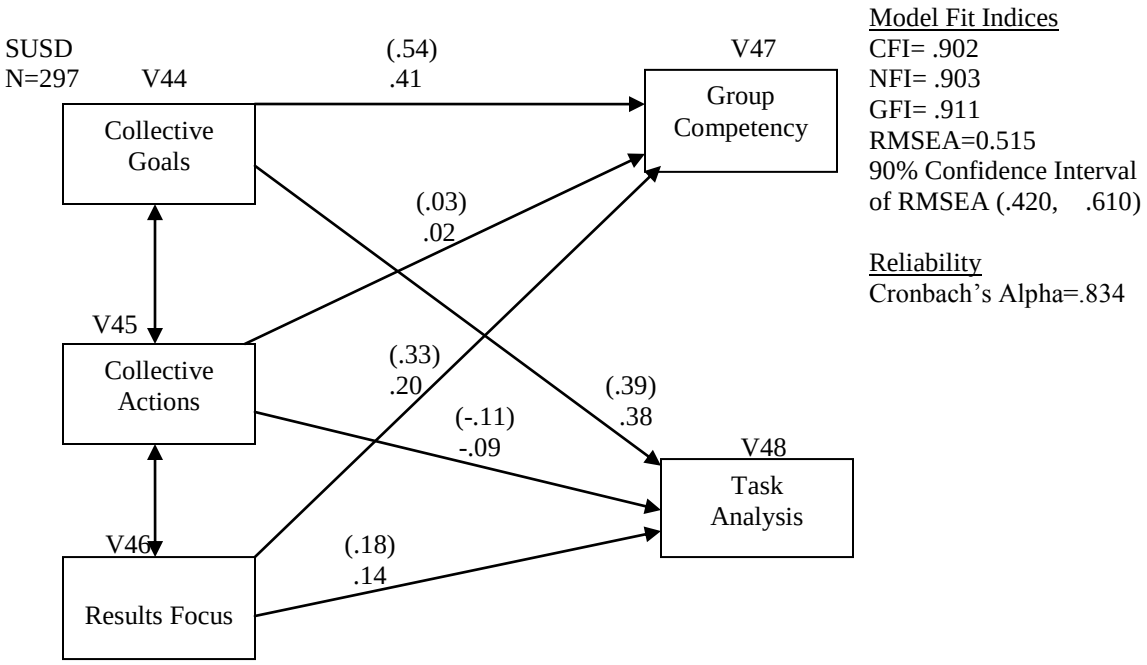

Figure 4.1: Relationship between Collective Goals/Collective Actions/ Results Focus and Group Competency and Task Analysis with standardized (and unstandardized) coefficients.

Figure 4.1 also shows the SEM results for both standardized and unstandardized coefficients. The unstandardized coefficients are in parentheses. Tabachnick and Fidell (2007) state that it is sometimes difficult to interpret unstandardized regression coefficients because of differences in scales. As a result, the researcher examined the standardized coefficients for this study. The paths from each of the PLC variables, V44, V45, and V46, to the collective efficacy variables, V47 and V48, are standardized factor loadings. The results demonstrate a significant indicator between PLC characteristics and levels of perceived collective efficacy as noted by a positive relationship between all variables with one exception between V45 and V48. For example, increased agreement among collective goals is a significant indicator of increased levels of group competency and task analysis; the greater the PLC team agrees to collective goals, the greater the level of group competency and task analysis leading to increased levels of collective

efficacy. The SEM findings are not surprising when reviewing the data set conducted for addressing research question two. The PLC characteristics are highly correlated within each grouped IV as are the collective efficacy DVs. Both hypotheses 2b and 2c have been proven true and will remain.

Summary

Chapter four has presented an analysis of the data from this study that surveyed teachers and site principals from 16 elementary, middle, and high schools regarding their perceptions of the degree to which their schools function as professional learning communities and their perception of collective efficacy. The response rate was high with 82% returned and usable though 13 were removed from the study as outliers. The mean score on the PLC section of the survey ranged from a high of 4.91 to a low of 4.10 with 5.00 being the highest possible score, suggesting that most of the teachers and site principals in all of the schools who participated agreed or strongly agreed that their schools are implementing the professional learning community characteristics as defined by DuFour and Eaker (1998). The collective efficacy mean score ranged from a high of 4.80 to a low of 3.72, suggesting that many of the teachers and site principals perceive their level of collective efficacy to be high when relating to their PLC team work. Participant survey responses showed that over 82% of the participants agreed or strongly agreed with every item on the survey with the exception of four items with a 4 and 5 response at 80%, 76%, 64%, and 76% respectively. There were also 8 items that revealed between 3 and 6% of participants who disagreed or strongly disagreed with the questions, suggesting that while many teachers perceive that their schools operate under the tenets of a PLC, not all teachers feel that way.

In relating teacher's levels of perceived collective efficacy within their professional learning community, a statistically significant correlation was discovered. The correlations were further supported by the multiple regression tests and SEM postulated model exploration. This positive correlation and goodness of fit model indicates that teachers who perceive that their schools operate as PLCs have an increased level of collective efficacy and the findings of 2 of the 3 posited research questions have been addressed. The quantitative research findings of this study support the hypotheses of the research questions analyzed in chapter four and are thus all accepted. Professional learning communities do indeed appear to function better with higher perceived levels of collective efficacy. The implications of these findings are discussed in chapter six. Chapter five presents the qualitative data collected through one-on-one teacher and principal interviews and documentation and will also address the remaining research question.

CHAPTER 5: QUALITATIVE FINDINGS

As stated in chapter one, the study reported here examined the possible relationship between professional learning communities as defined by DuFour and Eaker (1998), collective efficacy (Goddard et al., 2004), and the role site leadership (Leithwood, 1994) plays in a PLC. This chapter presents the findings from the qualitative data collected for this study. The following analysis is reported by each of the four selected sites as the unit of analysis and is framed to the researcher's theoretical framework that guided this study. To determine the sites for the second phase, data from the 297 K-12 teacher and principal surveys, descriptive tests were conducted to establish each school's overall mean score of professional learning community characteristics and levels of perceived collective efficacy, student population, ethnicity breakdown, and other demographic characteristics as explained in chapter three were reviewed. While the descriptive data revealed each of the schools in this study had mean scores showing high levels of PLC characteristics and collective efficacy, two of the schools chosen had slightly higher levels of perceived collective efficacy allowing for a comparison of the findings between sites. In addition, PLC teams within each site demonstrated differing degrees of collective efficacy, which were also examined. Years of teaching and administrative experience ranged from one year to almost 36 years for the participants in this phase of the study.

The study participants are all public school teachers and principals within the Sunnyvale Unified School District[1]. The researcher decided to use only upper grade level

[1]Sunnyvale School District is a pseudonym for the school district in this study to ensure the anonymity of the participants, as are all the associated names.

PLC teams as a review of the literature demonstrated most studies to date have been conducted in the lower elementary grade levels. Teachers from fourth and fifth grade teams at the elementary and sixth through eighth at the K-8 schools were interviewed as well as the principal from each school.

As interview data were transcribed and examined using HyperRESEARCH, codes relevant to PLC, collective efficacy, and transformational leadership characteristics were identified and used to sort and categorize data. As presented in chapter four, the six PLC characteristics were combined into three subscales: Collective Goals, Collective Actions, and Focus on Results. Similarly, collective efficacy characteristics were combined into two subscales as described in chapter four: Assessment of Teaching Competence and Analysis of the Teaching Task. The six transformational leadership characteristics were grouped into two groups: Intellectual Stimulation, High Performance Expectations, and Structure and the second group includes the remaining three characteristics of Individualized Support, Appropriate Modeling, and Productive School Culture. Generally, the codes used from interviews revealed that the schools and PLC teams with higher levels of perceived collective efficacy also demonstrated more characteristics of PLC to a higher degree and had higher student achievement, as compared to the schools with lower perceived levels of collective efficacy, which exhibited less transformation in becoming a PLC, and had lower student achievement.

The qualitative data were collected over a one-week period in February 2010 with the researcher visiting four sites during the teachers' instructional day to conduct one-on-one interviews with teachers and site principals and to collect relevant documents. A total of 23 interviews were conducted: five one-on-one teacher interviews at three sites,

four teacher interviews at the fourth site, and four principal interviews. At one site an additional focus group interview with two participants was conducted. Data from three of the interviews were not incorporated into the findings because only one team member was available to participate. This single data source was considered insufficient to generalize to the team level. In addition to the 297 usable surveys collected, the 21 one-on-one teacher and principal interviews from four purposefully selected schools were used to elaborate and triangulate with the survey data and to answer the how and why questions regarding PLC implementation.

Table 5.1 represents the list of qualitative participants and personal characteristics to include: participant code used throughout chapter five, total number of years teaching, number of years with current PLC team, and participants' primary PLC team.

Table 5.1: Qualitative Participants

Participant Code	Years Teaching	Years with Current PLC Team	Primary PLC Team
E.S. 10			
Teacher 1A	6	1	5th grade
Teacher 2A	10	6	5th grade
Teacher 3A	13	3	4th grade
Teacher 4A	15	3	4th grade
Principal A		N/A	Admin.
E.S. 6			
Teacher 1B	7.5	7	5th grade
Teacher 2B	17	7	5th grade
Teacher 3B	8	1	4th grade
Teacher 4B	8	1	4th grade
Principal B	5	N/A	Admin.
K-8 3			
Teacher 1C	2	1	7/8th grade ELA
Teacher 2C	6	3	7/8th grade ELA
Teacher 3C	11	7	6th grade
Teacher 4C	34.5	10	6th grade
Principal C		N/A	Admin.
K-8 1			
Teacher 1D	5	5	6/7th ELA, Science, History
Teacher 2D	22	1	6/7th History
Teacher 3D	9	1	7/8th ELA, Science
Teacher 4D	1	1	7/8th ELA, Science
Teacher 5D	23	1	7/8th Math
Principal D		N/A	Admin.

As can be seen in Table 5.1, most of the teachers had a moderate level of teaching experience (6-10 year range); however, eight of the 21 had only one year on their current PLC team and one school (School D) had four members with only a one-year tenure on the team.

Context of the Schools

The first school selected, E.S. 10, is one of the district's K-5 elementary schools, with an overall PLC mean score of 4.44, an overall collective efficacy mean score of

4.10, and a survey participation rate of 84%. E.S. 10 is located in the heart of the city and is one of the oldest elementary schools, founded in 1954. Many of the families work in the agricultural and farm industry, which surrounds the city. The current enrollment at E.S. 10 is approximately 540 students with 25 classroom teachers. The student population consists of 95.4% Hispanic, 53% English Learners, 10% students with disabilities, and 100% of the students are classified as socioeconomically disadvantaged, which is a reflection of the poverty in the surrounding neighborhoods.

Several years ago, E.S. 10 was a level 4 Program Improvement (PI) site, the lowest performing elementary school in the district, and spent two years under an Alternative Governance Board. E.S. 10 was not able to meet Adequate Yearly Progress (AYP) data requirements as defined by federal mandates in English Language Arts (ELA) and Mathematics both for schoolwide and statistically significant subgroups. Then in 2005, E.S. 10 began to transform by making professional learning communities a priority. Shortly after PLC implementation, E.S. 10 was removed from PI status and has had an overall API growth of 200 points from a score of 601 to 801. E.S. 10 has also met all AYP goals since PLC implementation. Table 5.2 shows the percent of students achieving at the proficient or advanced level between 2006-2009 on state testing. The percentage of students at the proficient or advanced level increased from 39 to 53% in ELA and 52-64% in math. When comparing the data to both district and state levels, E.S. 10 has been successful in closing the gap in ELA and remains ahead of both district and state percentages in math.

Table 5.2: Percentage of Students Achieving at the Proficient or Advanced Level

Subject	E.S. 10			District			State		
	06-07	07-08	08-09	06-07	07-08	08-09	06-07	07-08	08-09
English Language Arts	39	42	53	43	47	52	43	46	50
Mathematics	52	52	64	44	47	53	40	43	46

The quantitative data demonstrated both high levels of PLC characteristics and collective efficacy at E.S. 10 though a review of each PLC team data showed the 5th grade team as a stronger PLC with overall higher levels of perceived collective efficacy than the 4th grade team. Participant teaching experience ranged from 6 to 15 years. The PLC elements were categorized into two main questions with nine subquestions (Appendix B) and are discussed in depth in the proceeding pages. The degree of PLC implementation was determined by the depth of PLC understanding in the responses and through implementation of the six PLC characteristics.

The sections that follow present the data collected from the one-on-one teacher and site principal interviews and the documentation collected at each of the four sites selected for this phase of the study. Table 5.3 represents the list of E.S. 10 participant teams and other characteristics to include: average years teaching, average years with current PLC team, primary PLC team, and PLC team mean and collective efficacy mean scores.

Table 5.3: E.S. 10 Participants

Participant	Average Years Teaching	Years with Current PLC Team	Primary PLC Team	PLC Team Mean	Collective Efficacy Mean
Team 1	8	4	5th grade	4.30	4.04
Team 2	14	3	4th grade	3.77	2.92
Principal 5A			Admin.		

The next school selected, E.S. 6, is one of the district's K-5 elementary schools, with an overall PLC mean score of 4.79, an overall collective efficacy mean score of 4.64, and a survey participation rate of 91%. E.S. 6 is located in the northern portion of the city. Similar to E.S. 10, many of the families work in the agricultural and farm industry, which surrounds the city. The current student enrollment at E.S. 10 has approximately 390 students and 23 classroom teachers. The student population consists of 82.6% Hispanic, 21% English Learners, 9% students with disabilities, and 80% of the students are classified as socioeconomically disadvantaged, which reflects the poverty in the surrounding neighborhoods.

In 2005, E.S. 6 began to transform by making professional learning communities a priority. Since PLC implementation, there has been an overall API growth of 202 points from a score of 697 to 849, and E.S. 6 has met all AYP goals for the past five years. Table 5.4 shows the percent of students achieving at the proficient or advanced level between 2006-2009 on state testing. The percentage of students at the proficient or advanced level increased from 48 to 63% in ELA and from 70 to 74% in math. When comparing the data to district and state levels, E.S. 6 is ahead of both district and state percentages in ELA and math.

Table 5.4: Percentage of Students Achieving at the Proficient or Advanced Level

Subject	E.S. 6			District			State		
	06-07	07-08	08-09	06-07	07-08	08-09	06-07	07-08	08-09
English Language Arts	48	55	63	43	47	52	43	46	50
Mathematics	70	75	74	44	47	53	40	43	46

The quantitative data revealed E.S. 6 has the third highest mean score in PLC characteristics and the fourth highest mean score in perceived levels of collective efficacy within the district. It is then no surprise that there was not a less effective nor more effective PLC team interviewed. Thus, the 4th and 5th grade teams were selected for the qualitative phase of this study because the researcher wanted to explore the highest possible grade levels. Participant teaching experience ranged from 7.5 to 17 years. The same protocol as mentioned above was used in the interview process.

Table 5.5 represents the list of E.S. 6 participants and other characteristics to include: average years teaching, average years with current PLC team, primary PLC team, and PLC team mean and collective efficacy mean scores.

Table 5.5: E.S. 6 Participants

Participant	Average Years Teaching	Years with Current PLC Team	Primary PLC Team	PLC Team Mean	Collective Efficacy Mean
Team 1	12	7	5th grade	4.93	4.42
Team 2	8	1	4th grade	5.00	4.75
Principal 5B			Admin.		

The next school selected, K-8 3, opened in 1947 and is one of the district's three K-8 elementary schools, with an overall PLC mean score of 4.36, an overall collective efficacy mean score of 4.31, and a survey participation rate of 95%. K-8 3 is located in the northern section of the district approximately five miles north from the city in a semi-rural area. Similar to E.S. 10 and E.S. 6, many of the families work in the surrounding area rich in agricultural. The current student enrollment at K-8 3 has approximately 483 students and 22 classroom teachers. The student population consists of 40.2% Hispanic, 18% English Learners, 6% students with disabilities, and 58% of the students are

classified as socioeconomically disadvantaged, which is a reflection of the poverty in the surrounding neighborhoods.

In 2006, K-8 3 began their professional learning community journey. Since PLC implementation, there has been an overall API growth of 100 points from a score of 747 to 847, and K-8 3 has met all AYP goals for the past five years. K-8 3 went from a PI school to a school that recently applied for a National Blue Ribbon. Table 5.6 shows the percent of students achieving at the proficient or advanced level between 2006-2009 on state testing. The percentage of students at the proficient or advanced level increased from 54 to 62% in ELA and from 56 to 64% in math. When comparing the data to both district and state levels, K-8 3 has successfully remained ahead of both district and state percentages in ELA and math.

Table 5.6: Percentage of Students Achieving at the Proficient or Advanced Level

Subject	K-8 3			District			State		
	06-07	07-08	08-09	06-07	07-08	08-09	06-07	07-08	08-09
English Language Arts	54	56	62	43	47	52	43	46	50
Mathematics	56	61	64	44	47	53	40	43	46

The quantitative data revealed K-8 3 has the eleventh highest mean score in PLC characteristics, the eighth highest mean score in perceived levels of collective efficacy and is second out of the three K-8 schools within the district in both areas. Upon further analysis, differences were discovered with regard to PLC effectiveness between the two PLC teams interviewed. As a result, the 6th and 7/8th grade teams were selected for the qualitative phase of this study to allow the researcher to explore the highest possible grade levels and further seek differences between more and less effective PLC teams.

Participant teaching experience ranged from 2 to 34.5 years. The same protocol as mentioned above was used in the interview process.

Table 5.7 represents the list of K-8 3 participants and other characteristics to include: average years teaching, average years with current PLC team, primary PLC team, and PLC team mean and collective efficacy mean scores.

Table 5.7: K-8 3 Participants

Participant	Average Years Teaching	Years with Current PLC Team	Primary PLC Team	PLC Team Mean	Collective Efficacy Mean
Team 1	4	2	7/8th grade ELA	4.31	4.25
Team 2	22	8	6th grade	4.11	4.00
Principal 5C			Admin.		

The final school selected, K-8 1, is one of the district's newer schools established in 2000 and one of three K-8 schools within the district. The quantitative data revealed an overall PLC mean score of 4.34, an overall collective efficacy mean score of 4.54, and a survey participation rate of 60%, the lowest response rate in the district. K-8 1 is located in the city, a suburban community of the eastern edge of the foothills in the county. K-8 1 is located on a campus that was completed in the early 1950s. Similar to the other three schools used for the qualitative data phase, many of the families work in the agricultural and farm industry, which surrounds the city. The current student enrollment at K-8 1 has approximately 530 students and 28 classroom teachers. The student population consists of 79.3% Hispanic, 12% English Learners, 6% students with disabilities, and 59% of the students are classified as socioeconomically disadvantaged, which is a reflection of the poverty in the surrounding neighborhoods.

In 2005, K-8 1 began to transform by making professional learning communities a priority. Since PLC implementation, there has been an overall API growth of 78 points from a score of 778 to 856, and K-8 1 has met all AYP goals for the past five years. Table 5.8 shows the percent of students achieving at the proficient or advanced level between 2006-2009 on state testing. The percentage of students at the proficient or advanced level increased from 62 to 73% in ELA and remained the same at 71% in math. When comparing the data to both district and state levels, K-8 1 is ahead of both district and state percentages in ELA and math.

Table 5.8: Percentage of Students Achieving at the Proficient or Advanced Level

Subject	K-8 1			District			State		
	06-07	07-08	08-09	06-07	07-08	08-09	06-07	07-08	08-09
English Language Arts	62	68	73	43	47	52	43	46	50
Mathematics	71	69	71	44	47	53	40	43	46

The quantitative data revealed K-8 1 has the eleventh highest mean score in PLC characteristics and the sixth highest mean score in perceived levels of collective efficacy. The data revealed a more and less effective team to varying degrees. Participant teaching experience ranged from 1 to 23 years. The same protocol as mentioned above was used in the interview process.

Table 5.9 represents the list of K-8 1 participants and other characteristics to include: average years teaching, average years with current PLC team, primary PLC team, and PLC team mean and collective efficacy mean scores.

Table 5.9: K-8 1 Participants

Participant	Average Years Teaching	Years with Current PLC Team	Primary PLC Team	PLC Team Mean	Collective Efficacy Mean
Team 1	17	3	6/7th grade	3.81	4.58
Team 2	14	1	7/8th grade	3.96	4.33
Principal 5D			Admin.		

Findings

As explained in chapter three, the qualitative data were coded using HyperRESEARCH software. During the initial analysis of the data, the researcher generated a variety of codes and themes drawing on the literature presented in chapter two. During further analysis of the data, the original codes and themes were reduced along with the data until a manageable set of themes were identified. As a result, the remainder of chapter five presents the qualitative data from participant interviews for each site along with documentation analysis brought to the interviews by the participants.

Major Findings of the Interviews Regarding PLCs

The overall interview findings related to PLC characteristics are presented in Table 5.10. Distinctive differences between the more and less effective PLC teams were discovered.

Table 5.10: PLC Interview Qualitative Data Findings

Characteristics	More Effective PLC Team	Less Effective PLC Team
PLC		
Collective Goals	The vision is for PLCs to be productive… We're bringing all our scores. We're looking at those scores. How is it going to drive our instruction for reteach? How is it going to drive our instruction for the next standard? So, actually having that true collaboration is the vision.	I guess he wants us to share data. He wants us to talk about how we're going to teach the next standard…Yeah, I believe the staff as a whole shares that vision. Whether that's really how it's playing out, I don't know. But I don't think it's very clear, really, what exactly the PLC should look like, because I think if it was, ours would look different. I don't think ours really is what the ideal PLC would look like.
Collective Actions	We definitely go into detail about whatever we do, especially the kids…we'll start with the kids. And we're in a more difficult part of town, so they have really interesting backgrounds…So we really concentrate on our kiddos…We're definitely here for the students. And bringing those scores to the table…we're constantly talking about what they need. It's constantly back to the students. So they take a benchmark, we talk about it, we SMART goal it…So we're constantly going for that student outcome.	Once we share the data, we walk away with it and put it in a binder. And it doesn't get discussed at the level I think it should get discussed. It doesn't further drive our instruction. But we don't sit and go, "OK, they really didn't get this. And so what are your ideas, and what are your ideas?" Our team does not develop common assessments together and we do very little joint planning.
Focus on Results	It's definitely not the individual teacher's responsibility. They're all our kids. We have 90 kids a day. So, we're constantly rethinking our lessons…I love PLCs. I really do…The first thing we always talk about is the students. We either go for the needs-the focus on the beginning of the meeting is the students who are either struggling or that we need to reach and make a little stronger contact with…If you benchmarked, you bring your data. We'll put the data on the table. We talk about strategies we're going to use to get them to proficient. Then we'll talk about what we're going to do with these babies over here…Keeping those high kids going, finding interesting material to keep them motivated, finding those extending questions to get them to the next level.	So far it's been individual…It's an individual teacher's responsibility for the most part. Yeah. It is, really…It's just not a real deep conversation. And then it's back on me to figure out where those kids are to move them ahead… To be honest. Because I don't feel like it's real collaborative. It's not this real joining together of sharing of ideas. It just feels very separate…You want honesty, right? You want the truth. At this point, we're not quite moving past the just presenting it.

As discussed in chapter two, a professional learning community is one where educators are committed to working collaboratively in a continuous process of collective

inquiry and action research to achieve better student results (DuFour & Eaker, 2007). The DuFour and Eaker (1998) model has six specific characteristics: shared mission, vision, values, and goals; collective inquiry; collaborative teams; action orientation and experimentation; continuous improvement; and results orientation and three fundamental principles: (a) ensuring all students learn at high levels, (b) promoting ongoing teacher collaboration, and (c) clearly focusing on student results. The six PLC characteristics were further grouped into three subscales: Collective Goals, Collective Actions, and Focus on Results.

Professional Learning Community Findings

The first set of interviews and document collection from E.S. 10 was with the 5th grade PLC team. Two of three members on that team were interviewed. The team's self-perceptions of their collective work is high, as reported on both survey and interview data. The second set of interviews was conducted with the fourth grade team who also feel the fifth grade team currently has the strongest site PLC team. The 5th grade PLC team demonstrated a stronger team than the fourth grade team as evidenced by the survey results and the statements that follow. The principal agreed the 5th grade team is currently the strongest PLC team on campus though "if you had asked me that question three or four years ago, I would have told you they were the worst."

The participants' self-perception of professional learning community strengths, as reported on the survey and reinforced through the interviews and documentation, include all six elements of the PLC characteristics previously mentioned. While each of these PLC characteristics are demonstrated by both PLC teams, the degree of implementation varies. Both teams were found to have commonalities and differences that distinguished

the two teams interviewed for this study. Descriptions of each of the PLC team's perceptions regarding their PLC teams is presented below.

The next school interviewed was E.S. 6. The first set of interviews and document collection was with the 5th grade PLC team. Two of three members on that team were interviewed. The second set of interviews was conducted with both members of the fourth grade team. The participants' self-perceptions of their collective work is high as well as their self-perception of professional learning community strengths, as reported on the survey and reinforced through the interviews and documentation, include elements of all six PLC characteristics previously mentioned.

The third set of interviews was conducted at K-8 3. The first set of interviews and document collection was with the 7/8th grade ELA PLC team. Both members on that team were interviewed and their self-perceptions of their collective work is high, as reported on both survey and interview data. The second set of interviews was conducted with the sixth grade team who was not as strong as the 7th/8th grade team as evidenced by the survey results and the following statements. Both members of the 6th grade team were available for the interview.

The participants' self-perception of professional learning community strengths, as reported on the survey and reinforced through the interviews and documentation, include all six elements of the PLC characteristics previously mentioned. While each of these PLC characteristics are demonstrated by both PLC teams, the degree of implementation varied.

The final school interviewed, K-8 1, consisted of five teachers and the principal. The first team interviewed included both members of the 6/7th grade team and the second

set of interviews included all three 7/8th grade team members. The data revealed the first team interviewed was stronger than the second.

Professional Learning Community Similarities and Differences Findings

An analysis of the qualitative data revealed within team variances regarding the level of PLC characteristics. The following PLC sections are divided into the same three subscales as presented in chapter four, Collective Goals, Collective Actions, and Focus on Results. The first group, collective goals, refers to the PLC characteristic of shared vision. The second group, collective actions, references the PLC characteristics of collective inquiry into "best practices" and "current reality", collaborative teams focused on learning, and action orientation and experimentation. The final group, collective focus on results, includes the last two DuFour and Eaker (1998) PLC characteristics of commitment to continuous improvement and results orientation. Similarities and differences within more effective and less effective PLC teams were discovered throughout the participants interviewed for this study.

Collective Goals. Creating a strong sense of a shared vision is one of the characteristics of a PLC model as defined by DuFour and Eaker (1998). According to DuFour and Eaker, the collective commitment of a shared understanding and common values are critical. When asked whether or not teachers and site principals shared the same vision, all participants interviewed believe the majority of teachers do indeed share the principal's vision albeit to differing degrees. An E.S. 10 participant summed it best when stating that it depends on the grade level. "Some of the grade level teams on campus aren't as strong as others" (E.S. 10, Teacher 1A). An E.S. 6 participant had a similar response.

> Some grade levels do, and I would say others are still stuck in how they've done grade level meetings for 20 years or so. They still want to have the long discussions about yard duty and all the other stuff that's not PLC. (E.S. 6, Teacher 1B)

A participant of K-8 3 agreed:

> While the vision is clearly shared by teachers, I'm not confident it is shared by all grade levels. Most teachers have bought into the PLC process, and we have all seen how beneficial for all of our students and for us the process is. So there's not one of us who doesn't feel it's a huge piece of the puzzle. I'm not sure that it's true of every grade level. (K-8 3, Teacher 1C)

A K-8 3 member added:

> Yes, the vision is shared by the teachers. We know we're going in a positive direction, overall. I'm sure there's always one or two who are against it. But, I think we all do now. We know where we're going. We want to get to the goal of everybody performing at their best, whatever that is. And whatever we can do to help our kids, whether it's intervention, study halls, clubs, after school, before school. (K-8 3, Teacher 3C)

A K-8 1 participant stated:

> It's definitely taken it by most of the staff right now. There's stills two teams who are, for one reason or another, not in a collaboration as much as some other teams…I'm honestly not sure why some PLC teams just haven't grasped. I couldn't survive quite honestly without PLCs this year…It's shared by most of the staff. (K-8 1, Teacher 1D)

Another K-8 1 participant also believes the vision is shared by most.

> I don't know necessarily all the staff but for us, we share the vision…But I don't know if that has translated well for all PLCs in this school. I honestly don't know. They could be but I don't think they are. (K-8 1, Teacher 3D)

A third K-8 1 participant concluded:

> At the middle school level, no, I don't think many of them do. I don't know that all teachers feel the same way about PLCs. I guess that time is precious, and then to give up time that you need to accomplish other things can sometimes be irritating to people. (K-8 1, Teacher 4D)

Clearly, most teachers at the four sites interviewed share the vision. Principals also expressed similar conclusions. One example is the E.S. 6 principals' perspective.

> Everything is focused on the four questions, each team is self-sufficient, self-driven, and their minutes reflect efficiency, doing the right thing when it comes to student learning grouping, and looking at results to see what is best for those kids to keep moving them forward. I think the vision is shared by most. (E.S. 6, Principal B)

When inquiring about what exactly the shared vision is, the more effective PLC teams had a slightly different perspective than the less effective teams. All agreed there is an overarching understanding of moving all students forward through the use of data analysis and under the umbrella of the PLC characteristics especially collaboration. Moreover, each team doing the PLC process effectively, having collective and attainable goals, and meeting the established goals was repeated by the participants. In order for the PLC process to be effective, all PLC teams shared they meet weekly with clear agendas focused on student learning. For example, one participant stated:

> The vision is really for PLCs to be productive and for teachers to actually implement the areas that need to be implemented. We're bringing all our scores and looking at them. How is it going to drive our instruction for reteaching? How is it going to drive our instruction for the next standard? So, actually having that true collaboration is the vision. (E.S. 10, Teacher 1A)

Similar statements were shared with the other more effective teams at each of the four sites. An E.S. 6 participant sums the shared vision as follows:

> Our vision is to have PLCs ongoing and developing…We are working as a true PLC across the board from kindergarten through fifth grade, not just using our grade level partners as a collaborative team. (E.S. 6, Teacher 3B)

Another participant from a different site stated:

> The vision is that we're professional learning communities helping our students, helping us teach the children, helping them meet the standards. That's pretty evident with all of us. My PLC partner and I share that goal. Junior high staff, shares it too. As an entire school, I think 90, 95 percent of us share it. There's maybe two or three teachers who might still have not 100% buy in. But, overall, we do. (K-8 3, Teacher 2C)

A Team 2 member shared a similar response.

> I think the vision is grade levels getting together planning SMART goals for their students, and planning lessons and assessments that it takes to get them moving forward. (K-8 3, Teacher 4C)

A K-8 1 participant summed the vision as follows:

> I think the PLC goal is to really make sure there is communication and a chance to compare results of the common assessments and to provide support to one another. I think that it's good for us to have PLCs. (K-8 1, Teacher 4D)

Another K-8 1 participant shared:

> I think he wants it to be a regular process. And he wants everybody on the same page. So we're all on the same page, and we can share ideas because of that. Because if he's teaching adding fractions the same day I am, we can get together and say, how did you do that? What did you do? This is what I did. Did it work? Yeah, this worked and no, this didn't work. (K-8 1, Teacher 5D)

These responses demonstrate the more effective teachers perceive the vision as focusing on PLCs, data, and student learning. Most members of the more effective teams mentioned the principal never waivers from the vision. Principals want the best for each student and want to ensure student success so they can be lifelong learners. Several participants mentioned their principals wanting to know every student in every classroom is being motivated, taught, and reached. The principals want to know whatever obstacles are in the way of students' learning, teachers are doing whatever they can to break them down (E.S. 10, Teacher 2A).

While the more effective PLC teams had a strong sense of the vision and appeared to support it as evidenced by participant responses, the less effective teams demonstrated a less cohesive view. At E.S. 10, for example, one participant found it very difficult to articulate the shared vision of the school.

> I guess the principal wants us to share data. He wants us to talk about how we're going to teach the next standard. The vision is shared by the staff if that's his vision…Whether that's really how it's playing out, I don't know. But I don't think it's very clear, really, what exactly the PLC should look like because if it was, ours would look different. I don't think ours really is what the ideal PLC would look like. (E.S. 10, Teacher 4A)

This teacher, along with her partner, demonstrated their lack of understanding for the vision. This also shows the less effective team at E.S. 10 does not share the vision though they appeared to be seeking clarity from their principal. At K-8 1, one of the less effective team participants simply stated, "PLC's vision is for them to be successful (K-8 1, Teacher 2D). When this participant was asked whether or not the vision is shared, he refused to respond.

When asked about the vision, the principals in general expressed a clear vision and at the same time acknowledge the challenge of ensuring every team was part of the vision. For example, at E.S. 10, the principal explained that it was the one area he had to learn, reexamine, and continue to remind himself PLCs are not static, they're a process. In terms of a vision, it has to be and needs to continue being a pillar of how teams operate at E.S. 10. It's a non-negotiable. So in terms of the vision, long term, the major tenet is a PLC where there is an action and a reaction (E.S. 10, Principal A). The principal went on to share the number one focus must be student learning.

> The kids performed this way on the standard, here was our reaction. It could be a ten-item assessment on a standard…and here's the reaction. In the beginning, we had all these great tools and little assessments that we made, we would just give the test, and there wouldn't be the reaction. Now I have folks who own that reaction. They know this is another thing we didn't get these kids to, but they at least have a sense that they're still as teachers responsible for that reaction. I have grade levels that react obviously better than others, individual teachers who react better than others, but I think long term goal is that our reaction is as immediate as we can make it, and we're moving in that direction. (E.S. 10, Principal A)

The K-8 3 principal stated a similar shared vision described by the other participants.

> The vision is that collectively teachers be much stronger, and I believe that most of the staff has that vision in mind. The details though of the work and of common assessments, reviewing the data. Changing the mindset that they need some ownership in that vision. I think it's important. What they've learned in my interactions is "Hey, don't complain to me about that in the future. You want a part of that change, you be that change and let me know, and we'll do that because I'm very open to suggestions…So, I would say a majority of the staff is on the same page with that. The details, though, I still think we have a ways to go. (K-8 3, Principal C)

PLC team participants and principals agree the shared vision is focused on students and shared by most teachers. The less effective teams demonstrate agreeing with the shared vision to a lesser degree than the more effective PLC team.

Collective Actions. Establishing a culture of collaboration with a clear focus on student learning is essential to the PLC process. In addition to looking at the team's student data to best guide further instruction (current reality), PLC teams should bring examples of what works for students within the content standard being addressed (best practices). To best support teachers DuFour and Eaker (1998) have four guiding questions for teachers to address during collaboration, two of which relate to collective actions: 1) What is it we want students to know and be able to do and 2) How will we know students learned it? To examine what each team does within their PLC time, teacher participants were asked to share what a typical PLC meeting looks like if someone was to join them. All participants believe they focus on learning through "a lot of collaboration…and what successes we're seeing between the two of us, zeroing in on what's working best for the kids" (E.S. 6, Teacher 3B). All participants shared the

collective actions of agreed upon norms and the creation of SMART goals and common assessments.

Participants of the more effective teams agreed they constantly collaborate beyond their time embedded in the day. The more effective PLC teams know all of their students and make a strong effort to know each student's name and something about them. This allows teams to focus on individual as well as group needs. "We can actually talk about the kid and how they're learning in certain subjects and hold them accountable in other areas" (K-8 3, Teacher 1C). More effective team participants also stated how much they have learned from each other.

> We have grown a lot together. So I'm having to think my stuff through and give more rationalization on why I'm doing it. There's a lot more self thought this year, a lot more self thought. (K-8 1, Teacher 1D)

To ensure teachers had more opportunities to collaborate, several sites interviewed explained the principal's decision to relocate teachers allowing similar grades to be next to each other. The participants of the more effective teams believed this move helped support ongoing teacher collaboration beyond the allotted PLC time. A more effective team participant of E.S. 10 shares the significance of focusing on student learning.

> We definitely go into detail about whatever we do, especially the kids. A lot of times we'll start with the kids. And we're in a more difficult part of town, so our students have really interesting backgrounds, and we have some kids coming to us who are low and haven't been caught so we're making sure they're getting the necessary services…So we really concentrate on our kiddos. (E.S. 10, Teacher 1A)

A K-8 1 participant stated:

> We do our SMART goals and we discuss a lot of strategies…We have a lot of cross collaboration on activities and how we are going to get our

> students there and how they performed on it last time and how did they not perform or areas of weakness and how can we address them. Then we do a lot of lesson collaboration. Setting up our lessons, we have common objectives every day. Our PLC is spent a lot on collaboration and then we also do data analysis during our PLC. (K-8 1, Teacher 1D)

Team 1 of K-8 3 shares ideas and best practices with each other to better support their students' learning.

> We brainstorm ideas together in addition to executing our collective commitments. We…plan our unit using grade-level standards and discuss what we want students to know by the end of each unit. We write our SMART goal, which is an essential standard, and create the common assessment, which is helpful because that drives our teaching based on…our student needs. Our lessons are often synthetic, and we create them from scratch but our formative assessment comes from our resources. (K-8 3, Teacher 1C)

Focusing on student learning should include a focus on high and low students.

> I would say a balance…You have so many high students and a number of low students…So, only focusing on the low students all the time is doing a disservice to these guys who really need to be pushed. So we focus and talk about what else we can do for them. (E.S. 6, Teacher 1B)

All more effective team participants openly admit that "While we're looking at all our students, it's more toward the students who are struggling" (E.S. 6, Teacher 2B). In general, participants believe students who are at the top of the academic ladder will most likely be able to achieve at an independent level, while struggling students need more support structures in place. To better support students who are struggling, participants shared they use small group, one-on-one instruction, and flexible regrouping as possible strategies to ensure learning for all students. Participants also shared they usually break the work into more manageable steps for their struggling students. For students who are excelling, participants provide more challenging work within the standard. One participant responded, "The most difficulty is finding ways to challenge the students who

already got it because your expectation is to get those 80% or more at that standard (E.S. 6, Teacher 3B).

Going into detail and focusing on students is clearly a priority of the more effective teams. The effective teams repeatedly explained the first order of business is to always talk about students and how they are doing. The more effective team participants explained their teams talk about all their students with the aim of improving their learning and understanding of content material. This means the more effective teams discuss the low, medium, and high students with the desire to move them forward.

As part of a clear focus on student learning, collaboration also includes specific needs of special populations. Several sites interviewed conduct daily rotations allowing for specific times set aside to meet the needs of targeted learning gaps. Rotations include English Learners (ELD) time and response to intervention time. Because of these rotations embedded in the PLC process, the participants of the more effective teams agree they are constantly collaborating and believe they are PLC-ing, a phrase coined by several teams, all the time. The stronger PLC teams also continuously "bounce ideas off each other" to ensure the best possible student learning is taking place in each of the PLC team member's classrooms.

> There's this collaboration, it's a commitment to each other, but more importantly it's a commitment to our kids. We definitely have the commitment to the kids…and it's always a positive experience. I don't think I've ever walked away saying, oh my gosh, so and so does not know what the heck she's doing. So, it's been a really positive experience. (E.S. 10, Teacher 1A)

Participants from the more effective teams believe they use the PLC process to share "best practices" and "current reality". "We go by our essential standards and use

real-life experiences. We talk to students and treat them as if they are our own. We're really hard on them, we teach them responsibility, but at the same time, our student outcomes are key" (E.S. 10, Teacher 1B). More effective PLC teams feel it is their responsibility to understand why their students were not successful and find strategies to ensure they do learn grade-level standards. Teacher 1B of E.S 6 shared an assessment in which only 15% of their students passed. They analyzed the data and researched several different teaching strategies they employed prior to retesting. The results of the retest revealed 80% of their students passed. Because of these efforts, students better understood the standard. Team 2 of E.S 6 summed it best.

> PLCs help me really focus on student data, and what is required; what's needed to help our kids meet the expectations…So, it's helped me in terms of looking at student data and focusing on where the gaps are…Maybe we should reexamine the way we're teaching the lesson or introducing the lesson. So it's really caused me to focus on the delivery, and what's going to help students understand the core concepts of what we're trying to teach. (E.S. 6, Teacher 3B)

The more effective teams explained there are times when only a few students do not meet the standard while other times 50% or more may not meet the standard. When the former happens, teams work with students individually while when the latter happens, teams focus on reteaching the group.

> When we do not meet our SMART goal, we look at the group. What are we not doing right. Why are students not understanding. Then we'll look back at our lessons, review how we're teaching, and review the test. And if it's a higher student who ends up doing really bad, then it's going right to the individual. Talking to them because they normally understand and it just might be an error they're making. (E.S. 6, Teacher 1B)

Typical team questions from the more effective PLC teams interviewed include: What is the focus? What's not going well that we can transfer over? Teachers of the more effective teams continually share what is working and has worked for their students.

For instance, several of the more effective teams have focused on EL students and are researching and employing best practices to better support the EL population. At E.S. 10, teachers of the more effective team were released for a day to compare EL standards to language arts standards and determine how to best support their students. The questions that guided their collective work included: What are the language standards? What are the ELD standards? Where do they cross over? What's already being taught that we can reteach? and What are students going to learn that our low kids need front-loading with? The team shared the time was well spent and helped build their confidence with regard to ensuring learning for all their students. One participant explains it as follows:

> During RTI time, we have our low kids going and our higher kids with us. We look at those high kids. What about the ones who got it? Where do we go with them? Keeping those high kids going, finding interesting material to keep them motivated, finding extended questions to get them to the next thought level...Our PLC team absolutely makes that process easier than when we used to work in isolation. Just finding the time, you know the days just aren't long enough for these poor little guys. (E.S. 10, Teacher 2A)

The more effective teams feel fortunate because they work so well together and have a mutual respect for each team member. Reviewing the stronger team's responses clearly demonstrates a focus on students and their learning guided by data and directing the team's pedagogy through ongoing collaboration. The teams that have implemented the DuFour and Eaker (1998) PLC model to a lesser degree have had their share of challenges.

> There are norms that we follow. We talk about what needs to come next. We take turns looking at student data, and usually we print it out so we'll have our SMART goal paper. We'll bring copies of the scores. At that point, we share how many students have passed, how many are below. Unfortunately, at this point, we're not moving past just presenting the

> data…I think sometimes it is a challenge to come together and say we've only got 40% passed. (E.S. 10, Teacher 3A)

While several elements of PLC such as norms and SMART goals are common with the less effective teams, they clearly do not move beyond sharing the data.

> We don't talk as much about teaching strategies as we should. There isn't enough dialogue for that right now…A lot of times, the agenda will end up being the last leadership meeting and a recap of that. Once we share the data, we walk away with it and put it in a binder. And it doesn't get discussed at the level it should get discussed. It doesn't further drive our instruction…Our team does not develop common assessments together and do very little joint planning. (E.S. 10, Teacher 4A)

Another example from a less effective team at a different school was presented.

> We plan our next SMART goal which determines the standards we're going to teach in the next few weeks…We teach and develop an assessment to go with the standard we've covered…Sometimes it takes longer to teach a standard, so we reassess where we are and make adjustments and keep moving forward. We decide who has mastered it and who has not. Sometimes, they've all blown it, and sometimes everybody does well. We have not really moved beyond this point. We don't do anything with the scores other than share them. (K-8 3, Teacher 4C)

A K-8 1 participant shared:

> So, we get together and talk about what it is we want to teach. What standards we have to meet…Then we fill out our paper work and go. The paper work I am referring to is the SMART goal...I look at the essential standards. The state has prioritize history social studies standards which makes it great. So the essential standards are identified then in the lesson, setting up the unit. We key in on the essential standards. Making sure we hit those as best as we can. Now, due to the volume of standards, the lack of material and the text for some standard, some standards receive only the slightest of cursory mentions. But the essential standards are addressed...So, we complete our concept development skills of element and we do our planning strategies and that's pretty much it. And then we go teach our lessons and...then at the end after we have given the tests, we do the tallies. The analysis paper. There we go. (K-8 1, Teacher 2D)

When asked what teams do in rethinking lessons when a student is performing below or above expectations, or is this the individual teacher's responsibility, there are

clear differences between the more and less effective PLC teams. A common response of the more effective teams was that, "It's definitely not the individual teacher's responsibility. Like I said before, they're all our kids. We have 90 kids a day. We're constantly rethinking our lessons" (E.S. 10, Teacher 1A). The more effective teams made references to students being "our kids" and several participants stated they actually and truly believe that.

> It's both of us, so all 68 students are ours. For kids who are performing below, we brainstorm…What can we do to get the student to get past that step, or just be able to master that standard. Kids performing above expectations, we talk about how they can be peer helpers, and what we can do to still challenge and use them to share their knowledge. Sometimes the kids get it more from a kid's perspective than from an adult's perspective. (E.S. 6, Teacher 4B)

An example from another site was also explained.

> It is both, I think. If it is only one class having problems, then one teacher might catch up on something that she's been meaning to get to, or have them do accelerated reader one day, while the other teacher reteaches, or maybe both teachers decided that a review using a different approach or appealing to a different modality would work best. We do a lot of poster creation, and sometimes they have to write their own tests. Just changing the thinking, and changing the approach a little to make sure you're still touching on the subject, but you are doing so in a different way. So, it comes down to being a team decision. (K-8 1, Teacher 4D)

Another response was shared:

> We certainly don't approach it as an individual teacher's responsibility. I feel so grateful to work with whom I do because we can really brainstorm and be honest with each other about best practice, so we are constantly holding each other accountable…If we have a larger percentage than we anticipated not proficient, we stop everyone and reteach. We'll come up with a few supplementary lessons before we close the door. We feel it's more effective to really nail what we're doing as far as our power standards are concerned than to half way do them. (K-8 3, Teacher 1C)

The other Team 1 participant agreed and added:

> My PLC partner and I discuss how to, with the kid who didn't get it, go about reteaching that kid so it's not an individual teacher's responsibility...We share ideas…then we do a common reassessment. (K-8 3, Teacher 2C)

A Team 2 participant shared:

> It's a collective decision about what we're doing. For example, in language conventions, we have our list of foreign language words, and we want to know if some of these words are too difficult…What do they need to be successful and then if they are, we want to know the strategies that made it successful for them…So we have data and that's a good thing about the PLC. We have PLC binders and assessments from last year and the year before, so we can go back…and check to see what was successful and what wasn't. (K-8 3, Teacher 3C)

The critical piece demonstrated by the more effective teams was no mention of "yours" and "mine". When the less effective teams were asked the same question, most participants said it is the individual teacher's responsibility.

> We go back to thinking what can we do. What did you do differently. What did I do differently. If our classes are close to the same percentage, we go back and talk about what are the needs of our kids…So, we go through and talk a lot about that. And performing above expectations. I just think that goes back to having more independent work for those kids, making sure they're just not sitting there spinning their wheels. (E.S. 6, Teacher 2B)

A K-8 3 participant explains:

> I think we've got to readjust, and sometimes, as much as I would love to say we do it, is to pull students aside for small group teaching. Just doesn't seem to happen that much. So that is a struggle we have with addressing those kids. So we try and think of other ways to get to them. (K-8 3, Teacher 4C)

The less effective teams seldom mentioned reteaching or retesting students who were not meeting standards at the proficient level. In fact, one participant said, "Turn off the tape recorder" (K-8 1, Teacher 2D).

More effective team participants tended to believe PLCs encourage them to learn more, to try to be better, to want to do better for their students. "I've had the opportunity to work with some great colleagues, who are willing to share ideas, to give you anything and any ideas they have" (E.S. 6, Teacher 3B). They want to see all their students achieve more. They believe in the PLCs, and coupled with professional growth "they always will support increased student achievement" (E.S 6, Teacher 2B). The more effective teams believe they work very well together.

> All our PLCs are exceptional because they are all geared toward what we need to be talking about, our students, and how to help them and how to grow as teachers…Every week we come together and are there for the purpose of helping our students and of learning…And through the PLCs, it's evolved into more of a…partnership…So, I think every week we bring that to the table. When we go in she can say what she feels honestly. I say what I feel honestly, and we work through that give and take situation. So, I'm extremely happy with the partnership that I have through the PLC. (Teacher 2B)

Another participant stated:

> We're both going over assessments, going over how the students are developing the objectives. Are they able to understand it. What strategies we've used for EL kids…So we're also looking at some of those kids, and then, also, a couple examples of high, mediums, and lows, here and there. We look at student work to see if they follow specific steps that we've given them through math…What kind of strategies are they using. Lesson planning and developing common assessments together. We sit there and talk about how we want questions worded, that way we can both develop the tests. We go through the books looking at what we want to cover. We've got our pacing chart to figure out what we want to hit, if we're going to be able to hit it, or if we need to stop for a little bit and review something else the kids are having a hard time on. (E.S. 6, Teacher 4B)

A similar comment from a more effective team explained:

> My PLC team partner and I have been together since the start of my career, so we have always worked well together with planning, and everything…The most rewarding time is when we analyze our data, and realize we have met our goal the first time. We achieved that once, maybe twice this year so far. For example, a recent figurative language

> assessment...We set the goal at 80% reaching proficient. We were able to reach 84% our first try, given the common assessment. It feels very successful to do such things. (K-8 1, Teacher 4D)

Effective team participants share an enthusiasm for the benefits of PLCs and expressed their passion for them.

> Even when you just start with the norms and some people, when we first started PLCs, there were a lot of people, why do we have to do norms? It was a lot of growth, but it's really about being open minded, it's about trust and efficacy coming into play. You really grow as a person, and as a professional. You have to put that personal in there, too, because your trust has to be so high with saying, my kids bombed this test. You guys got 80%, I have no idea what I'm doing wrong. What are you doing? So, you have to be able to say, I had one kid pass my test, and not feel like they're judging you. I love PLCs. I really do. I really think our PLC team works well together. We get in and get our jobs done, in the classroom, but then also in PLCs…Let's just take last week, for example. We did work exceptionally well last week, and what did we do? We collaborated. I think that's the key. You have to collaborate the whole time. (E.S. 10, Teacher 1A)

Another PLC characteristic established by DuFour and Eaker (1998) within collective actions involves team experimentation. The more effective PLC teams demonstrated a variety of actions and experiments implemented to ensure learning for all their students. Team meetings include constant discussion regarding what their students need and strategies to best support their learning. Teacher 1A of E.S. 10 explains that the conversation is constantly back to the students. Teachers take a benchmark, discuss it, and write a SMART goal. The more effective PLC teams repeatedly mentioned constantly going for that student outcome. Participants of the more effective teams agree they constantly bounce ideas off each other and attempt new strategies to ensure learning for all their students. Teacher 1A of E.S. 10 emphasized the significance of "that kind of collaboration" which has led to what the team is going to do about it. Teachers and

students benefit from it in part because they are all on the same page and consistent (E.S. 10, Teacher 1A).

> We talk about strategies we are going to use to get students who just quite didn't get it. That's where our focus starts, and we talk about what strategies we're going to use to get them to be proficient. So, there's about four or five things we try to look at to see why this kid is not getting it…So then we start talking about strategies we can do that they can see modeled, that we can ease them into when we're doing small groups with them. (E.S. 10, Teacher 2A)

One participant shared a math example.

> My PLC team has not taught math in 5 years, except for tutoring after school. As a result, math has really been much more of a focus this year. We both were a little nervous at first. We've had to really look at math much harder than we do language arts, which is easier since we've done it for so long. Coming up with lessons together, how we're going to do it, and looking at our tests afterwards. When we were dividing decimals…we found out at the end, we need to change. Divide a decimal by a whole number, and then divide a decimal by a decimal. So we had to reteach and really break it down. We both recognized what didn't work, so when we retaught students were more successful. (E.S 6, Teacher 1B)

Another participant stated:

> I think right away it's identifying kids who aren't getting it and right away we're going back and intervening with those kids, re-teaching them, looking at different strategies, what else can we do as teachers to help these students learn the information that they're required to know for this grade level. So, our PLCs are continuing to improve. (E.S. 6, Teacher 2B)

One Team 2 member of E.S. 6 summed it best.

> It's helped me be able to collaborate more. It's helped me really look at student data, just seeing where they are and what they need help on. Also, it keeps me working with a team. It's really helpful working with each other, just bringing different ideas and trying new lessons. And it helps you look at things differently and add more to your repertoire. (E.S. 6, Teacher 4B)

Teachers of the more effective PLCs spend much collaboration time on ways to help all their learners succeed. They apparently feel comfortable taking risks and shared

that “it's really been great having someone to bounce ideas off of and remain focused on student learning” (E.S. 10, Teacher 2A). They see how the PLC process works and know it's working for them and their students. They further explained their strong belief that PLC teams must work together if they want to make sure their students achieve at the highest possible outcome. So there's constant discussion about where students are academically.

> We are seeing student achievement increases. They're being held to a higher standard and then we're looking too at our work of saying what's working, what's not working. What can we throw out and what are we going to keep…We're already well past the 75% advanced to proficient range, where when they were in isolation they were down in the 50s. So having more of a dialogue, we're seeing that turn out in the advanced proficients, and our ELs and RSPs are constantly moving up, too. So my RSPs from last year came in at far below basic for the last couple of years, and they were at basic to proficient last year just because of analyzing what is working for this kid and what's not working for this kid. (K-8 1, Teacher 1D)

The more effective PLC team participants tended to make similar statements, “There are so many examples when the PLC worked together exceptionally well it's hard to hone in on just one” (K-8 3, Teacher 1C).

> We collaborate about our students, in this case, about our lower kids. We all teamed together for one of our students and worked to chunk materials and differentiated content lessons...Ever since this student became our collective focus…he went from completely failing every class to passing all. I've seen him every morning since our meeting. He's turned in all six missing assignments for me one morning…And again, it speaks to us working together. We have a unique opportunity…to talk about kids. Yes, of course it's data driven. And I don't want to neglect the importance of that, but students are less of a statistic and more of a face. I know what they like and don't like. I know what they had for dinner last night. And that was brought about at our PLC. (K-8 3, Teacher 1C)

A K-8 3 Team 2 member shared a similar story.

> The beginning of every year, getting together with our PLC team gives us collective goals because every year it's different goals, maybe it's 70%,

> maybe it's 80%, and we look at our CST scores to see what support our students need. This year we found that they're really exceptional in math, but we also learned their reading is down this year. So we came up with a plan and how they can be successful. And the thing that I like about it is, it gives me an idea, like a framework, of where we're going…We have an idea, a structure of things. (K-8 3, Teacher 3C)

The less effective teams were usually unable to demonstrate taking action and experimentation as a team. Teacher 4A of E.S. 10 stated that their PLC team does not talk much about teaching strategies. Participants of the less effective teams frequently said "I" throughout the PLC portion of the interview and felt their students were not "ours" but rather "mine" or "yours". Members of the less effective teams made it clear they make instructional decisions individually.

Focus on Results. The last two PLC characteristics entail a collective commitment to continuous improvement and use of student data to drive instruction and fall into the final subscale of focus on results. To help teachers focus on results DuFour and Eaker's (1998) third and fourth questions are 3) What do we do when students already know it and 4) What do we do when students do not get it? Members of the more effective teams shared it's really about students and making them successful, productive members of society. The more effective teams are committed to ongoing student improvement. One of the more effective team participants explains it this way:

> Our grade level PLC team is definitely here for students and bringing those scores to the table. I might bring scores to the team and say we need to meet on this because it was not so good. It is essential that we are looking at scores and letting the scores drive our instruction. (E.S. 10, Teacher 1A)

Another more effective team member stated they usually start their meetings with their data ready to go.

> We already have whatever tests we are going to discuss. We have our sheets with our kids and what their grades were on the assessment. How many passed, how many didn't. We discuss any discrepancies, or if one class did great and one didn't. Then what are we going to do. What are we going to test next time. Or if they didn't do well, what are we going to do differently this week and retest again. (E.S. 6, Teacher 1B)

A K-8 3 Team 1 member shared what they do with the results.

> We spend the majority if not all of your PLC time talking about students and focusing on them and their learning…Then we…compare our scores to see where we're at, see which students are basic, below basic, far below basic and discuss what we're going to do with those kids; plan to reteach and retest. (K-8 3, Teacher 2C)

Another K-8 3 member shared:

> We reteach everyone. And with our above, usually the minority, who happen to perform proficient, we use a differentiation product. So challenging them with higher order thinking questions where they're still being reinforced with the content, but they're also being challenged. We're reteaching our kids who really haven't gotten it at all, and we're challenging students who did get it…They're synthesizing. They're teaching each other. They're working together. (K-8 3, Teacher 1C)

The more effective team participants use data to focus on students during their PLC meetings. Teams use data to examine all students as part of the entire group.

> For example, if 80% of the class does well, we're happy the majority of students got it. The remaining 20%, we'll keep working with them in small groups. But if a big chunk doesn't do well, we talk about how we're going to teach it differently. We look at the test because maybe we need to redo it to make sure it's matching our instruction and student work samples. We dig more into why students didn't do well. We also have advanced materials for the kids who get it. (E.S. 6, Teacher 1B)

SMART goals were usually reported at 80%, however, one of the more effective team's goal is for 85% of their students to be at the proficient or advanced level. "Yeah, our goal is to have 85%, or we want 100%. But we're pretty happy if we're anywhere in the 80s" (Teacher 1B).

> With our SMART goals, we always want 80%…We do realize that we have certain standards that we're not going to get 80%. For example, one of our lowest standards was inferencing. We took that standard and looked at it. We were sitting and thinking and discussing back and forth…We started pulling materials. We started creating our own assessments. When this first started, we had 47% proficient…So, we kept going back to it, kept teaching it. We ended up with 58% the next time. We kept working at it, kept working at it. We got towards 77%. (E.S. 6, Teacher 2B)

If Team 1 of K-8 3 does not meet their goal, they pull students during their lunch or some other time throughout the instructional day to reteach. Depending on the number of students needing additional time, they employ flexible regrouping if there is more than 20% of the students found to need more support. Team 1 shared usually they only have one to three students who need additional support.

> Fortunately we haven't had a SMART goal where 50% of our kids did not get it. We're always at 80/90% of students meeting the proficient mark, but if we notice students not getting it, we would reteach the whole class. Typically we have a few basic, maybe some below basics, so we pull those students during our regular day and do small group instruction and then retest them…So we meet, look, and compare our SMART goals to our district assessments and on the standards students should be meeting. (K-8 3, Teacher 2C)

One participant summed it best.

> There's a variety of what we're doing, but it all comes down to having our students achieve. Making sure they're achieving at high levels, making sure all our kids are included in that. (E.S. 6, Teacher 2B)

One of the less effective teams sets their SMART goal standard at least 10% lower than the more effective teams at 70% of all students meeting the proficient level.

> Our goal is 70% proficient or advanced in the standard. If the class isn't at least 70% proficient or advanced, we go back and reteach. And if they are over 70%, we move to another standard…If they do not go over 70%, we'll do more massive review than we normally do. And with math, if students are really low... say everybody passed but I still have five or six who are low, we do a Math Club during lunch once a week. (K-8 3, Teacher 3C)

Another participant of a less effective team at a different school summed it best.

> And they are held accountable, and they are required to learn. It's not a choice. I'm thinking of PLC here at school and, I don't necessarily, can, think of, and or articulate any specific piece of professional growth that I've gotten out of it. I find the...SMART goal is interesting. Setting up the data analysis form is interesting and helpful. It helps me, to myself, articulate and plan, and look for results. All right. I don't get to articulate or talk a lot with other content teachers. I find it interesting looking at the data analysis paper, whose names keep coming up all the time. But when you as the teacher have to write the name over, and over, and over again, it helps us slow learning teachers to understand that Johnny is having a hard time. (K-8 1, Teacher 2D)

Clearly the more effective teams come together and discuss assessment results. Most participants shared they have forms used to break down how many students were advanced, proficient, basic, below basic, or far below basic within their classes. The data is then used to analyze their percentages and compare the results. If a team member has a higher percentage than another, teams discuss what was done differently. This continuous going back and forth of what can be done to improve student achievement has led to increased student outcomes. Teams also openly shared that they look at their significant subgroups such as EL and RSP populations. This focus on student results helps teachers determine who needs extra instructional time to meet grade-level standards. So, for students who aren't getting it, participants want to ensure they have multiple ways of accessing that information, and for students who are getting it, participants expect them to deal with the standard at a higher level.

> You'd see us looking at what standards we assessed…looking at percentages depending on whether the test was given yet…in the papers that we brought to the table would be our EL students and how they're progressing or not progressing. I mean, we're PLCing all the time. Specifically, we're looking at student data, where they're at, how they're doing, how the students are doing who got it, what we're doing for the kids who didn't get it, what we're doing for the kids who need more of a challenge. (E.S. 6, Teacher 3B)

The other member of the same team agreed:

> The two of us mesh really well. Our PLCs have been very effective...It benefited myself and my students by making sure I knew what I was doing, making sure I knew what the kids needed, and different strategies to help them. It's benefited students with other ways of viewing the problem, other ways of doing the problem, or mastering the standard. It's positive because the kids who were not able to do something were able to do it. We were able to achieve, between the teachers, that common goal where we have everything the same as far as these skills that we're giving to the kids, and seeing the kids master that problem or standard they were having an issue with. (E.S. 6, Teacher 4B)

Using data to drive pedagogy is seen as an important PLC step and is consistently reported with the more effective PLC teams.

> If everybody's on track and we know we're looking good, we'll review what SMART goals we did that week or which ones are coming up. If you benchmarked, you bring your data. We'll put the data on the table. (E.S. 10, Teacher 2A)

The less effective teams, however, have not moved beyond sharing data and felt their teams currently do not have a commitment to continuous improvement nor a focus on student results. Teacher 4A of E.S. 10 explained the data does not get discussed at the level it should. Teacher 4A goes on to say once the data is shared with the team, each member "walks away with it and puts it in a binder." Teacher 4A's PLC partner shared their next step in the PLC process should be using data to further drive instruction.

When asked whether teams focus more on lower students, higher students, or equally, most participants agreed their focus is more on the lower students.

> An honest and unfortunate reality is we focus more on the lower students. In fact, this is something I've brought up often because it's our higher kids who we lose at high school because we didn't do our jobs sufficiently challenging them, really differentiating our teaching practices while they were with us…So it's a balance that I don't feel we've met yet…So we share best practices because it's hard in the classroom to get our higher students going on something different than the students who need more time. It takes extra time in our lesson planning. But it's something that

> obviously has to be met, or we're going to continue to send students to the high school who should have been challenged to a higher level with us. (K-8 3, Teacher 1C)

Team 2 of K-8 3 explained:

> What really concerns us is students who don't get it. For these kids, we really want to know why and what we can do to help…One thing we also do is use old math books and give it to students for extra work to do at home. (K-8 3, Teacher 3C)

> It is the low kids who are challenging. Actually it's the low kids, and the kids who are so bright you don't feel like you are challenging them, that's what I struggle with…So my PLC partner and I try to plan some fun things together that we know the kids would enjoy, just to mix it up a little. (K-8 3, Teacher 4C)

A member of one of the less effective teams shared:

> In 22 years of teaching, I don't remember many conversations talking about the kid who did get it. I mean usually, the kid who...hey, Johnny got great... yeah he really did, and then...you know. Susan over here - my gosh, what am I going to do with her! You spend more time talking about... To me this is what you do, or what I have experienced, talking about the student who didn't get it. (K-8 1, Teacher 2D)

Collective Efficacy Similarities and Differences Findings

The overall findings relating to collective efficacy are represented in Table 5.11. Table 5.11 demonstrates important differences between the more and less effective PLC teams. For the majority of the more effective team participants, multiple collective efficacy examples were presented while the less effective teams struggled to share any examples. An analysis of the qualitative data revealed within team variances regarding the level of perceived collective efficacy characteristics similar to the PLC findings. As stated in chapter four, each of the six collective efficacy characteristics were combined into two subscales: Assessment of Teaching Competence and Analysis of the Teaching Task. Assessment of teaching competence includes the characteristics of mastery

experiences and social persuasion. Analysis of the teaching task includes the characteristics of vicarious experiences and affective (emotional state). The findings indicate the more effective teams demonstrated higher levels of perceived collective efficacy than the less effective teams.

Table 5.11: Collective Efficacy Interview Data Findings

Characteristics	**More Effective PLC Teams**	**Less Effective PLC Teams**
Mastery Experiences	Multiple Examples	Limited, if any, examples
Vicarious Experiences	Multiple Examples	Limited, if any, examples
Social Persuasion	Multiple Examples	Limited, if any, examples
Affective (Emotional State)	Yes (positively)	Yes (negatively)
Analysis of the Teaching Task	Could do it	Could not do it
Assessment of Teaching Competence	PLC team has what is necessary	PLC team does not have what is necessary
Overall	Many positive examples	Few, if any, examples (more negative responses)

Assessment of Teaching Competence. According to Bandura (1997), mastery experiences play the biggest role in whether each individual has the necessary belief that he/she will succeed. When interviewing the more effective PLC teams, all participants had no difficulty sharing at least one example of team experiences that increased their levels of perceived collective efficacy. In fact, Teacher 1A of E.S. 10 felt that every time their PLC team meets, the collaboration that takes place leads to the team's increased levels of collective efficacy. Both members of Team 1 at E.S. 10 shared a time when the team was struggling with helping their English Learner population. One of the team members spent the weekend researching information. The principal then released them

from the classroom for one day to work together. One participant shared what happened next:

> Probably the biggest positive experience was I took a team member back to the beginning steps. I got a big piece of chart paper and put down our standards and main focus. Where our RTI was and what our ELD was. I made columns and said, "OK, our job is to link all of this so it makes sense to us, so it will make sense to them." I think that was the piece we were missing. By creating a huge chart and breaking it down like we do for kids, you could see it...She started adding to the chart, and it went into the classroom. Immediately, there was a change. You know, the connections that can be made with the ELD standards and our regular standards. With that is watching my peer go... when they do those "Ah-ha." I love it when kids do them, but when we do them with each other, that's just as exciting. It was a very powerful tool, and it's still up. We've moved past it now, but it's a nice reminder. So, we face challenges but at the same time, we are trying to tackle them as we go. Our number one goal is for students to understand what they need to be successful in life. (E.S. 10, Teacher 2A)

Both E.S. 10 Team 1 teachers explained how their belief in their work with student success increased as a result of this and similar experiences. A second example relating to mastery experiences was shared in which Team 1 of E.S. 10, using a new math textbook, received their first district tests results, which showed their students did very poorly.

> We reviewed the test results and saw that it was not going well at all. We came together and within 48 hours had redefined and re-planned our math pacing guide. We went back to looking at standards. The book did not help; it bounced around too much, and basically threw our math program off, which threw the kids off. But within 48 hours, we had pooled all our resources, matched pages with content and standards, and had a revised action plan. That was very powerful. We dropped everything after school, and that became our priority...In the final outcome, our kids scored much higher in math; higher than the norm for our school. It was a great experience. (E.S. 10, Teacher 2A)

A similar story was shared by a participant at a different site.

> On our very first assessment, 23% of my PLC partner's students were advanced proficient, where 16% of mine were. I was very discouraged with the results…We decided to meet Thursdays, even though Wednesdays is our designated meeting time. My PLC partner started walking me through more her knowledge of the standards. She was mentoring me more…We saw that by spending more time, because we didn't get into it at the very beginning, we didn't start doing this until after the first test, now we've seen the gap decrease between the two classes, by spending that time together. On our last test, I ended up being 79% advanced proficient, and she was at 82%. So that gap has decreased from being incredibly large to very small just because we've decided, you know what, we need to do this, and so...No more anxiety! Now I'm good with the standards! (K-8 1, Teacher 1D)

Another participant shared:

> I would say the first two assessments we created, we did not meet our SMART goal of 80% proficiency, and by that second time we were a little disheartened… because my kids were getting close to the goal, her kids were not, and she right away was quick to blame herself. We went through our lessons, talked about what we did…what my students did to prepare, what her students did to prepare…By late November, for the first time we hit our goal, and...we were so happy, we carried on a little dance and would never have thought that would make us so happy at that moment, but we got our goal of 80%. We actually had 84-85%. We've done it a couple of times too, since then, so that's what's really helped. Not only that, the students on the whole, but what we notice, and what was discouraging, was it seemed to be the same students who were not hitting their proficiency, who needed more strategic teaching, or intensive, and seeing the same kids on that list was troublesome for both of us…."Well what about so-and-so, cause I'm used to typing his name. And we'll look, and like "He did it! He got it this time"!, and you know, that's another aha!, when we see kids actually improving. We don't know what it is but seeing improvements in their scores, and what their learning, that's been a big help. (K-8 1, Teacher 3D)

To support their students, Team 1 of E.S. 10 explained they regroup them as needed.

> We took our math and deployed our students so those who got it got to go deeper; the kids who almost got it got reinforcement problems and a little more guided practice; the kids who totally missed the boat were given modeling instructions. So, for every kid, we mixed them up...It ended up being almost a 20, 25 minute block. And the kids who got it went deeper into the standard. We didn't take our high kids into a whole new area. We

> stayed within that standard and hit them at deeper levels of their learning. Our regrouping experiences have all been very positive for us as well as our students. (E.S. 10, Teacher 2A)

> Yes. When a new elementary school opened…and that teacher was teaching fifth alone, he joined our PLC. So the tests we were making we thought were fine for our classroom, but didn't necessarily meet the needs of the other school. So, we started to bump it up a little in vocabulary and everything else, and oh these kids can get it, too! (E.S. 6, Teacher 1B)

Another E.S. 6 member of Team 1 shared the following example:

> At the start of the PLC process, it was a little difficult to go in and compare each other's kids. It was a little hard to hear your kids were 46% and another teacher's were 85%. I think you have to develop a really high level of trust and efficacy for that and to recognize we can all grow as teachers…So, it's that point that might be a little uncomfortable, but once you get past that and look at it as a real learning opportunity, like I said, you have a high level of trust and efficacy for the people who you are working with, now that doesn't bother me at all, and I think my partner would say the same. That's the least of it because if my kids are lower, then I can learn from you as to what you did because you had a more successful rate of passing that standard. (E.S. 6, Teacher 2B)

A similar story was expressed by a participant of a different school.

> I think I'm getting more comfortable with the process itself, just because I understand it better, the more I do it. Like I tell the kids, if you did this 20 times, you would understand it, like this method, well it's the same for us. If I did this 20 times, I'm going to understand it thoroughly. But the first three times I did it, it was kind of difficult to see...didn't see where we were going with it, or what was going to become of it. But now that I'm understanding the process, I'm more comfortable. (K-8 1, Teacher 5D)

The more effective teams were asked whether they believed these positive experiences were because of the work they did together and participants responded that it absolutely was their collective commitment to their students that helped them succeed. Team 1 of E.S. 10 explained the PLC process is more automatic now, which has also led to positive experiences and an increase of their overall belief they can help all their learners succeed. When they first worked with SMART goals, for example, Team 1

openly admitted they did not feel confident in creating them but discovered SMART goals force the team to reflect on what they were teaching their students. The more effective teams agreed that sharing data and using the results to guide future instruction has been powerful in increasing their mastery experiences with the PLC process.

> What do you think allowed them to get it, the ones who did, and what do you think stopped them, the ones who didn't? And that's the part of the process that I think has gotten much easier. "Oh, my gosh! You had 85 kids at proficiency, she only has 53. You need to tell her what you did... And that's the PLC. You get in and start talking. "Oh, look at her kids got quotation marks. What did she do that we need to do?" It's that accountability thing. You don't want to keep showing up, every year, year after year, because you can't always blame the kids. If year after year after year you're the one sitting there with the lowest scores, you're obviously not listening or you're not making any adjustments. We are sitting here looking at your data, and we're all doing it together. You've got to be able to open that up. That's a very personal thing. Here's how my kids did. It's a reflection of me as a teacher. (E.S. 10, Teacher 2A)

Another example from a participant at a different school was shared.

> I feel 80% on any assessment is pretty high. Of course, 80% is still a traditional "B". But when I first looked at our goals, and I saw that we were establishing an 80% or higher for proficiency, I was a little taken back. But now that we have that set, we're not changing it. I told the kids, "You need to get up. I'm not going to lower the 80%." I don't think I'm stressed now that we're coming to testing. The other day, our principal mentioned how many days we had. In the past that put a knot in my stomach, but this year, you know which kids are going to need help…I have it ready to go. I know what I'm going to do with them. In previous years, it's been, "Oh God. Which ones do I need to help"...Now I don't have that stress…It's something that I don't need to worry about. Setting that bar - our SMART goals are pretty high - has been a big help, and also not bringing that percentage down, just so that we can hit our goal. When we first had success, I'm sure we joked around, "Let's just put it at 60% or 50%, then they'll get there," but that doesn't help. We're sticking to our guns. (K-8 1, Teacher 3D)

The more effective teams found mastery experiences help their teams work more closely together.

> SMART goals, in the beginning, was like what's that…But, having SMART goals really help because we have so many standards, and just because one person's not good in a math standard, doesn't mean they're not good in other math standards…SMART goals so we know which student is what. So when I go back to reteach, or go back to that standard, I can focus on those four students and make sure they understand…But, having these SMART goals, and knowing who these students are...helps with the SMART goal…If you're far below basic, you need more help than somebody who's basic at 60% when they're close to proficient. So SMART goals help a lot and in the beginning, I was like, "Why do we need it." But now SMART goals play a big part in the PLCs. Gives us the list of who needs help...Who's doing it well on what standard, and SMART goals play a big part of it. (K-8 3, Teacher 3C)

A member of Team 2 shared an example of an experience that has led to the team's increased collective efficacy.

> We were teaching a lesson on plotting points. I taught it using certain terminology and vocabulary and told students to use their fingers for plotting points. The other teacher taught it as "go over" and he did little hops and hopping up to the point. After doing the lesson, I found that my kids were losing their place more, trying to slide their fingers up depending on the size of the graph…Then, by the time they picked up their pencil, they lost their place. There were lots of other things I didn't foresee being a problem. So we got together and talked about…using different steps. We PLCed about the lesson and common assessment, what the practice was going to be, and what kind of guided practice we were going to use, but we differentiated our steps and how we're going to do the skill development part of it. It worked really well…But when we looked at the percentages it was like you kicked my butt in those percentages. What did you do? And the cool thing about that was when I went back and re-taught the lesson, the students said this is a lot easier… Now I can apply that same hopping strategy when we're looking at a number line with negative direction and positive direction…But it did benefit me in terms of looking back at what we did and accepting the fact that his steps worked better. Re-teaching it to my kids and then they benefited from it. It was a positive experience in terms of collaborating on what works and what doesn't…That's an ongoing thing, typically when we get together we find best practices. (E.S. 6, Teacher 3B**)**

> By the time PLCs started evolving, the transition became easier from year to year because we had something to build on. We narrowed down the PLC process into certain forms to fill out our minutes, agendas, and SMART goals, and had everybody with the expectation they bring specific

> materials to the meeting. We're not grading papers there. I mean, there's a 100 things that went into this transformation, but we feel much more confident about the PLC process now and it is really evident when looking at our student data. (E.S. 6, Teacher 3B)

While the more effective teams were able to share numerous examples of mastery experiences, the less effective teams struggled to find examples and, in fact, several of the participants simply replied "no" when asked if they could share an example of mastery experiences. Teacher 3A of E.S. 10 stated, "Honestly, I have no idea." Another participant summed it as follows:

> Yeah. It's just a struggle for me. It's been an odd year…not so much as a team. It's really so separate. I am just trying to go back and imagine meetings where we just sit down and go, I have this standard, and how do I teach it or what materials do you have? What did you do the year before that? Or what worked for you? It just doesn't really happen. (E.S. 10, Teacher 4A)

Another characteristic of efficacy-shaping information under the umbrella of teaching competence is social persuasion (Bandura, 1997). Social persuasion is a person's ability to convince others. In education, this should positively influence students toward higher levels of achievement (Goddard, 2003; Skrla, 2002). The more effective PLC teams explained that training and administrative support both at the site and district levels were the main sources of social persuasion that helps sustain the PLC process and move teams forward. Also, fellow teachers have helped encourage the PLC model in part because of positive student results over the past five years.

The less effective teams, in general, felt being held accountable and required to work in a PLC team was their social persuasion.

> That it's mandatory. I mean, honestly. I don't think we would have stuck it out if they hadn't been encouraging it these last few years. I mean, honestly. I think honestly the main thing would be that its required and

> then having those minimum days has helped. At least every other week or twice a month we have that half day, so that has helped us keep going at it, and then it's required. (E.S. 10, Teacher 3A)

According to Goddard et al., (2000, 2004), assessing teacher competence is when teachers look to the other team members and determine whether or not they have the necessary skills to successfully complete the task.

> She's given me a lot of good ideas on how to approach certain students... And she can give me ideas, not only on the materials, but what I can help do to get the idea across to the student, but also in the student, and how that student learns. I think that's how she's supporting me. (K-8 1, Teacher 4D)

As has been reported, the more effective PLC teams do see each member as capable of accomplishing the work of ensuring all students learn.

> Recently, we had a new partner we worked really close with who we did not click with at all. So that was the first time having to really work with somebody who was difficult to work with. I think we both took powerful roles. This is wasting our time and just getting really factual, and we'd hear excuses and be able to go right back to the data. For example, 12% passing is not good enough. Students didn't understand the standard. So I think about having that partner who doesn't buy into the PLC process being able to come back to the data, look at the facts and what has worked in the past in our classrooms. So I think if we didn't have that little bump, we wouldn't have felt so confident in our own ways of doing it right this year. (E.S. 6, Teacher 1B)

Another example was shared by an E.S. 6 Team 2 participant.

> The principal got us a sub, and brought in another teacher who used to teach fourth grade. She brought in her materials and paperwork. My PLC partner brought his lesson plan book from last year to see where he was with intervention in terms of what he was doing based on the lessons taught, and we put together a pacing guide. So next year, we've paced out from a month ago on, and then we're going to use our lesson plans from this year to fill in the gaps because we just did from this point on…So, it's a big help…Keeping the pace moving, trying to make sure we get all the standards met because ultimately we've got to have everything taught before the test. This would not have been so successful if we were not confident in each other's teaching competence. (E.S. 6, Teacher 3B)

> I've come to my PLC partner several times frustrated because, "I must be doing something wrong; I must be doing something differently. How are you executing in the classroom; what kind of words are you reinforcing." So, it's been positive in that way because she's been able to say "why don't you try this?" Or, oh I forgot, I did communicate to them, verbatim, this- maybe that's how they got it. So, I'll go back through and make sure I did hit that one. (K-8 3, Teacher 2C)

> When we're getting ready for CSTs. We wanted to come up with goals on what we needed to do. So…we have an enrichment class in the morning and my partner does the reading circles and I do a reading comprehension with EL students…Also, after school, I had students stay who are on the bubble from fifth grade, so students who are basic or a little below or a little above proficient so the teeter totter student. So we have an after-school study hall for a month. We have language arts one day, and math one day for about an hour...We select 10-11 students from each class, sit down at a PLC, and look at the standards. So…we target those kids and the after-school program we do at study hall. Then the enrichment class turns into a hands-on review we do. (K-8 3, Teacher 3C)

A participant from K-8 1 shared:

> I would say right now with evolution, because we're getting into Darwin... So we talked last night about evolution and some of the questions she's been asking, to get students thinking about why it is important to study evolution, and why it is a controversial subject. Those weren't questions I had thought of…I don't want to offend anyone, and I want to make sure it's even keel, yet she was having higher-level questions…So recently she had her group…do a journal response. They had a discussion, and each group… did pair share, and then had one person share one thought from the group. I took that strategy and implemented it yesterday, and my group had that higher level discussion and that spun into a five or ten minute spiel. They got into an argument, then we ended with the journals...It's been good having her, where she's comfortable with the content, and she's already at that higher level of thinking. Now I can say, even though I'm at this beginning level, I can snag her higher level thoughts and higher level thinking. (K-8 1, Teacher 1D)

Teacher 1A of E.S. 10 explained she has never left a PLC meeting thinking another member of the team does not know what he is doing. The team feels each member is effective in reaching their students. The less effective teams do not feel each member of the team has what it takes to ensure learning for all students.

Analysis of the Teaching Task. Bandura (1997) explains that vicarious experiences involve someone else modeling the skill in question. In education, teachers have opportunities to see others teach and experience specific programs in action, which is apparently the case for the more effective PLC teams. While all district teachers are being immersed into the PLC atmosphere, one example of vicarious experiences shared referenced younger teachers provided opportunities to learn from teachers with more experience.

> Our district has new teachers coming in, and we have master teachers. Even the new teachers who came at the perfect time to get PLC support right off the bat have become master teachers. But it shows so much growth. (E.S. 10, Teacher 1A)

The more effective teams were able to share several examples related to vicarious experiences. At E.S. 10, another powerful example was explained. Teachers who wish to observe other teaching strategies simply ask the principal to get release time to observe each other. Team 1 of E.S. 6 talked a lot about multiple opportunities to observe other classroom teachers and how those opportunities have helped the team feel more successful when implementing some of the strategies learned. The principals' willingness allowing teachers to observe one another had lead to increased collective efficacy through these vicarious experiences. Participants explained how they would bring ideas back to the team, many of which have been successfully implemented within the team. The more effective teams shared they had numerous opportunities throughout the school year to see effective teaching strategies in other classrooms and explained the successful use of several of them with their students. Team 1 of E.S. 10 further shared their assistant principal makes herself available to model lessons in teachers' classrooms.

> If you call her and say I really need help with this standard, could you model a lesson on main idea, she would come in and do it. So, they're very supportive. I think we have a very supportive administration, and all you have to do is ask. (E.S. 10, Teacher 2A)

Team 2 of E.S. 6 discussed their feeling of:

> …always working well together to ensure all students are learning at high levels. I know there's a hundred examples I could share. Were doing a lesson in multiplication; multiply three-digit numbers by two-digit numbers using the strategies of following the steps, using placeholders, so students know once you finished the one column and you multiplied all the top digits by that number, you put a placeholder…I was going to be teaching this concept later in the day, but students saw it on another teacher's board and told me he uses a smiley face. So I asked him about it at lunch…It was a placeholder. Instead of putting a zero, now they had a reminder. The smiley face wasn't just a zero, just another number with all these other numbers they're multiplying and adding. Now it was a specific symbol to remind them why they put that smiley face there...So that was a time when I presented the smiley face idea to kids. It gave them not just another number, but a fun way to remember one of the most crucial steps in multiplying three digits by two digits. Overall, they achieved at high levels. (E.S. 6, Teacher 3B)

Another example was shared by a participant of E.S. 6.

> One of them would have to be division. Finding different strategies, how to get students past a certain step where a majority were getting stuck. Talking about their multiplication facts and that's why I shared with them about counting on the side. If it was 36 divided by two, have them count by two's on the side because kids can add better than they multiply. We talked about that to get those kids who knew their stuff but just can't get past their math facts. That was one instance where I observed another teacher and used the strategy being employed to get kids past that little bump in division. (E.S. 6, Teacher 4B)

Team 1 of K-8 3 shared examples of experiences where they observed their peers and brought ideas to the PLC team, which in turn were used to help their students be more successful within the standard being addressed.

When the less effective PLC teams were asked to share evidence of vicarious experiences, participants struggled and could not think of any. Teacher 3A of E.S. 10 said, “It’s been kind of uneventful.”

Another source of efficacy-shaping information, affective state (Bandura, 1997), refers to the emotional state of teachers working within their PLC teams. The more effective PLC teams agreed they have a good balance of fun and business at the same time. As a result, teams get excited especially when their students are successful. Teacher 1A of E.S. 10 shared that this is possible within their team because she feels “the trust is there and each team member can relate to each other, have fun and laugh, and just really enjoy each other's company. If you don't enjoy each other's company, you're not going to sit there for four hours to PLC about your kids.”

When asked to share an emotional state example, Teacher 2A of E.S. 10 immediately shared the math example previously explained.

> Our kids were the lowest in the district, that is not OK. Now, you've got all of us connected. All of our kids. All of fifth grade was not doing well. We were validated in the end because our kids went from whoa, whoa, whoa, up to--against the same, on the same test, against the same kids--we showed more growth than any other school. So, there's a positive emotional validation there. We pulled our bootstraps up and said, "Hey, this is not OK," and took every possible moment we could and were validated at the end. Because we showed the growth, the kids knew the subject. They did it. It transferred to the state test. So that learning wasn't just a temporary thing. They were able to do it again, and that was probably the most powerful. (E.S. 10, Teacher 2A)

Another example by a different school was shared.

> When we first started doing PLCs about five years ago, there was a group of us who went to training, and I was part of that training. Coming back and thinking about the process was difficult in the beginning and just having the frustrations of working through that, and how the PLC should look and then coming together when we were first starting and not

> wanting to be critical of your partner, but it is really testing the standard, those kind of conversations. Then when we did buckle down and really looked at the process for what it was, we found it is working so well, and its easier…so now it's no big deal. (E.S. 6, Teacher 1B)

> We had to do a presentation for our staff, and most teachers felt comfortable showing a standard they achieved well on, whereas we looked at it as an opportunity to look at our worst standard, and we weren't afraid to go and say our kids didn't meet our SMART goal. They were only 46% on this. That's when we looked at the standard very deeply…It's a higher level thinking skill for the kids…So, we went and told the teachers we had 46% on this. And that was a little anxious because I don't think most people want to stand in front of their peers and say we didn't perform well. But we took it as an approach to learn, and we kept going at it and kept going at it…We have 77% of our kids now doing very well on this standard. That's very encouraging, so you take the kids from where they are and keep working and keep working at it and they keep rising to your expectations. And that's what I think is one of the most exciting parts of our PLC, we kept working at that, we don't give up. (E.S. 6, Teacher 2B)

A K-8 1 participant shared her experiences with the evolution of SMART goals.

> At the beginning of the year, I had no idea what I was doing. I was completely guessing when I was making SMART goals; I was completely winging it. So after working with my PLC team, and figuring out how she was doing, how she was guiding us to do 6th and 7th grade and using that as an example for 8th grade, I started to feel a lot more competent at it. So I went from being very anxious about SMART goal creation and use to excited about the benefits once I better understood their purpose. (K-8 1, Teacher 4D)

A participant was excited to share:

> Our second to last SMART goal because we finally hit 80% advanced proficient…I felt good because she finally liked Earth Science...Now she liked earthquakes, and we were collaborating more...It was exciting for me to see her excited, and the kids got excited. We were really concerned if they were going to do well on that test because it was tough. It was the first time they had short answer and short response, and give us a paragraph short response…We ended up with only nine strategic and two intensive out of the 62 students. So we met the 80%. So that felt really good to know that all of our collaboration came together and we did it. We were so excited. We did it. (K-8 1, Teacher 1D)

A Team 1 member at K-8 3 explained the significance of professional growth opportunities and how the team's excitement has led to increased levels of collective efficacy.

> The PLC professional growth opportunities have been very beneficial. So even when I'm having doubts or questions, and I'm frustrated because I don't understand why this lesson didn't go off beautifully like I had hoped it would, I'm able to come and brainstorm with my PLC team…So in our collaborative meetings we're able to say, you've got to chunk it for this guy. Professionally, it's helped me be a better teacher for my kids because I'm able to network and talk. It's great to have a forum where I don't have to reinvent the wheel or figure it all out by myself. I can tap into my teammate's wisdom and what they've already seen with our students. The PLC process is effective in that way. (K-8 3, Teacher 1C)

The same participant explained how their feelings for each PLC team member has benefited the team and students.

> The general rule in the PLC process seems to be improving student outcomes. This speaks to our camaraderie with each other. I really feel our team genuinely appreciates each other. We genuinely love each other, we love our students, and we want what's best for them. It's all about students' success and how we can better each other and ourselves. It's always positive. (K-8 3, Teacher 1C)

Another participant stated:

> The PLC is good because we all get together and see what's going on, but we also see this teacher going above and beyond for their students. I better keep on track. Plus Mrs. Wolf, she's been teaching for over 30 years. She's such a great teacher so I see her doing things and think I better get on the ball and get on her level… Now…we sit together every Wednesday and see what we're doing together and talk about what we are going to do in reading. So we bounce ideas off each other, and it's made me a more confident teacher. (K-8 3, Teacher 3C)

> I think knowing that it works. That it's successful. We have a good thing going, and I like it. At first, I was a little hesitant about PLCs because I've got so many things to do. I don't have time to meet up with this person, that person. But, it sustains itself because people know how effective it is. How well it is to learn from other people. We share ideas, solutions, and come up with activities to make the classroom a success. Because that's what it boils down to. It's how can we have our kids successful. And if I

> can't do it, then I need help. Having the PLC has gotten to the point where we are not scared to ask for help. I think before, teachers were on an island. You closed your door. See you in eight hours. But now, it's more of can you help me, I need you to help with strategies in math. And doing that, it's gotten a lot of good ideas, and I think teachers really like that part of it and it helps us feel good about what we do for students. (K-8 3, Teacher 3C)

When the less effective PLC teams were asked to share an emotional state example, most could not think of any. One less effective team member stated:

> Well, this year it's been kind of uneventful. No. I mean, this year we have been... I think because now after doing it a couple of years, people have learned when to speak up. Not when to speak up, I guess. But to be nicer about it, I guess. No. We've done SMART goals and we're getting better. And this year we've done them even more than last year, as our team. We're getting better. But like I said, using that to move our students, we're still...That's our next step. That's where we're going. Yeah. (E.S. 10, Teacher 3A)

Analysis of the teaching task refers to the team's review of the work they collectively do and to the level of attainment (Goddard et al., 2000, 2004). When the team believes they will be successful, their collective efficacy is higher. At E.S. 10, there are many obstacles facing their students.

> Some of the challenges that face our kids come from their backgrounds. Some kids haven't been out of this neighborhood and it really affects making those connections. They don't have anything to make that connection to so that makes it a little difficult. Their prior knowledge, their background knowledge, their life experiences definitely put them not in a good place for taking tests. They're definitely testing the standard from the very beginning of the year but the vocabulary might be a little lower and then scaffolding them up because they might know all the standards but you give them that test and they won't understand the vocabulary. So, their life experiences and vocabulary are definite obstacles for our students. (E.S. 10, Teacher 2A)

As a result, the more effective team of E.S. 10 focuses on meeting their students' needs especially in the area of increasing life experiences, building background knowledge, and

providing extra support in vocabulary development. The team truly believes they have what is necessary to help their students learn and as a result of their analysis of the teaching tasks, have seen their student scores increase dramatically since PLC implementation. The team has collectively agreed that it is their responsibility to give students as much exposure to vocabulary as possible, to be out there with them at recess, to pull them after school, generally to do whatever it takes to ensure they learn.

Because students face the challenges mentioned, the more effective E.S. 10 team feels they have the same challenges. The team spends extra hours working together and researching the best possible pedagogy to reach their diverse learners. Both members of the more effective PLC team analyzed their current reality and are determined to ensure all their students learn grade-level standards addressed.

> We try to teach all students at high levels even though some are going to have more difficulty understanding than others because of obstacles such as RSP, EL, and their home life situations. So it's different more than ever in our grade level. They're trying and plugging away, asking them questions maybe not the same type of questions. Are they understanding the concept we're doing…I think we teach at a pretty high level…our kids are learning information I know they're not teaching at other schools. (E.S. 6, Teacher 1B)

The other E.S. 10 Team 1 member shared:

> We recently worked on a standard for multiplying fractions. And again our SMART goal was very high based on what we looked at for the kids' standards last year and how they were achieving on the Star test. We thought our kids were going to score very high, but they didn't quite reach what we thought they were going to reach. So, going back and looking at that, we are reteaching them and really trying to nail down what area they struggle with. It wasn't that they couldn't multiply fractions; they were having trouble reducing them. So, going back and really having those conversations, what is hanging the kids up here from getting the standard, I think those are extremely important. And that's really with the PLCs, that's opened our eyes more to where it is the kids who aren't getting what they need to understand the standard. (E.S. 6, Teacher 2B)

Another participant stated:

> Kids come to us at all different skill levels and abilities. So, just taking the kids from where they are and continuing to work with them to increase their skills, to make sure we are doing whatever we can, whatever strategies we know, whatever strategies we can learn from each other to help our kids learn and grow to the utmost of their abilities. (E.S. 6, Teacher 2B)

A Team 2 member shared the difficulties of homework completion.

> Our biggest classroom challenge is getting our kids to practice when they're not at school. Homework is a huge concern right now. The kids are working hard in class, and when they leave the classroom they don't do the work. We have homework notes that go home, parents sign, return them and the kids miss another assignment the next day. It's going on with all our classes right now; it's the kids having a hard time being responsible…I mean the kids are doing great, but right now they aren't, they have no kind of support at home to do their work. No practice on homework. The parents say they will change it and it don't get changed. We talk about this in PLCs all the time...We offer incentives; we have popcorn parties. (E.S. 6, Teacher 4B)

Another participant at a different site shared:

> The challenges I face are in product. In getting done with all my lessons, believing that I'm teaching the standard, and finding out through the evaluation that some of them still missed it. So, somewhere in there, I obviously didn't teach the standards; I didn't meet my goal. So, going back and reteaching. It's a challenge because I can be so passionate about whatever the subject area is, or the content I'm focusing on, and get really excited about it and, to not hit 100%, that's disheartening for me, so that would be a challenge. (K-8 3, Teacher 2C)

> Students who are absent a lot is a challenge. Special Ed students, where we need to modify and accommodate and make sure we're doing what they need. Students who are absent a lot, we really get together and talk to the office, and the kids, and make phone calls home…So, we are a small junior high staff, that can really get together and focus on those kids, and help each other out. (K-8 3, Teacher 2C)

> In addition to getting together and making sure we know our standards, and making sure we're teaching with methodology that meets our students' needs, we as a staff need to make our school an exciting place to learn for kids, so the absences cut down, and there's no bullying, the kids feel welcome, and it's OK to learn. A community feeling. Maybe that's

> something else our PLC can do, but I think having standards for the kids, making sure we know our state standards, and believing in our kids, and getting them there. (K-8 3, Teacher 2C)
>
> The big challenge for me is finding time. In a perfect world, it would be great to have a student helper, someone in the back…So the big challenge is time to help kids, the low kids and the high kids who need help. Like, right now we have science fair, so finding time to do that…The PLC is a good way to bounce off ideas, especially with seventh and eighth grade, because they have science fair, too…Ideas that I never would have thought of on my own. (K-8 3, Teacher 3C)
>
> When I talked previously about all students being so different, and the abilities they have, the capabilities they have versus the amount of effort they put forth versus the environment in the classroom at the particular time...there's so many different pieces. Getting them to understand this one idea, it's definitely a challenge. So, it's putting everything together. Management, instruction, modalities...that's my biggest challenge. (K-8 1, Teacher 4D)

Clearly, the more effective teams are able to analyze their teaching tasks and multitude of situations interfering with student learning and adequately address them in order to ensure learning for their students.

The less effective teams demonstrated not yet believing, at least to the same degree as the more effective teams, they can succeed with their teaching tasks. While they want all students to succeed, they openly shared several areas of concern. Teacher 3A of E.S. 10 talked about the pacing guide forcing the team to move on with instruction even when students have not met the standard at the proficient level. On several occasions, Teacher 4A of E.S. 10 explained the lack of team work within their PLC. Until the less effective teams are collectively able to find solutions to these and other concerns raised during the interviews, they agree that, as a team, their teaching tasks cannot be accomplished.

Transformational Leadership Similarities and Differences Findings

The overall findings relating to transformational leadership are represented in Table 5.12.

Table 5.12: Transformational Leadership Interview Data Findings

Characteristics	More Effective PLC Teams	Less Effective PLC Teams
Intellectual Stimulation	Agreed	Limited
High Performance Expectations	Agreed	Agreed
Individual Support	Agreed	Limited
Appropriate Modeling	Agreed	Limited
Productive School Culture	Agreed	Split
Structure	Agreed	Agreed
Overall	All transformational leadership characteristics shared	Few transformational leadership characteristics shared

An analysis of the transformational leadership qualitative data presented in Table 5.12 revealed whether the PLC team was more or less effective, the variance between the two groups found in the PLC and collective efficacy data was minimally revealed.

Transformational leadership is defined as dedication to fostering the growth of organizational members and enhancing their commitment by elevating their goals to encompass a shared moral purpose (Burns, 1978). Leithwood (1994) and Leithwood et al. (1998) identified six essential characteristics of transformational leadership: (a) intellectual stimulation, (b) high performance expectations, (c) individualized support, (d) appropriate modeling, (e) productive school culture, and (f) structure. The following transformational leadership sections are divided into two broad groups. The first group

encompasses the transformational leadership characteristics of intellectual stimulation, high performance expectations, and structure. The second group includes individualized support, appropriate modeling, and productive school culture. The below findings indicate both the more and less effective teams need for transformational leadership as a significant component to ensuring the PLC process is implemented and sustained.

Intellectual Stimulation, High Performance Expectations, and Structure. Leithwood (1994) and Leithwood et al. (1998) explains that intellectual stimulation is when the principal challenges teachers to reexamine certain assumptions about their work and rethink how it can be performed. The more effective teams perceive ample opportunities to reflect on their current beliefs. One way the principal of E.S. 10 does this is through a variety of professional development opportunities.

> There is lots of training…we have the PLC training. We can't send everybody to the DuFours' conference because it's expensive. Those people who are sent are responsible to train and share and do all that wonderful stuff. We're also getting support from the leadership team, that's coming down from the principal. We're getting the principal and his meetings, there are lots of different PLCs that we can watch, so there's a lot of teacher and PLC reflection. (E.S. 10, Teacher 1A)

A similar example was expressed by a participant of another school.

> My PLC team partner and I have gone through several different trainings that has helped us reflect on our current beliefs. One eye opening example is a recent science training…The whole training was writing questions and knowing how they're going to be asked…knowing how the questions are going to be written and knowing that I have to expose the kids to that all year long so they understand in May. (E.S. 6, Teacher 1B)

Another participant stated:

> Some teachers have gone to training by the DuFours, and we've done some readings, and being a part of the leadership cohort, that's another entity on our campus, I've had more of a guided reading on what a PLC is and the process of a PLC…There's been some mentoring. (K-8 1, Teacher 1D)

Participants believe the multitude of training opportunities have helped their teams and students. Teacher 2B of E.S. 6 also felt intellectual stimulation "when working with administrators, talking about what PLCs look like, developing norms, what is an effective PLC, and working together with my grade level partner." Most participants feel the intellectual stimulation in the form of reflection is powerful. "It's looking back at exactly what I'm doing to help our students get there" (E.S. 6, Teacher 3B). Another E.S. 6 participant explained:

> The principal looks over our minutes and makes comments to us…She gives ideas on things. We'll sometimes make notes on the minutes, "Need help on this. Need different strategy." She'll either answer it herself, find someone like the CSP, or some other way to get it addressed for us. (E.S. 6, Teacher 4B)

> Giving us opportunities to go to PLC conferences. Giving us any other kind of support we need as far as other teachers coming in to help with something that we're stuck on regarding our kids. Constantly giving us new ways to look at the PLC as far as making sure we streamline, and we're not off task. Giving us forms that make it easier to fill out SMART goals and to help better organize our data. (E.S. 6, Teacher 4B)

> Reviewing the binders and giving us specific feedback, letting us know if we're missing information or if there's anything we should be doing in addition to what we have keeps us thinking. Being present on campus while we're PLCing, giving us the time, the established time, to do it. (K-8 1, Teacher 4D)

While the less effective teams also provided examples demonstrating intellectual stimulation, the teams did so to a lesser degree and had shorter responses. Some of the less effective team participants needed to be asked specific questions regarding training to solicit a response. Teacher 3A of E.S. 10 initially shared, "Don't really have an answer to that." Teacher 4A of the same team said simply, "He doesn't." Upon further questioning both members of the less effective team were able to explain a variety of training opportunities teachers have in support of reflective thinking.

Another intellectual stimulation example was presented in the form of team learning.

> Team learning happens in the principal's presentation of new practices and new research. So I've been able to bring ideas from my last district that our team uses. I think that goes back to really implementing a person who is an advocate for new research, especially in the classroom, and kind of filtering that advocate and their knowledge (what they've learned) to our leaders, so they can come and bring it back to us...Our principal does that, at least on his own, that kind of drive to learn new things and figure out what's best for our students. (K-8 3, Teacher 1C)

Another source comes from K-8 3 principal's analogies.

> The principal is very good with his analogies. As far as his leadership is concerned, it's really neat because he's almost pastor-like. Not that it has anything to do with religion, but he gives us scenes, these images in our head. For example, recently, our sour apple spoke up. The principal put a spin on it and said, you know, brought up he was driving in the car and something about Haiti came on and 200,000 people, and we really have a lot to be grateful for. It puts things into perspective so I appreciate his leadership in that way. Sometimes he can remind even the people who are the most sour that it's not that bad. (K-8 3, Teacher 1C)

Teacher 2C of K-8 3 also mentioned the principal's use of minutes and asking probing questions to ensure continued teacher reflection.

> Well, he's always very positive, and when we do our PLCs, he'll come in and ask us what we're talking about, and give his two cents on what we're doing. He's always very positive on things-everything that we've talked about-he'll come and share his ideas and, what about this, what about that? And when we have ideas, he's always positive, and that feels good because I don't want a principal, when they come in, "oh, no that sucks." And so we're not going to talk about anything because if I say something, they're not going to like it. But he's always very positive and always open minded, and if it's something that he doesn't like, he'll-he should be a politician, because he spins it in a way where...Oh, I know he doesn't like it, but he wants us to do it this way. And that is a good feeling, too, that he's just not coming in with a bat in his hands. He just wants to sugarcoat it a little, that's what we like to call it. (K-8 3, Teacher 3C)

When it comes to intellectual stimulation, the principal shared:

> I give them a goal or direction and they have the opportunity to take that and run with it. I'll give you an example. Our district is looking at vocabulary and we're behind a little because it's been very slow. So our leadership team has been talking. I want something done. Let's do it…All this discussion and I'm sick of it...What are we doing? And we have a perfect model our seventh and eighth grade have been using…So recently, it's like "OK, leadership team. Here's what we are going to do, I am going to give them several templates. You need to use a template. Here's your vocabulary lists. So, they're taking the lists we have plus those assessment pieces and gathering common vocabulary that they want to focus on. How that looks is up to them. I just want to make sure it is done. So, grade levels, you go and decide what those words are. Here's a list of where I want you to take it from. Here's the district lists, here's your scrapbooks. You have the autonomy to pick and choose what you want and so go ahead and do that. (K-8 3, Principal C)

High performance expectations refer to behavior that promotes what site leaders expect for excellence, quality, and high team performance (Leithwood, 1994; Leithwood et al., 1998). All participants feel the expectations are firmly in place. For instance, the principal runs E.S. 10 as a facilitator. Seldom is there a need to be directive though it occasionally happens as a result of teams not working well together.

> We still have one or two grade levels that just don't function very well...even after all this training that we've had. You bring your scores, you really talk about them, you collaborate, and you look at the test. Was the testing what you taught, and why weren't they matching? Why didn't you take the test to plan your lesson to talk about it to then have this real flow? (E.S. 10, Teacher 1A)

In order to ensure high performance expectations, the principal of E.S. 10 needed to thoroughly understand the PLC process. One participant noted:

> I knew my administrators did their research when they brought the PLC idea to me because of the way it was organized, how much they knew, and how powerful they felt about it. They spoke very positively about it. I mean you could tell they wanted to believe in it, and they wanted to believe that we could do it. That, right there, was big for me. (E.S. 10, Teacher 2A)

In addition to researching the PLC model, administration has continued to stay the course and hold teachers accountable for producing evidence that their students are learning. Teacher 2A of E.S. 10 explains that having the principal hold teachers to high expectations has helped ensure the PLC process continues. The principal regularly attends PLC meetings and listens to teachers' needs.

> He's more realistic about the expectations, and he's willing to work. If it's important to the kids, then we don't negotiate. But if it's something that's not critical, and we can show him why he does or doesn't need it, he's more open and receptive to that. And I think all of that has to do with how much time he's seen us in this PLC. (E.S. 10, Teacher 2A)

Another participant from a different school explained:

> He comes around and visit our PLCs…Sometimes if collaboration, if he sees that DPAs are not at proficient or advanced or something, he'll call us in and ask us why. What's going on in collaboration? He'll ask questions like that. (K-8 1, Teacher 1D)

Another high performance expectation was shared as follows:

> He looks at our binders a lot and asks questions. He will ask questions about why you're doing this. And they've developed this year a coaching rubric. He'll pop into our classrooms and leave us a note or place it in our box later. And he'll ask us questions like "why were you asking this type of question. I noticed she was asking this type of question." He gives us some reflective questions to think on. It's like "I had thought about this ahead of time and just didn't communicate it." So that's one way he is trying to probe us to communicate more. (K-8 1, Teacher 1D)

An E.S. 6 Team 2 member explained how the principal has high expectations and has introduced the PLC model slowly. "It's almost like she's spoon-feeding little bites at a time each year. Last year her expectation was this. As the year went on she said, now I expect this. Now I want to see this, in the hope that someday we are this" (E.S. 6, Teacher 3B). In addition to sending teachers to a variety of trainings as previously

mentioned, another way of accomplishing high performance expectations is by asking for documentation to support student learning.

> Asking for minutes and agendas so if there's a bunch of things talked about that are off tasks and teachers are complaining about it being three hours long.... the principal can say, "Hey!"…The principal has also sat in on PLC's and had our CSP go to PLCs to make sure teams are on task, staying focused on student learning, and the conversations are data driven. (E.S. 6, Teacher 1B)

Another example was shared:

> The principal is going to ask those guiding questions. How is it going to affect student learning? Is it standards based? And why? Why at this time?...So it's not something we just thought of on the way to work in the morning. (E.S. 6, Teacher 3B)

All four participants of K-8 3 explained the principal has high expectations and let's teachers know what he wants.

> I think the fact that he tells us his expectations, and then he expects to see... He's not watching us so closely, but he expects to see minutes of what we discussed. (K-8 3, Teacher 2C)

> I think it's everyone's belief that we're going to help every kid, every day. I think that's the atmosphere we feel. With our principal, that's what he expects also. And if there's a child who's being disruptive in class and not giving himself the opportunity to learn, or letting the other children in the class learn, the principal is very hands on, where he'll not just pull the kid and talk to him, but call home, make sure he doesn't need Friendship Club or our counselor. He makes sure to do everything he can to solve the problem and get the kid back into that class learning. He's very supportive. Whatever we need, he does for us. And so, that helps with every kid meeting grade level standards. But, that's the expectation, so I think that's where it starts. (K-8 3, Teacher 2C)

When asked about his expectations, the principal explained:

> Let's say, for example, we have a Wednesday minimum day. I would take a role in help facilitating walking through, answering questions, see if they have any concerns, get someone on task if they're not on task, or maybe observe it and talk to them later one to one. (K-8 3, Principal C)

In addition to mentioning the same examples previously shared, less effective teams shared their belief that the documents collected have led to higher performance expectations.

> He asks for minutes, notes, and he wants the agenda. I think maybe checking to make sure everyone is still meeting, talking about scores, or the SMART goals. There is some freedom, what we talk about. So that helps to have a little say. (E.S. 10, Teacher 3A)

Another characteristic of transformational leadership is structure. Structure refers to shared decision-making power and altering work conditions for, in part, embedded collaboration time (Leithwood, 1994; Leithwood et al., 1998). All participants agree there are solid structures in place conducive to the PLC model. The E.S. 10 participants explained the change in structure began with the principal's first year. The principal of E.S. 10 began by moving three teachers to different sites, two of which were veteran teachers and the center of what happened on campus. The principal also moved about 80% of the teachers' grade levels, and almost every teacher changed classrooms. "We had a kindergarten class over there, and a kindergarten class over here, and a fifth grade class here, and a fifth grade class there. It was awful. So he definitely created some structure. And just with the structure of kindergarten, first grade, second grade, it changed our outlook" (E.S. 10, Teacher 1A). The following year, the PLC structure at E.S. 10 was put in place.

> From that, his third year here, progressing into PLCs began, creating the structure, bringing in some of these different programs, talking about norms, and immersing us in the PLCs. They sent one teacher from every grade level to the DuFours one year. The following year they selected one or two other teachers to go. (E.S. 10, Teacher 1A)

A similar example was shared at another site.

> The grade levels were spread out. It was almost like when they opened a classroom they just opened it wherever, so they weren't really connected in any way in proximity. At the end of last year, I let everybody know we're going to be doing some shifting. Just this year, I've seen them now as they're picking up their kids, they're all together and they talk. Going to and from lunch, that type of thing. Just being able to pop in next door right after school has helped open that communication, and I see some grade levels really taking advantage of that now that they're close in proximity. Their data shows that kids are learning. (E.S. 6, Principal B)

One way principals are helping with the PLC structure is by creating time embedded in the instructional day for teachers to collaborate.

> We have minimum days every other Wednesday, and a lot of elementary schools have their staff meetings on those days. Our principal does not hold staff meetings on Wednesdays; that is PLC time. You don't have to meet on those Wednesdays, but he's giving you those three hours that you have to be here anyway, so you might as well be PLC-ing. So, he's very supportive that way. (E.S. 10, Teacher 1A)

All school site participants had similar examples.

> Probably the accountability and the time allotment is sustaining the PLC work. The principal allows time for us every Wednesday to have a PLC. Not that I don't think we wouldn't do it anyways because we do every lunch on our own time, but it's nice that we're held accountable too. Here are some suggestions, things that you guys can talk about, directions you can go, directions our school is going, things to look forward to. Those kind of guided stems really help maintain our level of success. (K-8 3, Teacher 1C)

Team 1 of E.S. 6 stated that, "It would be nice to have every Wednesday as a minimum day...so we had a time that was set aside for our PLC each week" (E.S. 6, Teacher 2B). Another way to help provide a supportive structure is by continuing to "make sure PLC teams have uninterrupted time for PLCs. Our every other Wednesday meetings, which are longer, help by their modeling and again making sure they are supportive of what we are doing" (E.S. 6, Teacher 2B). Another example of the principal supporting the structure refers to PLC team issues, which several participants reported.

> Last year we were having several issues in our PLC. To ensure we were having a positive experience, somebody had to come and sit in our PLC, our assistant principal. I think that is pitiful and sad. You shouldn't have to ask for somebody to come and sit in your PLC, unless you have questions about instruction and standards. You shouldn't need a baby-sitter, but if that's what it takes to get the job done and keep the peace, then that's what needs to happen. (E.S. 10, Teacher 1A)

The schools' structure has changed since PLC implementation. For instance, teachers feel they share leadership with the principal and each other.

> There's no defined leader, so everybody's working together, and we all fall into our normal leadership roles we usually take…We really hold each other accountable in that you have to bring something to the table. So, in that way, we would all be considered "leaders." (K-8 3, Teacher 1C)

> We share leadership roles. There'll be times when I'll run the PLC, and there'll be times when she'll run the PLC. We usually take turns…which is good. It's good we share the load. We have a good way of, during PLCs, talking about our assessments…It gives us breathing room, too because we share the load. (K-8 3, Teacher 3C)

When asked to share a time when teachers within their team felt empowered in having the ability to implement their own decisions, all participants shared examples.

> When we have collectively decided something, it didn't really matter who brought forth the idea or thought they might want to implement it. We always consult our administration team which would be our curriculum support or principal, and they're always constructive. They have a different brain as far as admin is considered, so they know the hoops they might face or challenges so sometimes they can really guide us when we have lofty ideas. They can say but wait, remember this kind of thing, but always constructive. They always listen even if the grandiose idea would never have worked. (K-8 3, Teacher 1C)

> We used to teach all subjects, so we were self contained. We thought of an idea, instead of doing all this work…why don't we divide the subjects. I'm pretty good at two subjects. She's pretty good at two subjects. Let's work on our strong points…So, we talked to our principal about it, and he really liked the idea. (K-8 3, Teacher 3C)

When asked to share an example of teachers overall feeling empowered in accepting shared responsibility for ensuring all students meet grade level standards, several examples were presented.

> We all maintained this level of accountability and leadership as far as meeting our content standards and this goes into our intimate PLC. And our principal has really given us a lot of flexibility because we've proven ourselves. Not that we're there at all, but he's been a lot more willing to let us explore new methodology and practice because it is working. So as far as intervention is concerned, he's not one to come in and say you are doing this wrong or that is something you should not try. (K-8 3, Teacher 1C)

> I went to our principal because of one of the PLCs, and talking about having the study hall time at the end of the day…so they can stay here from 3:00 until 5:00, and get some help along the way with the standards. He thought that was a good idea…So, just giving him the idea, and trying to pitch it. "These kids need help."…I remember asking in February while I was trying to get something correlated with the CST coming up. So he said, yeah, it was a go, and we've been doing that for three years now. (K-8 3, Teacher 3C)

When asked what role the principal plays in the collaborative process, teams shared similar examples.

> He serves as the sounding board, that voice of reason and rationale. Sometimes we have a lofty idea we want to run by him, but he also serves as a generator. This is something that he gives us before every meeting. So we know what to expect and anticipate as well as prepare for. It comes with this gentle nudge of be thinking about these things before you get here. So teachers are somewhat prepared, which is nice. (K-8 3, Teacher 1C)

> He's the facilitator, not just the leader. He really poses what we need to do and goes through it. As our junior high PLC, we need to turn in our minutes after we're done, so he's the overseer. With my PLC partner and I, he's not really involved. He might come and join us every once in a while, but that one's pretty independent. (K-8 3, Teacher 2C)

> He really wants to make sure we're doing our part regarding our goal of 100% proficiency with the kids. He really makes sure we're doing the right part…when we have our agenda, he wants to see it, see what we're talking about, see what we're doing. And then on the bottom it has a place for questions that he needs to answer. We have questions, we put them down,

> and he can respond. That's really good because there are principals who don't want our opinion, they just want to know what we talked about…We know he cares, and that's a big role, too, that he cares about us, and that's not coming from upstairs. He wants us to do a good job and because of that, we want to put forth extra effort with him…I want to work hard for him because I know he cares, he cares for everybody, so I put in that extra effort. (K-8 3, Teacher 3C)

> Sometimes he says this is what I'd like you to work on. I want to give you time because I know your time is valuable…And then when we come together and share out...Issues and concerns because sometimes that'll bring up some really good strategies. Just brainstorm strategies when we are feeling stuck. So for him it's knowing when to say, 'OK, go.' And then 'OK.' When to come. That's what his role is, to determine and get a feel for how we are doing. (K-8 3, Teacher 4C)

> I think with PLCs, it starts with teacher buy in with the staff, the atmosphere, and the culture. I know how lucky I am now that I am in this district because there is buy in, and there is support from teachers and administrators. We have our challenges with some of our students… Having a supportive staff to help go through it is so beneficial. I'm glad we have time to sit as a PLC and discuss all that we're trying to go through, rather than the olden days of teaching that I hear about, that you're in your room, and there you go. Figure it out on your own kind of thing. I think we have a lot of work to do with PLCs to get better, but I think we're moving along pretty well. (K-8 3, Teacher 2C)

Clearly, administrators play an active role in the PLC process.

Individualized Support, Appropriate Modeling, and *Productive School Culture*. Leithwood (1994) and Leithwood et al., (1998) describes individualized support as site leadership's behavior that demonstrates respect for each teacher and concern about their personal feelings and needs. Teachers from the more effective PLC teams commented about feeling well supported much of the time and shared numerous examples supporting their views.

> Me and my principal are really close. He is very supportive of me. We just clicked from the beginning, and he's always supported me. I would do anything for these kids. I would do anything for this school. So, he supports me all the time. If I need a sub so I can plan with a partner, if I need to observe a classroom. He's really supportive of me, and it always

> helps. Of course it helps my team, because whatever he's doing for me, in turn, he's doing for the kids. So, he's given me a sub to go and observe, or go plan, for the kids. So he's really supportive. (E.S. 10, Teacher 1A)

There is a clear sense from the more effective PLC teams that administration provides a variety of individualized support.

> While I have not been to the DuFour training yet, I have been lucky enough to work very closely with my partner who has gone to several PLC trainings. So luckily, there's a couple of people on campus who have been to DuFours, and who get it, and they're more than willing to share about it. So even though I didn't attend, I get instant feedback from them when they got back. They were able to give me pretty good insight into where we were headed with the PLC process. (E.S. 10, Teacher 2A)

> My principal is very good at getting us the trainings we need. So, he spends money on us. My principal does not say, "Go do it," without follow through. If he tells us to go do it, he gets someone to teach us how, if he can't. Then he continually checks on it. Our role is to teach these little babies and his role is to teach us and hold us accountable. (E.S. 10, Teacher 2A)

> We talk to our principal first and we OK it, but we approach him and explain our reasons. We see students' having difficulty with backpack organization or having four teachers…He has been very supportive. If we come to him with our reasons and say, "this is the deal. They are having problems, difficulty here, they need more one on one or individual time with one teacher." He's been very supportive. (K-8 1, Teacher 1D)

E.S. 10's principal explained that, as a result of being the lowest performing elementary school in the district, their school was able to bring additional staff members to the PLC training by the DuFours. One member from each PLC team was sent to the initial round of training. This additional support helped ensure a solid PLC structure at a school with the lowest district performance.

Teacher 2A of E.S. 10 shared a time when the principal was not entirely convinced of several of this teacher's pedagogy. Since sharing his concerns, the students have shown a lot of academic growth.

> He came back and was very supportive. Even the way he approached me and said, "OK, you win. I get it." That was really powerful. I felt very supported. There were times when I thought I was doing it all wrong...I just think that probably the most powerful thing he can do to support me, is that he has no problem coming to me, any of us, and saying, "OK, you were right," or "OK, I get it now." To me, in a leader, that's a great thing because you can't always be right. Sometimes when you look at your team, we are his team, and when you're able to look at him and say, "OK, he could have just left and never said another word and left me alone." He doesn't do that...That, to me, is positive. When he's come back and said that, and then he's gone into our PLCs and watched how we get to this point. He does that, too. He'll be part of your PLC (E.S. 10, Teacher 2A).

> For us, our administration has been incredibly supportive when we set our schedule. They have an expectation, "We want you to cover this, this, and this. You need to block a time for this, this, and this." The fact he's flexible with our pacing guide helps a lot. He just likes to be notified if we're adjusting things. But if the pacing guide is going well, if a standard isn't, if I'm having to go back and reteach way too many kids, that's just the way it is. He allows us the flexibility to do that. (E.S. 10, Teacher 2A)

All participants shared the principal has given PLC team time during the contractual day. "He's tried, as best as possible, to give us as much time as we need" (E.S. 10, Teacher 2A). The principal also conducts classroom walk throughs to support teachers.

> She does walk throughs and on a slip of paper, makes comments about what you're doing, what the kids are doing, and anything else she sees. And then, she'll also put...growth opportunities. She writes ideas that my PLC team and I come back and talk about…It's not a negative, just looking at things differently. So, that is supportive because it could be a way my partner and I have never thought about it. I guess, having that validation. She is looking for that which is a good thing to do. (E.S. 6, Teacher 1B)

Another participant said:

> I believe we have an extremely supportive principal…and she was a teacher in the classroom for a long time so she's very aware of teachers and believes in shared leadership. So, we feel very comfortable being able to go to her with anything we want to do, implement, or try because of her support. (E.S. 6, Teacher 2B)

The less effective teams also see the significance in the time given to meet.

> I think honestly the main thing is having those minimum days has helped, even though for us it's only every other week. I mean, we meet every week but to have the extra time. At least every other week or twice a month we have that half day, so that has helped us keep going at it. (E.S. 10, Teacher 3A)

Several additional examples of individualized support were presented.

> We're pretty lucky because we're being successful right now…We have a lot of leeway with the curriculum decisions we make…Our principal is open. We do have a lot of leeway with how we're going to teach, and our principal is supportive of what we choose. I don't think there's ever been a time when he's told us no. (K-8 3, Teacher 2C)

> He gives us time for what he expects. Like, he wanted us to create a scrapbook with the standards. He gave us time and a sub. He gives us all that we need to be able to do the task…He was a secondary teacher, which helps us a lot. So, he understands and remembers and is really good at giving teachers time for what he expects. (K-8 3, Teacher 2C)

> He guides us throughout what needs to be covered, so it's not just every other Wednesday…He focuses us. Right now, it's academic vocabulary, so we approach it how we think we need to approach it. (K-8 3, Teacher 2C)

> The thing about our principal is that he's very open minded. He really listens to your opinions. Another example is: with the budget cuts, no sixth grade camp. With us, our parents have been in an uproar. So I've talked to him about having this other field trip. It's a lot less and not as fun as sixth grade camp, but it's something that...It's good for them to have a field trip, no matter what. So he's talked to the parents, and he's rolling the ball on that. He's helped me out with that a lot. (K-8 3, Teacher 3C)

> I think the principal trusts that we know what we're doing. That's very validating for me. As an educator for 32 plus years, I appreciate that. And then I remember a time when my partner and I did SMART goals, we'd done the dataset, we'd done all this stuff and they'd take the district benchmark test. And students did horrible. My partner's mouth was like this, and I just sort of banged my head on the table. And you know, the principal really, he said hey, it's not you guys. You've done this, you've done this, we just really need to...So I felt he supported us there, too. (K-8 3, Teacher 4C)

One principal shared an example of individualized support for a teacher who was struggling instructing EL students.

> I said let's do peer observations. Let's go walk around and see how Mr. Yah in sixth grade does his pair share…Then we talked about how he does this, and the teacher tried it…He started trying some of those strategies and learning the strength in those strategies. He started realizing the principal was absolutely right about EL students and how to better help them succeed. They don't talk enough, and I think if we do that, it'll make them discuss, think, and justify their answers and they'll feel comfortable in sharing outloud. So as he moved through those strategies, he started really believing and seeing the strength in the other staff members…So learning those strategies and being available to take them and own them…We have wonderful teachers who have great strategies so let's rely on them and see what they do and try to implement them throughout our grade levels. (K-8 3, Principal C)

One of the less effective team members of E.S. 10 mentioned not feeling supported by the principal.

> There really isn't a time that I felt like - and not that - I don't think that he doesn't - I don't think that he means to be unsupportive, I just don't think he knows how to, so therefore he's not. (E.S. 10, Teacher 4A)

Another member of a less effective team was able to articulate a time when the team was supported by the principal.

> Well, if we have trouble with our EL students, then he would definitely come in and sit with us or the EL teacher would sit with us. That kind of thing where they would come and...yeah, I think that would be about it. One of them sitting in and offering their feedback and their ideas. (E.S. 10, Teacher 3A)

Another example of individualized support was presented.

> I think first thing is support and trust. Then we can go to our principal, we run things by her. It's very comfortable to go to her…And I think always going back to having an open door, so we can go and talk to her. Being able to go to her and feeling the trust and support…being able to run ideas by her and get some helpful suggestions and ideas, that's a marvelous thing for us to have that type of relationship. (E.S. 6, Teacher 2B)

Another member shared a similar example.

> The principal comes in and does observations and walk throughs and said, "Hey I notice blah, blah, blah. I have some suggestions if you want them. Or come see me if you want more information on that." So she's involved in the PLC and wants to support us. (E.S. 6, Teacher 3B)

A participant stated:

> The principal always has an open ear for any questions we have regarding the PLC process. If we are having trouble with something, she encourages us to go outside our primary PLC or outside our grade level. Talk to the teachers above us, talk to the teachers below us…So, she's very available for questions, comments, and suggestions. And she's really good at getting back to us if we have questions or need support…She's a hard worker. (E.S. 6, Teacher 3B)

> We had fallen a little bit behind in math and we're behind our pacing chart. We…felt we needed to stop science and social studies for a while. We don't have a state test on them, but fifth grade needs the fourth grade science. We ran the idea by our principal who said it sounded great if that's what we need to do. She also said by all means, make science and social studies a little less of a concern and really get back into your math. Do whatever you need. (E.S. 6, Teacher 4B)

> Our principal is always very supportive. She always encourages us to make sure we get what we need in our meetings, always making sure she looks at our minutes, looks at our agenda. Making sure we are focusing on the right things, making sure we are including our SMART goals and what we're going to do for all our students. What we're going to do for those kids who are already proficient or advanced. She is like a coach. She keeps pumping us up about the PLC process. (E.S. 6, Teacher 4B)

The E.S. 6 principal's perspective is similar to both PLC team's responses from that site.

> I've been staying out of the process unless I've asked to be put on the agenda for a specific issue or a team needs my guidance. I do reflect and read their minutes, and I give them feedback usually through email, and many times that will prompt a face-to-face conversation. But I also have my CSP, a curriculum support provider, and sometimes when I feel a PLC is struggling, I send her in because she is seen more as a teacher and not an administrator coming to see what they're doing. I see my role as guiding them along. (E.S. 6, Principal B)

Another transformational leadership characteristic is modeling. Site leaders who provide appropriate modeling behave in a way that sets the example for teachers to emulate that is consistent with the current expectations (Leithwood, 1994; Leithwood et al., 1998). In general, all participants were successful in sharing examples of modeling though the less effective teams required prompting. Participants of the more effective team at E.S. 10 explained the principal continually modeled how he wanted PLCs to run each time there was a staff meeting.

> I think he plays a part in the collaborative process in that he models. His meetings go pretty well, and he pops in and has our CSP, which is like a vice-principal. She's always going around, and she is modeling. So, there's a lot of modeling going on, and he's always open to questions. (E.S. 10, Teacher 1A)

An E.S. 6 Team 1 participant explains, "I know in other grade levels the principal sits in on the PLCs and works with them one-on-one…So, I think that's her making sure everybody's staying on task and modeling what effective PLC teams do" (E.S. 6, Teacher 1B). Both E.S. 6 teams shared the principal models lessons for teachers and the PLC process during staff meetings similar to E.S. 10.

> Going through the modeling. Our staff meetings are run like a PLC, so she is modeling it. We have our norms posted in our staff room the same way we have our norms within our own grade-level PLCs. She models it the same way we model lessons for our kids on what we expect of them. (E.S. 6, Teacher 2B)

Team 2 further explained that E.S. 6 has several mentor teachers who work with teachers who need extra assistance.

The E.S. 6 principal stated:

> I model as much of the PLC process as I can in our staff meetings; we have norms. I confront teachers on the norms, we revisit our norms weekly…Do we need to revise them? I try to model what they should be

> doing in their small group PLC, but many times that's not necessarily carried over. (E.S. 6, Principal B)

> They've told me it's become more productive. They've also told my CSP, "Our meetings typically aren't like this," because she's there. So it's modeling again, how we should function as a PLC. (E.S. 6, Principal B)

For K-8 3, appropriate modeling comes in the form of the principal demonstrating how PLCs should look and staff development opportunities.

> We've seen PLC modeling at staff meetings. Having discussions with our principal on what a PLC incurs, and what are some things involved. We've had staff development days the last couple of years. During those days, there's blocks of time where teachers go to different classes, some involve how to become a better PLC. So, I've gone in there and listened to some teachers, and what's become effective. They've given samples of what to do. That helps, and so part of it was having that agenda…having a plan really helps. Now, when we go in, we talk about what we need to talk about. What standards we need to do. What assessments we're going to look over. That's helped a lot. (K-8 3, Teacher 3C)

To assist with modeling, the principal stated:

> Initially, I had my CSP actually facilitate, sit down and run a PLC with some of my groups that weren't so strong. So, she'd take an integral role in terms of...Her level's more as a peer than mine, so I wanted her to go and soften the blow. I'd say "OK, I want you to go help run and facilitate this meeting so that they're all on the same page" because some of them weren't. We actually did that with two grades; we were trying to reel them back in. (K-8 3, Principal C)

The final transformational leadership characteristic, productive school culture refers to teachers working collaboratively and collegially to ensure high levels of learning for all students and principals sharing power and responsibility (Leithwood, 1994; Leithwood et al., 1998). Because numerous examples were previously shared referencing teachers working together, the focus of the remainder of this section is on sharing power and responsibility. The more effective team of E.S. 10 believes the principal is flexible "within reason" and created a variety of opportunities to share power and responsibility.

When implementing the PLC process, the principal started a leadership team with representatives from each of the PLC teams. This has afforded teachers a stronger voice in the decision-making process. One of the more effective team members stated:

> I took on the leadership role of our PLC team. So, I usually create the agenda and facilitate the meeting. During the leadership meetings, each team has an opportunity to share what is working and growth areas. But, we are very much, in our PLC, we truly believe in the peer respect and peer responsibility. Although for sake of time, someone does have to get the ball rolling...I talk to the team ahead of time, and they may have something that they need, more pressing, in the agenda, and we'll put it in there. (E.S. 10, Teacher 2B)

Both E.S. 6 Team 1 members stated they shared leadership equally within their PLC team.

> We're both really strong in different areas, and I think that's where we really click together. So usually…we think alike in a lot of different things. We each do different things better, and we work together really well. So, it's not like one person's boss and the other person is not. (E.S. 6, Teacher 1B)

Teacher 2B of E.S. 6 agrees and stated they are both leaders. "As I said, it's more of a collegial atmosphere. With the two of us developing our PLC agenda, working together. I think if you walked in, you wouldn't realize one is the leader and one isn't" (E.S. 6, Teacher 2B).

An E.S. 6 Team 2 member sums their PLC team culture as follows:

> My PLC partner is not out to get me. He's not out to shine and let me look dull. He's there for both of us. He basically says, this is our focus, and this is where we want to go with this, what do you think. Then he lets me talk. And we have a real good relationship in terms of letting each other share ideas. And if I tell him I don't really agree with that, he'll say, "Well, what do you think?" He may say, "Why don't you do it that way, and I'll do it my way, and we'll look and see how it goes?" Or he may say, "OK, I didn't think about that. Let's try it." So, it's pretty open, open line of communication going back and forth. (E.S. 6, Teacher 3B)

In addition to sharing leadership within teams, participants feel leadership is shared schoolwide. For example, PLC team members attend monthly leadership team meetings where they focus on the PLC work each team is currently doing and voice any concerns. One example shared was the work the leadership team did with vocabulary development. Team 2 agrees, "I think we've shared responsibilities" (E.S. 6, Teacher 3B).

The principal explains it this way:

> What we're looking for is a growth and process, which is what I'm seeing. And the one - in fact, our leadership team, I would consider my PLC that I participate in, which consists of a teacher from each grade level and/or department, my CSP, any itinerant staff, and the one thing we look to address in every meeting are those four big PLC component questions. And in that sense, I think that's what is driving us and that continued effort to better the process. But in terms of how it looks, I think data is always driving the meetings. Actual student names, accountability in terms of timelines, and on a consistent basis. (E.S. 10, Principal A)

Teacher 2A of E.S. 10 said all teachers know the expectations in part because of the leadership team meetings where a leader from every grade level PLC attends. Teacher 2A believes part of the role of the leadership team is to periodically conduct classroom visits to find evidence that supports each grade level being on the same page (evidence that the standard is being addressed). A peer looking at a peer model. We have a vision for what our school should look like and now we're going to go see is it happening.

Participants were asked to explain how the school has evolved since PLC implementation. Several participants were in the district since the PLC process began and shared that teachers never discussed other students but rather focused on their own students in isolation. Teachers never worried about how other classes did nor what their

scores were. In order to create a productive school culture, the more effective team describes the way the principal changed E.S. 10 as very "methodical."

> The use of the PLCs was great. The PLCs is a district-wide implementation that we do. At the same time, our principal wasn't trying to shove it down our throats. He knew we were supposed to be doing it, we knew we were supposed to be doing it, he always alluded to it, and he always spun us in that direction. It took a while for that buy-in, but once it happened, you could definitely see the growth happening at this particular site. He went from observing the first year to then getting in and dabbling a little bit in some of the grade levels. (E.S. 10, Teacher 1A)

To create a productive school culture, the principal had to address teacher isolation.

> There were a lot of lone wolves and a lot of isolated teaching going on. Teachers went to their classrooms and they taught. They didn't talk about what they were teaching. They didn't talk about the kids. Now, you have everybody together, every day, every week, at least an hour a week, and they're not fighting it. They're not finding excuses not to come. There is no grumbling in the lunchroom anymore. There's no, "I'm not doing it." (E.S. 10, Teacher 2A)

Moving from a lot of isolation to a productive school culture is summed as follows:

> Everybody has bought into the whole thing that we're all responsible for everyone. We're even responsible for our peers...If you see them struggling, help them. Take your guard down. Don't be afraid to take in some suggestions from someone else. Nobody knows it all. I don't know if you've seen the data on this school. In the last six years, holy cow! If that's not empowering, I don't know what is. That's total empowerment and validation...When we send them to the middle school and the number of proficient students get higher and higher over there, and we're getting notes back saying, "Gosh, your kids are so organized and ready to roll, " I share that with the kindergarten teacher, the first grade teacher. Because those kids are representing all of us. We're getting more successes. That's that empowering thing. (E.S. 10, Teacher 2A)

Another participant shared:

> Pre PLC was a lot of isolation…Even though we collaborated and looked at students, it was more on social and behavior and that type of stuff. So we've evolved to…starting to have more of a formalized, this is what PLCs are looking like, this is the format you're going to do, this is the norms, we've set our norms to start with. Then we broke away from

> having weekly staff meetings with a lot of principal talk…We've evolved from that to having staff meetings every other week, and we only have them on our regular day Wednesdays. Now we do a short staff meeting, 20 minutes, on our minimum days. Before that we have our grade level, get all the busy work stuff done type of staff meeting…Then we go to our school staff meeting to get our busy paperwork, here's what's going on. Then we go to PLCs. And now it's evolved into the entire school PLCing in the cafeteria from about 3:30 until 5:00-ish…It's been interesting because now you see everyone together and you hear common dialogue. It's interesting to hear the common dialogue of "OK, we hit our goal, we did not hit our goal." Even having the opportunity of the middle school teachers, now that I'm not working in isolation, I get to talk to all the middle school teachers and get ideas from them. (K-8 1, Teacher 1D)

A member of the less effective team describes the school culture this way:

> When we first started nobody knew what it was. I mean, they just started throwing out the term and "OK, now go meet." A few people had gone to training but that was pretty much the extent of our knowledge of it. So the change has been moving away from talking about field trips to student data. Even though our team has not moved to the next step, which I think would be what we do with all that information. But we have moved from just chit chatting. Now, we're trying to be more efficient and focus on the students. Not that we didn't focus on the students before but like I said if it was field trips, lip-sync coming up, or awards. It's just all the other busy stuff. So, that's probably been the biggest change. (E.S. 10, Teacher 3A)

The other member of the less effective team agrees.

> The biggest change is really focusing more on data. When it started it was really more of this idea of teachers getting together and maybe just sitting and planning in the same room instead of their separate rooms…There's this dialogue, and it's evolved into being very focused on the standards, knowing exactly what the standards are for your grade level, and then looking at how that standard is taught. How are we as a team going to teach it? Assess it? And then what were our results and where do we need to go? Did they get it and we move on? Or do we need to backup and re-teach it? So it's definitely changed. (E.S. 10, Teacher 4A)

Team 1 of E.S. 6 explained how the school culture has become more productive since PLC implementation.

> Pre-pre-PLC, we had our grade level meetings…We talked about what we were going to do later in the week. It was more like planning time. Then

> we started meeting every other week, and we were going over data, so that seemed more data driven, but that didn't really affect planning. They were still separate. Then we heard of this PLC…Our principal asked, "Do you know the four questions?"…We would still compare our data, but it's not like we really spent time looking at each other's work. "Well, why did your class do good and mine didn't?" We hadn't gotten to that point. I think the PLC, has helped to push: "Why did yours do good? Why did mine do bad?" or "Why did we both do bad?" "What really worked?" So, looking more at that. (E.S. 6, Teacher 1B)

> At first, it was more teacher isolation. Then we began looking at data through the PLCs…Now we're actually looking at the data, and we have evidence to say this standard was taught and the students got it. Rather than just saying here's what they did on the test. So, it's more data driven for the PLCs…Now we're taking it much further and much deeper. Much more geared toward what the students are achieving. (E.S. 6, Teacher 2B)

A principal added:

> The teachers know the PLC process isn't just something that's coming and we'll have it for five or six years, or we'll have it for as long as our current superintendent is here. They know that the evolvement into this is just who we are, this is what we do here. We are PLCs. (E.S. 6, Principal B)

All participants believe the school culture is productive especially in ensuring learning for their students.

> Fortunately, it's been all warm and fuzzy. It's been a great experience here. We probably even do more than we say we do. We talk more, collaborate more than our allotted time, again, every lunch. I feel it's best practice. We have this open door policy. Where we really network with each other, versus, what happens in my classroom, happens in my classroom and you don't get to know or share. We're constantly swapping material, even cross subject. I really want to build a partnership, especially with our social science department. I've networked with him over the summer…So we're getting multiple standards, multiple times, with each other. (K-8 3, Teacher 1C)

> Six years ago it was mainly, pass by, how are you doing…So, we really didn't get to know the students and how well they did socially and academically. There wasn't a lot of communication between teachers before PLC's. Now you see them in the staff room and you talk about a certain kid and how they're doing in school. So having the PLC has made us understand and aware of, hey, instead of talking about how our weekend was, let's talk about our kids and what we can do to make them

> better and understanding their goals. It seems that the focus has really shifted from isolation to collaboration, from one of not really talking about students and their achievements...academically to one of talking about students and their achievements academically. I mean we were teaching, but I don't think we were really focused on, we just wanted to get through the standard and OK, they didn't pass, they didn't pass. But now with the PLC, we're "OK, they didn't pass what are we going to do?" Now we're a distinguished school, and I think a lot of it has to do with PLC's. I always think about that, too, how we used to be PI, and now we have PLCs and now we're...getting recognized, and are a blue ribbon candidate. (K-8 3, Teacher 2C)

> I would say when we first started, we really didn't know what we were doing. We were a big group and let's visit and talk. Then let's visit and complain. Then we set ground rules for our PLCs. We had someone facilitate to keep us on track, and we'd have a set objective for our PLC…So now, we're so tuned in with SMART goals. This is what you need, what are you going to do with your kids. It's much more focused. So at first it was nebulous. Not so much data, we didn't really talk about data. Any variety of things. (K-8 3, Teacher 4C)

All four sites have clearly created a positive school culture, moving from isolation to collaboration.

Summary

This chapter brings together the qualitative data from the 21 teachers and 4 administrators who participated in this phase of the study. A critical finding from this study is that all schools in this district serving large percentages of low-income English Learners have achieved significant improvements in student achievement since the systematic implementation of the DuFour and Eaker (1998) model of professional learning communities (PLCs). The quantitative data indicated that the variability among the district's schools was small; however, the qualitative and quantitative data presented in this chapter showed important differences within schools. Therefore, the focus of this

chapter has been to carefully reveal differences in PLC team characteristics, collective efficacy characteristics, and teachers' perceptions of principal leadership qualities.

In each of these domains both types of PLC teams (called for purposes of this study more effective or less effective), were implementing PLC characteristics. The primary differences were in the depth and degree of implementation. Particularly significant was the level of collaboration in moving beyond looking at test scores to systematically using the information from the data to improve student learning and success. The less effective teams seemed not to have reached the same level of trust and collaboration that allowed them to engage in joint productive work that is essential to be able to move students to higher levels of mastery (Chrispeels, Andrews, & Gonzalez, 2007; Gallucci, 2003; Little, 2003). Without high levels of collaborative work, the data also indicated that participants in the less effective teams did not have the same level of collective efficacy as the more effective teams. These findings suggest there is an interactive relationship between PLC effectiveness and collective efficacy of the teams.

The third significant set of data presented in this chapter showed that teams within the same school differed in their perception of the principal's leadership. Although it is not surprising that teachers within a school differ in their perceptions of the principal, this study's finding that there is a clear association between a team's sense of collective efficacy, the quality of their PLC work and a positive perception of the principal's leadership as opposed to the more negative perceptions of the principal held by less effective teams would seem to have important implications for practice that will be discussed in the next chapter. Chapter 6 begins with an overview of the study and

provides an analysis of the findings of the research questions. Chapter 6 presents conclusions, implications, and suggestions for future research.

CHAPTER 6: DISCUSSION AND CONCLUSIONS

This chapter presents a summary of this research study that includes an overview of the problem, purpose statement and research questions, a review of the methodology, and a summary and discussion of the findings related to each of the research questions. Additional sections discuss the findings in relationship to previous research, conclusions, implications for practice are suggested as a result of the findings, and recommendations for future research are proposed.

Summary of the Study

Overview of the Problem

As stated in chapter one, school systems across the United States are responsible for meeting the increasing requirements of the No Child Left Behind Act as defined by federal policymakers, which mandates that all schools and districts meet a number of performance requirements addressing student achievement and the closing of the achievement gap between significant subgroups, teacher quality, and the quality of professional development provided to teachers. The student achievement aspects are the most critical and most challenging. Districts must determine approaches to meet these federal requirements. This need for school reform supporting increased teacher accountability is the impetus for this study.

This sense of urgency in America's public schools has led researchers and practitioners to examine effective structures that accomplish the lofty goals of meeting the federal mandate and closing the achievement gap. School leaders are continually searching for strategies to improve student achievement and help eliminate the achievement gap. Site administrators have attempted a variety of actions to redistribute

resources, reorganize instructional staff, redesign curricula, restructure the school day, and provide interventions to under-performing students in the hopes of improving student achievement. Several of these efforts support the professional learning community model as defined by DuFour and Eaker (1998). One example is the restructuring of the school day, which provides teachers embedded time to work in collaborative teams focused on students and their learning. Finding time within the student day to provide interventions for students struggling to meet the required grade-level standards being addressed at a proficient level is another critical element of a PLC.

Educational researchers who study organizational effectiveness of schools discovered that a culture of collaborative work groups focusing on continuous improvement with strong teacher commitment results in improved student learning (Darling-Hammond, 1984; McLaughlin & Talbert, 1993). A review of the relevant literature shows promise in addressing student and teacher needs through the lens of professional learning communities **(**DuFour & Eaker, 1998; Hord, 1997, 1998; McLaughlin & Talbert, 1993). Using the PLC model provides a necessary framework for all teachers to learn and supports them in assisting their students to achieve at higher levels. Some professional learning community characteristics have been found to have a positive relationship with student achievement (Lee & Smith, 1996; Louis & Marks, 1998; McLaughlin & Talbert, 1993; Newmann & Wehlage, 1995; Rosenholtz, 1989); collective responsibility for student learning (Lee & Smith, 1996; Lee, Smith, & Croninger, 1995; Little, 1982; Louis, Marks, & Kruse, 1996); substantial learning about good teaching and increased content knowledge (McLaughlin & Talbert, 1993); higher teacher morale coupled with greater job satisfaction, retention rates, and enthusiasm (Hall

& Hord, 2006; Lee, Smith, & Croninger, 1995) and increased teacher efficacy (Lee, Dedrick, & Smith, 1991; Newmann, Rutter, & Smith, 1989; Rosenholtz, 1989).

Even with the overwhelming evidence in support of a PLC, many schools are having difficulty implementing and in some cases sustaining the PLC process (DuFour, DuFour, & Eaker, 2008). While there are apparent possibilities, there may also exist discrepancies between the operational realities of some schools that merely profess to be professional learning communities with schools, which, on closer examination, are genuinely operating as effective PLCs. Further, the lack of sustainability creates questions regarding why a structural reform that clearly shows such potential in helping students succeed has difficulty getting the necessary staff support and once support is in place, sustaining it. This study explored this question while examining the link between collective efficacy and PLC implementation.

Also little empirical evidence links professional learning communities to student achievement (Louis & Marks, 1998; McLaughlin & Talbert, 2006) and even less empirical research links DuFour and Eaker's (1998) PLC model to student achievement. Although the efficacy construct has been linked to student outcomes including higher student achievement, there is no empirical evidence linking the DuFour and Eaker (1998) model of professional learning communities to teachers' sense of efficacy. Therefore, it is informative in the school reform literature to identify possible links between the DuFour and Eaker PLC model and collective efficacy in light of empirical evidence suggesting that teacher efficacy is positively linked with increased student achievement (Armor, Conry-Osequera, Cox, King, McDonnell, & Pascal, 1976; Ashton & Webb, 1986; Gibson & Dembo, 1984; Goddard, 2001).

The literature revealed collective efficacy showing great promise when teachers work collaboratively, which is the essence of professional learning communities. However, a connection between the possible relationship of successful PLC implementation as defined by DuFour and Eaker (1998) and collective efficacy has not yet been empirically made. Because little is known about the possible relationship between PLCs and collective efficacy, this study also sought to discover whether or not a relationship does indeed exist.

Purpose Statement and Research Questions

The overarching purpose of this study sought to answer three central questions. The first question explored the ways teachers worked together in PLCs. The second question was to understand the relationship between collective efficacy and PLCs in one school district in Central California nationally known as a PLC district and to explore similarities and differences between more and less effective schools and PLC teams within schools. Third, the study provided an opportunity to examine transformational leadership and the role it plays in implementation and sustaining a PLC within the school. Not much empirical research has been conducted on the actual work teachers do in PLCs. Even less research has been completed on the relationship between collective efficacy and PLC characteristics. Therefore, this study sought to expand the realm of knowledge as it relates to collective efficacy, PLCs, and transformational leadership within schools.

This study used the proposed theoretical framework describe in chapter three (Figure 3.1) and has confirmed the original framework with the exception of the demographics, which showed no significance, which may be a reflection of the similarities in demographics among the schools. The revised conceptual framework based on this study

is illustrated in Figure 6.1. This framework links professional learning communities and collective efficacy. This interconnectedness also includes transformational leadership, which is linked to both PLC and collective efficacy. When combined, these constructs have potential to lead to increased student achievement. This framework demonstrates the crucial role transformational leadership plays in enhancing the PLC process as well as collective efficacy. As shown in the SEM model, the PLC process is a predictor of increased collective efficacy. The qualitative data was valuable in illustrating the reciprocal relationship between the PLC process and collective efficacy that did not emerge in the SEM model.

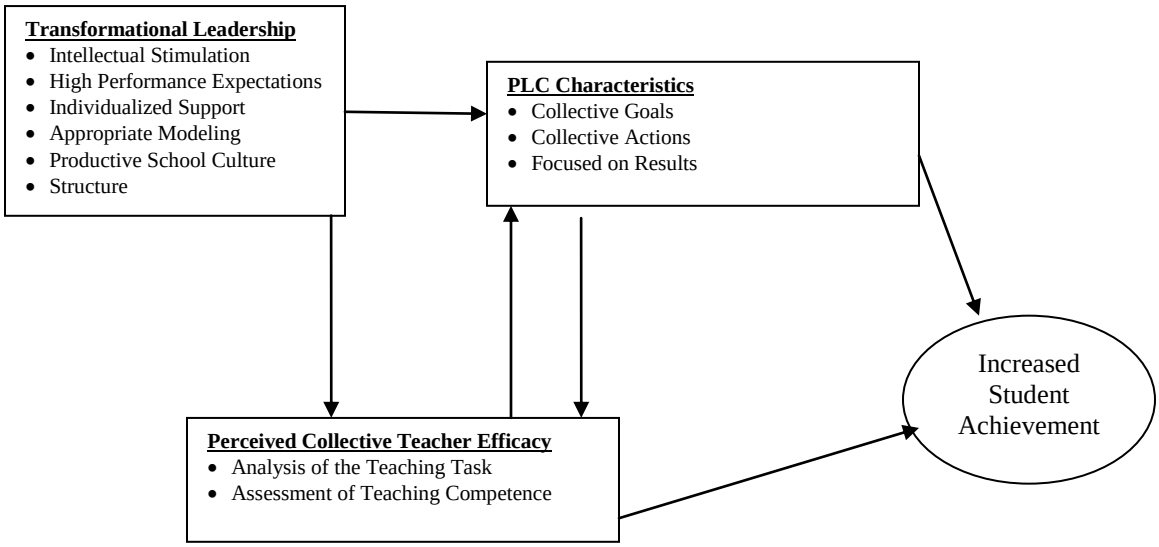

Figure 6.1: Reconceptualized professional learning community depicting the relationships between collective efficacy, professional learning community, and site leadership necessary to increase student achievement.

This study used both quantitative and qualitative data to answer the following research questions, hypotheses and propositions.

1.0 In what ways do teachers work in professional learning communities?

1.1 What PLC characteristics are demonstrated?

Hypothesis 1a: There is a high level of implementation of PLC components perceived by teachers in the district.

1.2 How do schools and PLC teams differ in their degree of implementation?

Hypothesis 1b: There is variation in the level of perceived implementation among schools and grade level teams within schools.

Proposition 1a: There will be important differences in implementation strategies between more and less effective teams within the same school.

2.0 What is the relationship of collective efficacy to PLCs?

2.1 What is the level of collective efficacy in the case study district?

Hypothesis 2a: There is a high level of collective efficacy in district schools.

2.2 What is the relationship between PLC characteristics and collective efficacy?

Hypothesis 2b: There is a positive relationship between collective efficacy and professional learning communities.

Hypothesis 2c: PLC is a predictor of higher levels of collective efficacy.

Proposition 2a: When perceived levels of implementation of PLC components are higher, teams work more effectively to ensure higher levels of student learning.

3.0 What is the role of the site leader in fostering professional learning communities?

3.1 In what ways do teachers perceive the principal playing a transformational role in implementing the PLC model?

Proposition 3a: PLC teams that perceive themselves implementing PLC components at higher levels will perceive the principal as engaging in transformational leadership.

3.2 In what ways do principal leadership, PLC implementation and collective efficacy interact to contribute to PLC sustainability?

Proposition 3b: Schools and teams that exhibit more of the characteristics of a PLC model will have higher levels of teacher collective efficacy and perceive the principal's transformational leadership more positively.

Review of the Methodology

The study district is a K-12 public district in Central California characterized as midsized, urban fringe. The district also has a large population of Hispanics, English Learners, and most students are considered socioeconomically disadvantaged. This context provided a purposeful district in which to pursue the study. This study focuses on the district's current reality five years after PLC implementation. Prior to PLC implementation, several of the district's schools along with the district were in PI status. Since PLC implementation, no schools nor the district are in PI status and the majority continue to meet all yearly API and AYP goals set by state and federal policymakers. Building on the belief that the professional learning community model as defined by DuFour and Eaker (1998) was essential to ultimately improve student achievement, the PLC process was implemented across all schools. Since beginning the PLC journey, the district has been honored with numerous awards and recognitions among them eight schools were honored for academic achievement and there are several California Distinguished and National Blue Ribbon schools.

As detailed in chapter three, this study used a mixed-methods (Rudestam & Newton, 2007) embedded case study design (Yin, 2003, Creswell, 2008) consisting of two phases. The first phase was quantitative and utilized survey data containing demographic information, PLC and collective efficacy questions. The surveys were conducted at a staff meeting within teachers' contractual day. Participants used a 5-point Likert scale to respond to statements associated with their PLC teams. This was a population study of all teachers and principals in the 16 K-12 schools within the school district. A total of 310 usable surveys were returned. The first phase of this study addressed two of the three research questions posited. Results of the descriptive, factor analysis, correlation, multiple regression and SEM tests using the participant data were reported in chapter four.

The qualitative phase of this study utilized one-on-one interviews with teachers and principals at four sites and documentation collection. Transcribed interview data were coded using HyperRESEARCH which resulted in 312 single-spaced pages. The purpose of the second phase was to delve more deeply into the quantitative data and answer the remaining research question regarding the role of site leadership. The qualitative results of the study were reported in chapter five.

Summary of the Findings

The findings revealed from the study are summarized by the three research questions and subquestions.

Research Question 1: In what ways do teachers work in professional learning communities?

To answer this overarching question and the first research subquestion, the researcher examined which of the PLC characteristics were demonstrated within PLC teams and schools. To explore this question, the first step was compiling descriptive data overall for the district and by school. The district's overall PLC mean score was 4.44 on a scale from one to five. School scores ranged from a maximum of 4.91 to a minimum score of 4.10. When considering elementary vs. secondary schools, the mean score for elementary schools was 4.52 and for secondary schools, including K-8, 4.34.

The percentage of teachers who agree or strongly agree with each PLC statement ranged from a low of 76% to a high of 94%. In rank order of statements from highest to lowest mean response, participants who agree or strongly agree they collaborate with their PLC teams to clarify essential outcomes for each unit of instruction and student achievement data was 94%, 93% of participants agree or strongly agree they use student data from various assessments to identify strengths and weaknesses in teachers' individual and collective practices, and 92% of participants agree or strongly agree that their team monitors each student's learning at least four times each year on essential outcomes using team-developed common assessments. The findings suggest that most participants are meeting together in PLC teams with a clear focus on student learning based on student data, a hallmark of the PLC model. These high mean scores across the district and its schools suggest that teachers perceive a high level of implementation of the PLC model in their schools and grade level or department teams. These findings confirm Hypothesis 1a. Since implementation of the DuFour and Eaker (1998) PLC model was the primary reform initiative of the district over the past five years and during this time the schools recorded dynamic growth in student achievement, these findings

suggest a strong relationship between implementation of PLC and increased student achievement as is shown in Figure 6.1.

Although the data indicated there was a high level of reported PLC implementation, when the four schools were selected for in depth analysis, the interview data indicated and the statistical data confirmed there were greater within school differences than differences in between-school mean scores. These differences confirm Hypothesis 1b as well as findings by others that within school variability in student outcomes can be substantial (Jordan, Mendro, & Weerasinghe, 1997; Rivkin, Haushek, & Kain, 2005; Sanders & Rivers, 1996). The qualitative data help to illustrate what these differences look like in terms of practices by the PLC teams.

The qualitative data support the survey results and provide a nuanced understanding of the nature of the teachers work in the PLCs that more fully answers question 1. The high mean scores on the PLC survey indicate there is not a great deal of variability among district schools; however, within each school teams vary. The qualitative data help to surface commonalities amongst all teams, which helps to explain the generally high PLC mean scores and highlights critical differences. All participants use norms to guide their collaborative work, generate short-term and long-term SMART goals, use common assessments, and share student achievement data within the team. Two major differences, however, emerge suggesting that some teams are more effective than others within each case study school. First, the more effective teams report not just sharing data but using it to analyze and identify student needs and alter instruction to meet those needs. In other words, there was joint action as a result of looking at the data, which has been shown to be important for changes in teacher practices (Chrispeels,

Andrews, & Gonzalez, 2008; Little, 2003). The less effective teams often did not engage in such practices. Second, the more effective teams engage in more intense collaborative work, are willing to take risks and experiment until they find strategies that increase student mastery of standards. They seem to be intensely committed to continuous improvement and are focused on results. The document analysis further supports these findings. For example, documents confirm the more effective teams use the data to re-teach and reassess as is evidenced by the teamwork completed after the initial assessment. The less effective teams do not have documents indicating re-teaching or reassessing beyond the initial sharing of data. These findings support proposition 1a that there are critical differences among more and less effective teams.

Research Question 2: What is the relationship of collective efficacy to PLCs?

To address question 2.0 and sub-questions 2.1 and 2.2 on the relationship between collective efficacy and PLC process, four statistical tests were used. First, descriptive statistics were compiled to investigate collective efficacy variables across the schools. The district's overall collective efficacy mean score was 4.37 with a maximum school score of 4.80 and a minimum score of 3.72. When analyzing elementary vs. secondary schools, the mean elementary schools score was 4.42 and for secondary schools, including K-8, 4.29. While some variance between elementary and secondary schools surfaced, the difference was not significant.

Similar to the findings regarding PLC implementation, the percentage of teachers who agree or strongly agree with each collective efficacy statement ranged from a low of 76% to a high of 98%. Three collective efficacy questions reflected very high levels of agree or strongly agree including 95% of participants believing they are responsible for

helping every student master grade-level curriculum, 94% of participants stating the structures, practices, and procedures in place are designed to help ensure all students learn, and 92% of participants stated teachers do not give up when students do not want to learn. The findings suggest that most participants have high levels of collective efficacy believing they have what is necessary to ensure learning for all students. These findings confirm Hypothesis 2a that this district also has high levels of collective efficacy.

To address subquestion 2.2, and confirm or disprove Hypothesis 2b, correlations and multiple regressions was the second step in the statistical analysis to see if there was a positive correlation between collective efficacy and PLCs. The Pearson Product Moment Correlation Coefficient Tests revealed statistically significant differences found at the 0.01 level (2-tailed) $p<.01$ between total PLC and total collective efficacy and all of the subscales. The data revealed a significant correlation between total PLC and total collective efficacy ($r=.533$; $p<.01$) suggesting a positive relationship between the work of PLC teams and collective efficacy. When exploring the relationship between total PLC and each of the two collective efficacy subgroups, positive significant correlations were also found providing further proof that PLC team work relates to the level of their perceived collective efficacy.

To further explore this question, multiple regression tests were conducted using group competency and task analysis as the collective efficacy dependant measures along with the three PLC subscales as the independent measures to determine the results. An analysis of the data provided further evidence that the subgroups were significantly correlated at the $p<0.05$ or $p<.01$ level. Also, 17.1% of the variance in group competence

is explained by PLC characteristics and 33.2% of the variance in task analysis is explained by PLC characteristics.

The findings also show that the PLC and collective efficacy means are positively related, further confirming Hypothesis 2c. For example, four of the schools have very high levels of both PLC and collective efficacy characteristics. E.S. 2 has an overall PLC mean of 4.82 and an overall collective efficacy mean of 4.74, which represents the second highest PLC and collective efficacy means respectively within the district. The highest PLC mean of 4.91 and highest collective efficacy mean of 4.80 was discovered in E.S. 8 further suggesting that teams with higher levels of PLC characteristics also have higher levels of collective efficacy.

When reviewing the data representing the lowest PLC and collective efficacy means within the district, similar findings were revealed. E.S. 9, for example, had the second lowest PLC mean of 4.11 and the lowest collective efficacy mean of 3.72. H.S. 2 had a PLC mean score of 4.33 and a collective efficacy score of 4.25. This suggests that teams demonstrating PLC characteristics to a lesser degree also have lower levels of perceived collective efficacy. Analysis of the overall mean scores at each site as well as at the district level revealed that schools and teams who have stronger degrees of PLC characteristics utilized during their collaborative work together, also show greater depth of teacher participation and teacher collective efficacy. These findings further support Hypothesis 2c regarding a close relationship between PLCs and collective efficacy.

To understand if there was a predictive relationship between PLCs and collective efficacy, the final test used to answer this question was structural equation modeling tests. The results demonstrated an adequate fit of the data to the model, with the CFI =

.902, the NFI = .903, and the GFI = .911. The data also revealed the RMSEA was within the 90% Confidence Interval of RMSEA and the Cronbach's Alpha was .834 indicating strong reliability of the model. The SEM model showed that PLC implementation was the predictor of higher levels of collective efficacy, which confirms Hypothesis 2c. This is an important finding that will be discussed in more detail below.

Research subquestion 2.2 explored how collective efficacy might contribute to PLC sustainability. To further address this question, interviews were conducted. The data suggest that the four schools selected overall have high levels of professional learning communities. The teacher and principal interviews provide a plethora of data illustrating the relationship between PLCs and collective efficacy. Most important the data support the SEM model through the description of initial resistance to the PLC process, gradual acceptance as principals and assistants model the process and more teachers received the PLC professional development. As they gained experience in carrying out the PLC protocols, the interviews revealed a sense of accomplishment and efficacy. In contrast, teams that were not fully following the protocols, that is using the data to change practice or engage in joint work, did not convey a sense of high efficacy with the process. In other words, the more the teams engaged the process, the more comfortable and efficacious they felt. The qualitative data also suggest a reciprocal process, that is the more teachers engaged in PLC work, the more efficacious they felt, the more they pushed to deepen the work. When analyzing more and less effective PLC teams those with stronger PLC teams also were found to have high collective efficacy scores and had higher student scores than the less effective PLC teams. As a result,

proposition 2a is supported and accepted that higher PLC scores predict higher levels of collective efficacy and student achievement.

Research Question 3.0: What is the role of the site leader in fostering professional learning communities?

The third research question and two subquestions using interview data examined the role of site leadership in fostering and supporting the implementation of PLCs. Drawing on the work of Leithwood (1994, 1996), six characteristics of transformational leadership were explored. Three of the six characteristics emerged as the most prominent themes: structure, support, and school culture. Participants shared how the culture changed for both students and teachers as a result of the PLC process. Prior to becoming PLC schools, teachers worked mostly in isolation, seldom shared best practices, and focused meetings on items such as where to paint the white line and whether or not to allow students to have costumes for Halloween. Over the past five years, this culture of isolation shifted to one of collaboration through the enactment of structures that created dedicated meeting time for grade-level teams and through increased access to student data and protocols from the DuFour and Eaker (1998) model that structured and focused the meetings to address student data and learning needs. Participants also indicated that principals provided intellectual stimulation, effective modeling, and high expectations.

As these leadership practices were enacted, teachers indicated they shifted focus to students and their learning using data to guide next steps. According to teachers, the result was they began to see significant student gains, which seemed to set up a reinforcing cycle leading to further engagement with key PLC practices. As participants

saw the advantages of sharing and doing work together and being rewarded with higher student achievement, they also reported increased levels of collective efficacy.

Although the above describes the general pattern that emerged from the interview data regarding the principal's role in supporting their teamwork, the more effective teams fully illustrated these ideas with their examples, whereas the less effective teams did not perceive the leadership to be acting in such a supportive way. Particularly less prominent was the perception that the principal was providing intellectual stimulation or appropriate modeling for the teams. This consistent pattern across the less effective teams of not seeing leadership as supportive was a somewhat unexpected finding. Although the principals recognized that not all teams were functioning at a high level, it is unclear whether or not they were aware of the more negative perceptions of their leadership by these less well performing teams. Overall the data supports the proposition that principal leadership is important in fostering the culture and structures needed for PLCs to function, and teachers in both more and less effective teams recognize this leadership. However, the finding that less effective teams within each school did not perceive the quality of the leadership in the same way as the more effective teams raises important issues for future research.

Discussion of the Findings Related to Past Research

The midsized, urban fringe district located in Central California used for this study was in Program Improvement 4 status when the superintendent decided to initiate a professional learning community model making it the first and only reform during the past five years to be implemented. Since implementation, the district has shown incredible student growth and has successfully lessened the achievement gap between

their significant subgroups. Additional district recognitions since PLC implementation include: continually performing in the top 10 to 25 percent of schools with similar demographics, one of the first to exit PI status in the state, demonstrating some of the highest overall achievement gains in the state, 13 schools receiving designation as California Distinguished Schools, 12 schools as Title 1 Academic Achieving Schools, two schools named National Blue Ribbon Schools, all 13 elementary schools being honored for outstanding character development programs, and 11 of the 13 elementary schools achieving an API over 800.

The findings of the current study support the importance of transformational leadership, PLCs and collective efficacy leading to increased student achievement. A significant finding of this study is the positive relationship between collective efficacy and PLCs and the necessary role of leadership to build and sustain the PLC model as a strategy for fostering collective efficacy. These conclusions also support past research in the fields of professional learning community, collective efficacy, and transformational leadership.

Professional Learning Community Research

The data collected suggest three areas of consideration of PLC development: initiation, implementation and sustaining. PLC initiation in the case study district began at the district office level with the superintendent and his cabinet attending PLC training and working through the process before sharing it with principals. The district's first year was spent determining the best course of action to implement the PLC process. In addition to the leadership team partaking in a two-day PLC training, they focused on a

book study, article readings, and other research to best support the PLC reform effort. This study found this to be critical for leaders planning to implement the PLC process.

Similarly, as a middle school principal, I began the PLC journey almost four years ago and have experienced significant gains along with numerous challenges in the PLC process. One concern was PLC initiation. I knew of many schools claiming to be PLCs, but, upon further examination, they were not following the model. I further learned PLCs are challenging to implement and difficult to sustain both firsthand and through other principals' testimonies. This current study addresses these concerns. Moving from a culture of isolation to collaboration such as confronted the case study district was the first obstacle faced. After attending the PLC training, I decided to engage in this reform effort by selecting a core group of teachers who expressed an interest in PLCs. This group went to the same training as in the case study district, reviewed relevant literature on the topic, and visited neighboring schools successful in PLC implementation. Unlike the case study district, I began this process prior to my district leadership claiming we are a PLC district.

The next consideration is schoolwide implementation. The case study district then trained site principals and shared the district's expectations. Principals have since been responsible for their respective sites in implementing and sustaining the PLC process. The same procedures were used schoolwide at my site and in the case study district. In addition to sending as many teachers to training as possible each year, I also discovered the need for common terminology. Once the literature and model were shared, teachers were put into teams, which should not be mistaken for groups. At this point, teachers began the PLC process but still had misunderstandings about what to do

when meeting in PLC teams. As a result, I developed a teacher training teachers' model after the first year of PLC implementation. I trained the leadership team in the area of norms, determining essential standards, SMART goals, and common formative assessments who in turn trained their grade-level teams. This training provided my teachers with a better understanding of the "how" during PLC team time.

Consistent with previous PLC literature, this study has provided evidence for PLC implementation and sustainability. This study also clearly describes how PLC schools look and act to ensure learning for all students. The findings in this study support the professional learning community literature and research regarding the PLC characteristics as defined by DuFour and Eaker (1998) as important for PLC implementation. Creating a shared vision, part of the initiation phase, is an important step in ensuring all teachers know where the organization is headed (DuFour & Eaker, 1998; Hord, 1997, 1998; Marzano, Waters, & McNulty, 2005; Wenger & Snyder, 2000). The evidence from this study suggests that the shared vision of the school allowed teachers to better understand the clear direction of the school and helped them feel more comfortable when engaging in the PLC process. For example, the descriptive data revealed 84% of participants agreed or strongly agreed that the shared vision and values among their school's staff influence policies, procedures, daily practices, and day-to-day decisions of all staff members. This is a significant finding suggesting the importance of a shared vision as part of the initiation phase.

The next two PLC characteristics (Table 1.1), collective inquiry into "best practices" and "current reality" (DuFour & Eaker, 1998; Hord, 1997, 1998; Wenger & Snyder, 2000) and collaborative teams focused on learning (DuFour & Eaker, 1998;

Wenger & Snyder, 2000), were found to be significant when working in a collaborative culture. These PLC characteristics signify PLC implementation. The DuFour and Eaker model consists of four guiding questions to help teachers during PLC meetings. The first two, 1) What is it we want students to know and be able to do and 2) How will we know they learned it, are used as teams work through the PLC process. The current study suggests that PLC teams that openly share best practices and focus on learning were more successful than the teams who did so to a lesser degree. For instance, 94% of participants agreed or strongly agreed that their team works together to clarify the essential outcomes for each unit of instruction using state and local standards and resources as well as student achievement data. This is significant in helping to implement and sustain the PLC model.

The PLC characteristic of action orientation and experimentation (DuFour & Eaker, 1998; Hord, 1997, 1998) was also seen as an essential characteristic within PLC teams. DuFour and Eaker highlighted the importance of teams doing something. The descriptive data demonstrated 91% of participants agreed or strongly agreed that students who experience academic difficulty are guaranteed access to a system of interventions that provide more time and support for learning. This addresses the remaining two DuFour and Eaker questions that guide the PLC process: 3) What do we do for students who already know it, and 4) How do we respond for students who did not learn it. The PLC characteristics of commitment to continuous improvement (DuFour & Eaker; Hord, 1997, 1998; Marzano, Waters, & McNulty, 2005) and results orientation (DuFour & Eaker) were found to be the most important characteristics when deciding what to do once student data had been shared within PLC teams. The quantitative data showed 89%

of participants agreed or strongly agreed that their team members use student achievement results from a variety of assessments to identify strengths and weaknesses in their individual and collective practice. A significant finding was that PLC teams demonstrating all six PLC characteristics interchangeably as defined by DuFour and Eaker worked more collaboratively and collegially with a clear focus on students and their learning than did the less effective teams in this study.

The findings from this study support the DuFour and Eaker (1998) PLC conceptual framework, which suggests that their six PLC characteristics are required to support the PLC process. The study also demonstrated the significant relationship between PLCs and collective efficacy and the importance of transformational leadership throughout the process. The result of these findings led the researcher to a new framework presented previously in Figure 6.1.

Collective Efficacy Research

Consistent with previous collective efficacy literature, this study has provided support for the conceptual framework of collective efficacy which suggests that teachers consider six specific characteristics which help lead to increased or decreased levels of collective efficacy (Goddard, Hoy, & Hoy, 2000, 2004; Goddard & Goddard, 2001). This study found that positive teacher participation in the PLC process accounted for significant variability in the two collective efficacy subscales of task analysis and group competency. For example, the correlation tests showed a statistically significant correlation between PLC characteristics and group competency ($r = .383$; $p<.01$) and between PLC characteristics and task analysis ($r = .563$; $p<.01$). The more effective PLC teams exhibited all six components of these two subscales of the collective efficacy

characteristics to higher levels and were openly able to share examples. According to Bandura (1997), mastery experiences play the biggest role in increasing efficacy. This study supports this finding as was evident when interviewing the more and less effective PLC teams. While the more effective teams tended to share multiple examples of their practice of the PLC protocols and thus increased mastery, the less effective teams often struggled to think of one example or would state they could not think of any. In other words, without practicing for example the use of data to change practice, they did not master this crucial PLC component and consequently expressed lower sense of efficacy.

Similar findings were revealed when looking at the characteristics of vicarious experiences, social persuasion, and affective (emotional state) (Bandura, 1997). While these four sources of efficacy function at the individual level, several researchers also found they operate at the collective level (Goddard, Hoy, & Hoy, 2000, 2004). According to Goddard, Hoy, & Hoy, two additional characteristics function at the collective level, analysis of the teaching task and assessment of teaching competence. When questioning participants' thoughts regarding teaching task, the more effective teams clearly felt they knew their reality and had what was necessary to help students succeed. The less effective teams also knew their reality but tended to use that as a reason they could not help all students. The more effective teams also believed all teachers within their PLC teams were competent in their work and these participants felt good that, together, they could reach their students. One way of accomplishing this was through team data analysis. As teams continued the PLC process, student scores increased, which increased teachers' collective efficacy. This led many of the more effective team participants to express that the PLCs would be self-sustaining if the district

no longer supported the process. The less effective teams felt teachers within their teams were competent to a lesser degree. The study suggests when teams have positive experiences of all six collective efficacy characteristics, members function at a higher level within their PLC teams, which increases the likelihood PLCs will be sustained.

Transformational Leadership Research

The evidence from this study supports transformational leadership as necessary throughout the PLC process. As illustrated in Figure 6.1, results from the study present the perspective that transformational leadership is an essential condition in developing and sustaining a PLC model. The literature indicates six specific transformational leadership characteristics (Bass, 1985; Leithwood, 1994, 1998). Intellectual stimulation happens when site leaders challenge teachers to reassess certain assumptions about their work and consider other alternatives (Leithwood, 1994; Leithwood, et al., 1998). This study suggests intellectual stimulation is evident at each of the sites and has helped teachers to reflect and consider other ways of conducting business. For example, data revealed several principals providing a variety of training opportunities. These trainings have helped support the PLC process and show teachers a more effective approach to reach all students in an era of increased accountability. Another characteristic, high performance expectations, references teacher behaviors that illuminate site leadership expectations for excellence, quality, and high team performance (Leithwood, 1994). This study found principals and district level leadership expectations were firmly in place. One example expressed by teachers at several sites was the principal regularly attending PLC meetings. Attending meetings showed teachers that principals value their work and the PLC process and expect teams to implement the PLC model.

A third transformational leadership characteristic, structure, is shared decision-making power and altering working conditions, especially for embedded collaboration time (Leithwood et al., 1998). This study suggests the PLC structure has helped transform each school within the study with a clear focus on student learning. The next characteristic, individualized support is described by Leithwood (1994) as the principal's behavior demonstrating respect for each teacher and concern about their personal feelings and needs. This study confirms the importance of principals' supporting their teachers and doing what is necessary to ensure teachers have what they need to successfully complete their multitude of daily tasks.

The fifth transformational leadership characteristic, modeling, refers to site leaders providing appropriate modeling in a way that sets the example for teachers to emulate that which is consistent with current expectations (Leithwood, 1994; Leithwood et al., 1998). This study found principals modeling the PLC process during staff meetings helped teachers better understand the expectations during their team time together and help explain the "how" of team time. The final characteristic, productive school culture, is teachers working collaboratively and collegially to ensure high levels of learning for all students and principals sharing power and responsibility (Leithwood et al., 1998). The study found participants believe their school culture is more positive than pre-PLC in large part because teachers feel empowered when working in collaboration to determine how to best instruct and support students and their learning.

Conclusions

From this study of professional learning communities and how they have been implemented in one previously low-performing district several important conclusions can be drawn.

First, although the focus of this study was not on the district per se, the strong gains in student achievement across all subgroups and all schools and the very positive response rates to the PLC and collective efficacy questions, indicate this district has pursued a consistent and coherent reform strategy, a hallmark of successful district reform (Massell & Goetz, 2002; Snipes, Doolittle, & Herlihy, 2002; Togneri & Anderson, 2003). The provision of professional development in the DuFour and Eaker (1998) PLC model over several years ensured informed principals and a core of teacher leaders in each school. Furthermore the district's modification of the instructional day allowed the needed time for teams to meet, which seemed essential for implementing the model. The professional development in the model guided the purpose of the meetings and was widely embraced by teachers.

A second conclusion from this study is that the DuFour and Eaker (1998) model of professional learning communities when implemented fully by a high functioning team will yield results in terms of student achievement gains. The challenge for leadership is to ensure that all teams in a school are working at maximum capacity.

A third conclusion is that although there is probably a reciprocal and reinforcing relationship between implementation of PLC components and collective efficacy, the level of implementation of PLC practices is a predictor of enhanced collective efficacy. This conclusion suggests that helping teams implement one or more of the components of

PLCs effectively may be the best pathway to establishing a mutually reinforcing cycle of growth and development of PLCs and increases in collective efficacy.

Fourth, even when district and school leaders consistently follow an improvement path, not all grade or department teams will be able to implement the reform successfully. This study highlights some of the issues faced by the less effective teams that can inform leaders on how to assist these teams. It also suggests that future research may be needed to fully understand dysfunctional team dynamics and how they can be altered.

Fifth, this study confirmed other research on the importance of active principal leadership if strong and effective PLCs are to be established. However, unique to this study is the differential perceptions of leadership amongst members of the more effective and less effective teams. One possible conclusion is that if teams do not feel they are being successful or functioning at a high level, there may be a tendency to find fault with others (in this case the leader). Another possible explanation is that leaders may be allocating their time equally across the teams, when in fact more intense intervention is needed with some teams. Because of a lack of skills in resolving conflicts, leaders may also avoid those teams that are more dysfunctional.

Implications of the Study

Several implications for practice can be drawn from this study. First, site and district leaders should look to strategies for strengthening PLC teams' mastery of the process of looking at student work and using the data to change practice, which in turn will enhance the team's collective efficacy capacity and lead to increased student achievement. District leaders should also closely examine principal leadership styles and

provide the necessary skills and staff development supporting site leaders in how to transform the school into a PLC to ensure greater success in the PLC process.

Another implication for practice is districts and sites interested in PLC implementation should consider collective efficacy and transformational leadership as interactive and complementary components to the PLC process. Knowing that PLCs lead to increased collective efficacy supports sustaining the process once implemented. Another implication is that while most likely reciprocal, leaders should start by focusing on the PLC process to enhance collective efficacy related to improved student achievement. Illustrating this helps leaders better understand the importance of staying the course when implementing the PLC process. As teachers become more comfortable with creating SMART goals and common assessments, sharing their personal data and best practices, and using data to drive future instruction, their level of perceived collective efficacy increases leading to more positive experiences within their PLC teams and ultimately increased student achievement.

Future Research Recommendations

The results of this study highlight several areas for further research. First, it would be beneficial to conduct similar studies in other districts using the framework developed as a result of the study. In particular is further evidence supporting the clear differences between more and less effective PLC teams and the relationship between collective efficacy and PLCs. Do other districts and sites demonstrate similar significance of collective efficacy within a PLC model? Similarly, are there measurable differences between more and less effective PLC teams?

A second area for further consideration is to study implementation strategies to incorporate collective efficacy as part of the PLC process. How can collective efficacy be increased especially during the beginning steps of PLC implementation? What collective efficacy factors effect the sustainability of the PLC process? Are there practices to avoid in implementing a PLC model that could decrease the level of teachers' perceived collective efficacy?

A third area of consideration is the link between collective actions (a PLC subgroup) and both group competency and task analysis. While the findings from the correlations and multiple regression tests conducted in the study showed significance between subgroups, the SEM test findings indicated a small positive relationship between collective actions and group competency and a small negative relationship between collective actions and task analysis. What relationships are found between these subgroups and are there practices to enhance the relationship?

A fourth area to consider is teacher perception of principal leadership quality. The more effective teams in this study shared numerous examples of transformational leadership characteristics while the less effective teams felt less supported. Why are there differences in teacher perception between more and less effective PLC teams? What practices and skills do site leaders need to ensure all PLC teams function at a high level?

A final area worth exploring is the reciprocal effects of collective efficacy to PLCs. While this study found strong correlations through a variety of statistical tests and interview data to support both PLCs leading to increased collective efficacy and visa versa, the SEM model supported PLCs leading to increased levels of collective efficacy

but not collective efficacy leading to increased PLCs. In what ways does collective efficacy lead to increased PLC sustainability?

APPENDIX A: SURVEY

Directions: Please complete the following items about yourself.

1. Please select the choice which best represents your age range.
    1 23-28
    2 29-34
    3 35-40
    4 41-46
    5 47-52
    6 53-58
    7 59 or older
2. Please indicate your gender.
    1 Male
    2 Female
3. Please indicate your ethnicity.
    1 Caucasian (white)
    2 African American
    3 Hispanic
    4 Asian
    5 Native American
    6 Multi-racial
    7 Other: Please specify _____
4. Please select the choice which best represents the number of years you have taught.
    1 1-5 years
    2 6-10 years
    3 11-15 years
    4 16-20 years
    5 21-25 years
    6 26-30 years
    7 31 years or longer
5. Please select the choice which best represents the number of years you have taught at your current school.
    1 1-5
    2 6-10
    3 11-15
    4 16-20
    5 21-25
    6 26-30
    7 31 years or more

6. Please indicate your highest educational level completed.
    1 Bachelor's Degree
    2 Graduate Student
    3 Master's Degree
    4 Doctorate Student

5 Doctorate Candidate
6 Doctorate Degree

7. Please indicate the school in which you currently work.
   1 _____
8. What grade-level do you currently teach?
   Please Specify_____
9. What is the name of your current professional learning community team?
   _____

This section of the survey is designed to determine the degree of professional learning community characteristics demonstrated within your school.

Directions: Please indicate your opinion about each of the statements below by marking one of the five responses from (1) "Not at all" to (5) "A Great Deal".

10. My team works together to clarify the essential outcomes for each unit of instruction using state and local standards and resources as well as student achievement data.
    1 Not at all
    2 Very Little
    3 Some Degree
    4 Quite A Bit
    5 A Great Deal
11. My team works together to establish common pacing for each unit of instruction.
    1 Not at all
    2 Very Little
    3 Some Degree
    4 Quite A Bit
    5 A Great Deal
12. My team works collaboratively to clarify the criteria used to judge the quality of student work.
    1 Not at all
    2 Very Little
    3 Some Degree
    4 Quite A Bit
    5 A Great Deal
13. We practice applying the above mentioned criteria until we can do so consistently.
    1 Not at all
    2 Very Little
    3 Some Degree
    4 Quite A Bit
    5 A Great Deal

14. My team monitors the learning of each student at least four times each year on essential outcomes through a series of team-developed (common) formative assessments that are aligned with district and state standards.
    1 Not at all
    2 Very Little
    3 Some Degree
    4 Quite A Bit
    5 A Great Deal
15. Students who experience academic difficulty are guaranteed access to a system of interventions that provide more time and support for learning.
    1 Not at all
    2 Very Little
    3 Some Degree
    4 Quite A Bit
    5 A Great Deal
16. Students are required rather than invited to devote extra time and receive additional support until they are successful.
    1 Not at all
    2 Very Little
    3 Some Degree
    4 Quite A Bit
    5 A Great Deal
17. My team members use student achievement results from a variety of assessments to identify strengths and weaknesses in our individual and collective practice.
    1 Not at all
    2 Very Little
    3 Some Degree
    4 Quite A Bit
    5 A Great Deal
18. My team members use the above mentioned student achievement results to improve our effectiveness in helping all students learn.
    1 Not at all
    2 Very Little
    3 Some Degree
    4 Quite A Bit
    5 A Great Deal
19. My team has adopted specific and explicit norms and protocols that guide us in working together.
    1 Not at all
    2 Very Little
    3 Some Degree
    4 Quite A Bit
    5 A Great Deal

20. My team works interdependently to establish and achieve SMART goals (SMART Goals are Strategic, Measurable, Attainable, Results-Oriented, and Time-Bound).
    1 Not at all
    2 Very Little
    3 Some Degree
    4 Quite A Bit
    5 A Great Deal
21. Improved results, achievement of goals, and the work of teams are the basis for a culture of celebration within classrooms and the school.
    1 Not at all
    2 Very Little
    3 Some Degree
    4 Quite A Bit
    5 A Great Deal
22. The shared vision and values among my school's staff influence policies, procedures, daily practices, and day-to-day decisions of all staff members.
    1 Not at all
    2 Very Little
    3 Some Degree
    4 Quite A Bit
    5 A Great Deal

This section of the survey is designed to help gain a better understanding of the levels of collective efficacy within your professional learning community team. Collective efficacy is the teachers' shared beliefs that the team as a whole has the ability to perform in such a way as to ensure a positive effect on student outcomes/achievement. Please respond to each of the statements below by considering the combination of the team's current ability, resources, and opportunities to do each of the following in your present professional learning community team.

Directions: Please indicate your opinion about each of the statements below by marking one of the five responses from (1) "Not at all" to (5) "A Great Deal".

23. Teachers in this school work together to meet the needs of challenging students.
    1 Not at all
    2 Very Little
    3 Some Degree
    4 Quite A Bit
    5 A Great Deal
24. Teachers here are confident they will be able to motivate their students.
    1 Not at all
    2 Very Little
    3 Some Degree
    4 Quite A Bit

5 A Great Deal

25. Teachers in this school believe it is their responsibility to help every child master the grade-level curriculum.
    1 Not at all
    2 Very Little
    3 Some Degree
    4 Quite A Bit
    5 A Great Deal
26. If a child doesn't want to learn, teachers here give up.
    1 Not at all
    2 Very Little
    3 Some Degree
    4 Quite A Bit
    5 A Great Deal
27. Some teachers at my site lack the skills needed to ensure every child can master the grade-level curriculum.
    1 Not at all
    2 Very Little
    3 Some Degree
    4 Quite A Bit
    5 A Great Deal
28. If these students come to school unprepared to learn, teachers have the skills to close the learning gap.
    1 Not at all
    2 Very Little
    3 Some Degree
    4 Quite A Bit
    5 A Great Deal
29. Teachers provide so many engaging lessons that the students here are bound to learn.
    1 Not at all
    2 Very Little
    3 Some Degree
    4 Quite A Bit
    5 A Great Deal

30. Students here just aren't motivated to learn.
    1 Not at all
    2 Very Little
    3 Some Degree
    4 Quite A Bit
    5 A Great Deal
31. The structures, practices, and procedures of this school are designed to help ensure all students learn.
    1 Not at all

2 Very Little
3 Some Degree
4 Quite A Bit
5 A Great Deal

32. Learning is more difficult at this school because students are worried about their safety.
    1 Not at all
    2 Very Little
    3 Some Degree
    4 Quite A Bit
    5 A Great Deal
33. Teachers at this school have strategies for supporting students who face home life difficulties.
    1 Not at all
    2 Very Little
    3 Some Degree
    4 Quite A Bit
    5 A Great Deal
34. Teachers in this school help each other incorporate critical thinking opportunities for their students when planning lessons.
    1 Not at all
    2 Very Little
    3 Some Degree
    4 Quite A Bit
    5 A Great Deal

APPENDIX B: INTERVIEW PROTOCOL QUESTIONS

Researcher will introduce self and make sure all consent forms are signed.

Professional Learning Communities

School Name _____ Date _____

Thank you for agreeing to participate in this research project to explore professional learning communities as defined by DuFour and Eaker (1998) in your school. The purpose of this interview is to allow you to provide feedback on your thoughts about the professional learning community model used at your site. There are no right or wrong answers to any of these questions. The interview is to gain your perceptions and feedback, not to evaluate anything that you say. In fact, your identity will be kept confidential as the results are analyzed.

I find it helpful to audiotape our conversation. Taping ensures that I have an accurate record of your responses. Are you okay with me taping our conversation? The tape recording will not reveal your name and will only be reviewed by the researcher and the University committee members. These people are not related to any of your employers, nor will they recognize your voice. All tapes will be kept in a locked safe with no recognizable identification. Again, I want to stress that there is no right or wrong response, and in fact, the depth of your answers will be most informative as I analyze the data.

Are there any questions so far?

We have about 4 areas for discussion. I may need to seek clarification from you prior to proceeding to the next question. I may also need to go back later in the discussion to clarify something you might have said earlier.

Are you ready to begin?

Question 1: I am really interested in learning about how your PLC works and the types of work you do together during your meetings.

a. What is the team you consider to be your primary PLC and how long have you been a member of that team? How many years have you been teaching?

b. If I was to drop in on a typical meeting, can you describe in some detail what I would see?

    a. Probe if necessary for roles and leadership on the team
    b. Probe for meeting structure
    c. Probe for topics discussed (examining test data, student work and how they guide instruction)

    d. Probe for joint work (lesson planning, developing common assessments)

c. What does the team do in rethinking lessons when a student is performing below expectations? Performing above expectations? (or is this an individual teacher's responsibility).

d. In what ways has the PLC contributed to your professional growth?

e. Can you describe a time since the beginning of this year, when you felt the PLC worked together exceptionally well? What did you do? How did it benefit you as a teacher and your students? Why was it such a positive experience?

Question 2: Your district has been engaged with PLCs for several years now.

a. Can you tell me how the PLC has evolved or changed during that time?

b. In what ways do you feel the PLC's work is improving student outcomes?

c. What factors seem to be sustaining the PLC work in your school?

d. What might be getting in the way of sustaining PLCs in your school and district?

Question 3: Working with diverse students is a challenge (efficacy)

a. Can you share a time in which your PLC worked together to ensure that all students were learning at high levels?

b. What are some of the challenges you face in helping all students meet standards? How has your PLC supported you in meeting these challenges?

c. What work does the PLC need to do if all students are to meet NCLB proficiency standards?

d. What opportunities have you had to learn how to be an effective PLC?

Question 4: The next topic I would like to explore is leadership.

a. How is leadership shared in your PLC? Does each leader of the PLC team meet together? Please explain.

b. Share a time when teachers within your team felt empowered in having the ability to implement their own decisions. How is administration involved when you make such a decision?

c. Share an example of teachers overall feeling empowered and accepting shared responsibility for ensuring all students will meet grade level standards. How has the principal supported you in these efforts?

d. What is your principal's vision for PLCs at this school? Is this vision shared by the staff?

e. What role does your principal play in the collaborative process?

f. Tell me about a time when you felt well supported by your principal. (What did he or she do? How did it help you? Your team?)

g. In what ways does the principal help PLCs to be at their best? Are their practices that diminish the work of the PLC?

h. How does the principal support teacher and PLC team learning?

i. If your principal wanted to ensure that you had more positive experiences during collaboration time, what support structure would benefit making this happen?

Question 5: Closure

a. If you had three wishes for making your PLCs more effective, what would they be?

b. Do you have any final comments or anything else you want to add?

APPENDIX C: LETTER REQUESTING APPROVAL FROM SUPERINTENDENT

July, 2009

Mr. Marc Johnson

I am conducting a study that explores the relationship between collective efficacy and professional learning communities as reflected by the teachers and principals here at Sanger Unified School District for my joint doctorate at the University of California, San Diego and California State University, San Marcos. The purpose of the study is to investigate the perceived collective efficacy during teacher collaboration as reported by teachers and principals at the schools within your district, and to determine the relationship between collective efficacy and professional learning communities.

The study is a mixed methods design using three methods of data collection. First, surveys would be administered by principals during a staff meeting at each of the schools in the Sanger Unified School District. The survey should only take about 20 minutes to complete. Second, after analysis of the survey results, several school sites will be selected for open-ended, one-on-one interviews. The principal and six randomly selected teachers from each site will be invited to participate in interviews that should take approximately one hour each. The final method of data collection will be documentation evidence supporting both the construct of collective efficacy and professional learning community.

Each teacher and principal's responses will remain anonymous. Participation is voluntary, but in order for the study to be meaningful I would need: (a) input from the majority of teachers and principals taking the survey; (b) interviews with a minimum of six teachers and the principal from at least three sites within the district; and (c) documentation demonstrating the impact collective efficacy and professional learning community have on increased student achievement.

Again, all participating teachers and principals will remain anonymous.

Thank you for your time and consideration.

Robert H. Voelkel, Jr., Principal
Menifee Valley Middle School
(858) 442-1625 - cell

APPENDIX D: INFORMED CONSENT TO PARTICIPATE IN RESEARCH

INFORMED CONSENT TO PARTICIPATE IN RESEARCH
Joint Doctoral Program in Educational Leadership UCSD: CSUSM

Robert Voelkel, a graduate student at the University of California, San Diego is conducting a research study on the relationship between collective efficacy and professional learning community. You, along with all teachers in the Sanger Unified School District, have been selected to participate in this district wide study.

This study has two main objectives: To explore levels of teacher collective efficacy within a professional learning community model and the role collective efficacy plays in a professional learning community.

Teacher perspectives are critical to understanding how professional learning communities work. You are voluntarily being asked to complete the attached survey during this staff meeting to help me explore this important topic. This survey will take approximately 20 minutes to complete. No individual name or other identifying marks will be used on the survey. However, to be able to report back the collective findings for each school, the school name and your primary professional learning community team are requested in the demographic section of the survey.

Only the research team will have access to the information you provide us for analysis purposes. We do this to ensure that your responses remain confidential and that you feel free to respond as candidly as possible. There are no known risks to participate in the survey. Completing the survey provides the most accurate data to the research team and your school. However, you may decide not to consent to participate or to not answer a question.

If you have any questions about the study, you may direct those to the principal investigator, Robert Voelkel at 858-442-1625 or rh_voelkel@yahoo.com. Also questions about the study can be addressed to my advisor, Dr. Janet Chrispeels at 858-822-4253 or jchrispeels@ucsd.edu. If you have any questions about your rights as a research participant, you may also contact the Institutional Review Board at the University of California, San Diego Human Research Protections Program at (858) 455-5050.

Thank you so much for taking the time to complete this survey and contribute to our understanding of PLCs.

APPENDIX E: PARTICIPANT INTERVIEW CONSENT FORM

PARTICIPANT INTERVIEW CONSENT FORM
Joint Doctoral Program in Educational Leadership UCSD: CSUSM

Project Title A case study of the relationship between collective efficacy and professional learning communities.

Purpose This study seeks to explore the possible relationship between collective efficacy and professional learning communities.

Procedures You are being invited to participate in a one-on-one interview that will last approximately one hour. I will be asking your permission to tape record the interview. There will be questions around six major areas about professional learning community. There are no right or wrong answers and your candid responses are appreciated. You may decline to answer any of the questions and you may stop the tape recording at any time.

Benefits Although there are no direct benefits to you for participating in this study, your school will be presented with composite data that could provide helpful insights to move your PLC process forward. The information will be informative for the larger educational community, contributing to empirical research on PLCs.

Confidentiality All information collected in this study is confidential. Responses will be anonymous and kept confidential through the use of pseudonyms for participants and anyone mentioned by a participant. All audiotape recordings and transcripts will be entered into a computer file and both hard and digital (on CD only) copies will be stored in a locked safe. This data will be maintained on a single password protected computer and an additional password will be required to open files. The researcher is the only individual with access to this safe, computer, and files.

Withdrawal & Questions By signing below you indicate that the researcher has explained this research study, answered your questions, and that you voluntarily grant your consent, which can be withdrawal at any time, for participation in this study. If you have any questions about this research, I will be happy to answer them now. If you have any questions in the future, please contact me at 858-442-1625 or rh_voelkel@yahoo.com. Questions about the study can also be addressed to my advisor, Dr. Janet Chrispeels, at 858-822-4253 or jchrispeels@ucsd.edu. If you have any questions about your rights as a research participant, you may also contact the Institutional Review Board at the University of California, San Diego Human Research Protections Program at (858) 455-5050.

_____ _____
Participant's Name Date

_____
Participant's Signature

_____
Researcher's Signature

APPENDIX F: AUDIOTAPE RECORDING RELEASE CONSENT FORM

UNIVERSITY OF CALIFORNIA, SAN DIEGO
AUDIOTAPE RECORDING RELEASE CONSENT FORM

As part of this project, an audiotape recording will be made of you during your participation in this research project. This is completely voluntary and up to you. In any use of the audiotapes, your name will not be identified and your identity will be kept completely anonymous. You may request to stop the taping at any time or to erase any portion of your taped recording. Please indicate below the uses of these audiotape recordings to which you are willing to consent by initialing the statements.

_____ 1. The audiotapes can be studied by the researcher team for use in the research
Initial project.

_____2. The audiotapes can be used for scientific publications.
Initial

_____3. The audiotapes can be reviewed at meetings of scientists interested in the
Initial study of education and educational practice.

You have the right to request that the tape be stopped or erased during the recording.

You have read the above description and give your consent for the use of audiotapes as indicated above.

_____ _____

Signature Date Witness Date

APPENDIX G: PILOT STUDY

The development of the survey instrument began in a pilot study where 36 items were administered to a sample of 45 participants. The surveys were administered through Survey Monkey, an online survey instrument, in one elementary school in San Diego County and a second elementary school in Riverside County. The initial items were based on two previously developed surveys. The first section of the survey included demographic information. The second part of the survey consisting of professional learning community statements was found in a dissertation (Grider, 2008) and the third part of the survey containing statements to help determine collective efficacy levels was created and field tested by Goddard (2002) to create a short form of the survey. The pilot survey was conducted in May 2009. The survey was then reviewed by two professional learning community experts, DuFour and DuFour. In April 2009, a pilot study was sent to 45 teachers from two schools in two counties who have agreed to pilot the survey statements to validate the survey as a tool for the proposed study. Participants were informed that the pilot data was not used in the study other than to help the researcher validate the survey statements. There was also an opportunity for participants to respond to an open-ended question after each of the three sections seeking feedback to increase clarity, reliability and validity of the questions prior to the survey period. Several adjustments were made if appropriate.

Analysis was completed to determine if the responses would answer the research questions. A factor analysis was also used to determine if any questions needed to be eliminated from the survey to increase the stability of the survey instrument. The factor analysis was further used to determine how many factors and which questions loaded together allowing the researcher to generate themes prior to administering the survey for

the study. Three factors, accounting for 71.634% of the variance, emerged from the Varimax rotation of the professional learning community survey items. The researcher labeled these factors, establishing collective goals (4 items), organizing for collective action (6 items), and collective focus on results (3 items). An example of a statement under the theme of establishing collective goals is "My team works collaboratively to clarify the criteria used to judge the quality of student work." A sample statement under the theme organizing for collective action is "My team works together to establish common pacing for each unit of instruction." A sample statement under the theme of collective focus on results is "Students are required rather than invited to devote extra time and receive additional support until they are successful." Document 1 demonstrates the results of the coding for the professional learning community section of the survey based on the factor analysis.

Document 1: Survey Coding

Establishing Collective Goals: Teacher team created goals to achieve collective action leading to results.
Organizing for Collective Action: Teacher team behaviors during PLC collaboration time.
Collective Focus on Results: The specific PLC grade-level meeting results based on PLC collective actions.

Establishing Collective Goals

- Shared mission, vision, values, and goals

PLC Survey Questions: 3, 11, 12, 13

Organizing for Collective Actions

- Collective inquiry into "best practices" and "current reality"
- Collaborative teams focused on learning
- Action orientation and experimentation

PLC Survey Questions: 1, 2, 4, 5, 9, 10

Collective Focus on Results

- Commitment to continuous improvement
- Results orientation

PLC Survey Questions: 6, 7, 8

Chart 1 demonstrates the results from SPSS of the rotated component matrix after removing the first question regarding how often the professional learning community teams meet. The results from Rotation Method: Varimax with Kaiser Normalization verified that the first professional learning community question, I meet at least once every other week with my teacher team to work collaboratively on improving student learning, could be removed and ultimately was eliminated as one of the PLC statements for the final version of the survey for this study.

Chart 1 Rotated Component Matrix

	Component		
	1	2	3
Tmonlrnfourt	.880	.132	.203
Commonpacing	.784		.141
Tmnrmsandpro	.716	.256	.105
Tusesrtoimp	.651	.446	.409
Tmwkeoutcms	.642	.508	.171
Tapplycrit	.613	.478	.485
Tmsmartgoals	.231	.834	-.210
Shrdvivainf		.722	.331
Crittojudgsw	.347	.574	.484
Imprsltsandco	.501	.562	.299
Stdaccessint		.134	.866
Stdsrrsup	.305		.792
Tuseresults	.417	.446	.531

A similar process was followed to analyze the collective efficacy section of the survey. The results of the factor analysis netted similar results to those of Goddard's (2002) pilot study of the same instrument.

To pilot the interview protocol, two teachers were selected by the researcher. The one-on-one interviews were conducted after the teacher's duty day. During the first interview, the researcher noted the amount of talking by him. This helped the researcher to talk less during the second interview which allowed the participant more time to share information. The researcher also was afforded an opportunity to help explore the first participants responses more as she tended to talk less while the second participant needed less support in this area. This variety of participant responses helped the researcher consider necessary methods to ensure enough information was gathered during the one-on-one interviews. The researcher also added two more questions that specifically address collective efficacy characteristics in more depth and modified the verbiage of several other questions. The researcher felt the interview protocol was ready.

REFERENCES

AllthingsPLC. History of PLC. Retrieved May 1, 2008, from http://www.allthingsplc.info/

Armor, D., Conry-Osequera, P., Cox, M., King, N., McDonnell, L., & Pascal, A. (1976). *Analysis of the school preferred reading program in selected Los Angeles minority schools*. Santa Monica, CA: RAND (Eric Document Reproduction Service No. ED 130243).

Ashton, P.T., & Webb, R.B. (1986). *Making a difference: Teachers' sense of efficacy and student achievement.* White Plains, NY: Longman, Inc.

Bandura, A. (1994). Self-efficacy. In V.S. Ramachaudran (Ed.), *Encyclopedia of human behavior* (pp. 71-81). New York: Academic Press.

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review*, 84(2), 191-215.

Bandura, A (1986). *Social foundations of thought and action: A social cognitive theory.* Englewood Cliffs, NJ: Prentice-Hall.

Bandura, A. (1993). Perceived self-efficacy in cognitive development and functioning. *Educational Psychologist*, 28(2), 117-148.

Bandura, A. (1996). *Self-efficacy in changing societies.* New York: Cambridge University Press.

Bandura, A. (1997). *Self-Efficacy: The exercise of control.* New York: W. H. Freeman and Company.

Baron, R.M., & Kenny, D.A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, 51, 1173-1182.

Bass, B.M. (1985). *Leadership and performance beyond expectations*. New York: The Free Press.

Boyd, V., & Hord, S.M. (1994). *Principals and the new paradigm: Schools as learning communities.* Paper presented at the annual meeting of the American Educational Research Association, New Orleans.

Buffum, A., & Hinman, C. (2006). Professional learning communities: reigniting passion and purpose. *Leadership*, 36(5), 16-19.

Bullough, R.V. (2007). Professional learning communities and the eight-year study. *Educational Horizons,* 168-180.

Burns, J. M. (1978). *Leadership.* New York: Harper & Row.

Byrne, B.M. (2006). *Structural equation modeling with EQS: Basic concepts, applications, and programming.* New York: Psychology Press.

Chrispeels, J.H., Andrews, C., & Gonzalez, M. (2007). *System supports for teacher learning and school improvement.* Chapter book to be published in Springer Handbook.

Cohen, J.W. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Lawrence Erlbaum Associates.

Cook, S., & Yanow, D. (1996). *Culture and organizational learning.* In M. Cohen & L. Sproull, (Eds). Organizational learning. Thousand Oaks, CA: Sage Publications.

Creswell, J.W. (2008). *Educational research: Planning, conducting, and evaluating quantitative and qualitative research.* Columbus, OH: Merrill Prentice Hall.

Cuban, L. (1990). Reforming again, again, and again. *Educational Researcher,* 19, 3-13.

Darling-Hammond, L. (1984). *Beyond the commission reports: The coming crisis in teaching.* Santa Monica, CA: Rand Corporation.

Darling-Hammond, L. (1993). Reframing the school reform agenda: Developing capacity for school transformation. *Phi Delta Kappan,* 74(10), 752-761.

Darling-Hammond, L. (1996). The quiet revolution: Rethinking teacher development. *Educational Leadership,* 53(6), 4-10.

Dean, C., Galvin, M., & Parsley, D. (2005). *Noteworthy perspectives—Success in sight*. Denver. CO: Mid-Continental Research for Education and Learning.

Dooner, A., Mandzuk, D., & Clifton, R.A. (2008). Stages of collaboration and the realities of professional learning communities. *Teaching and Teacher Education*, 24, 564-574.

Draves, W. & Coates, J. (2003). *Nine Shift: Work, life and education in the 21st century*. River Falls, Wisconsin: LERN Books.

DuFour, R. (2004). What is a "Professional Learning Community"? *Educational Leadership,* 61(8), 6-11.

DuFour, R., DuFour, R., & Eaker, R. (2008). *Revisiting Professional Learning Communities at Work: New Insights for Improving Schools.* Bloomington, Indiana: Solution Tree.

DuFour, R., & Eaker, R. (1998). *Professional Learning Communities at Work: Best Practices for Enhancing Student Achievement.* Alexandria, Virginia: Association for Supervision and Curriculum Development.

DuFour, R., & Eaker, R. (2007, October). California State Summit. Presented during a conference in Anaheim, CA sponsored by Solution-Tree.

Dutton, J.M., & Freedman, R.D. (1985). External environment and internal strategies: Calculating, and experimenting, and initiating organizations. In R. Lamb & P. Shrivastave (Eds.), *Advances in strategic management* (pp. 39-67). Greenwich, CT: JAI.

Fowler, F.J. (2009). *Survey research methods* (4th ed.). Thousand Oaks, CA: Sage.

Fullan, M. (2001a). *Leading in a culture of change*. San Francisco: Jossey-Bass.

Fullan, M. (2001b). *The new meaning of educational change*. New York: Teachers College Press.

Fullan, M. (2003). *The moral imperative of school leadership*. Thousand Oaks, CA: Corwin Press.

Fullan, M. (2005). *Leadership and sustainability: System thinkers in action*. Thousand Oaks, CA: Corwin Press.

Gallucci, C. (2003). *Theorizing about responses to reform: The role of communities of practice in teacher learning-An occasional paper.* University of California, Santa Barbara, Center for the Study of Teaching and Policy, University of Washington.

Gibson, S., & Dembo, M. (1984). Teacher efficacy: A construct validation. *Journal of Educational Psychology,* 76(4), 569-582.

Goddard, R.D. (2002). A theoretical and empirical analysis of the measurement of collective efficacy: The development of a short form. *Educational and Psychological Measurement,* 62(1), 97-110.

Goddard, R.D. (2001). Collective efficacy: A neglected construct in the study of schools and student achievement. *Journal of Educational Psychology,* 93(3), 467-476.

Goddard, R.D. (2003). The impact of schools on teacher beliefs, influence and student achievement: The role of collective efficacy beliefs. In J. Rath & A.C. McAninch

(Eds.), *Teacher beliefs and classroom performance: The impact of teacher education* (pp. 183-204). Greenwich, CT: Information Age.

Goddard, R.D., Hoy, W.K., & Hoy A.W. (2000). Collective teacher efficacy: Its meaning, measure, and impact on student achievement. *American Educational Research Journal*, 37(2), 479-507.

Goddard, R.D., Hoy, W.K., & Hoy A.W. (2004). Collective efficacy beliefs: Theoretical developments, empirical evidence, and future directions. *Educational Researcher*, 33(3), 3-13.

Goddard, R.D. & Goddard, Y.L. (2001). A multilevel analysis of the relationship between teacher and collective efficacy in urban schools. *Teaching and Teacher Education*, 17, 807-818.

Goddard, R.D. & Skrla, L. (2006). The influence of school composition on teachers' collective efficacy beliefs. *Educational Administration Quarterly*, 42(2), 216-235.

Goldberg, L.R., & Velicer, W.F. (2006). Principles of exploratory factor analysis. In S. Strack (Ed.), *Differentiating normal and abnormal personality (2nd ed.).* New York: Springer.

Goodlad, J. (1984). *A place called school*. New York. McGraw Hill.

Graham, P. (2007). Improving teacher effectiveness through structured collaboration: A case study of a professional learning community. *Research in Middle Level Education*, 31(1), 1-17.

Grider, A. T. (2008). *Elementary, Middle, and High School Teachers' Perceptions of PLC and Sense of Efficacy*. Dissertation, University of Virginia.

Groves, R., Fowler, F., Couper, M., Lepkowski, J., Singer, E., & Tourangeau, R. (2004). *Survey Methodology*. Hoboken, NJ: John Wiley & Sons, Inc.

Guskey, T.R., & Passaro, P.D. (1994). Teacher efficacy: A study of construct dimensions. *American Educational Research Journal*, 31, 627-643.

Hall, G., & Hord, S.M. (2006). *Implementing change: Patterns, principles, and potholes.* (2nd ed.). Boston, MA: Pearson Education, Inc.

Harpaz, Yoram (2005). Teaching and learning in a community of thinking. *Journal of Curriculum and Supervision*, 20(2), 136-157.

Hipp, K.A. (2001). *Learning about learning communities: A case study approach. Trust as a foundation in building a learning community.* Paper presented at the annual meeting of the American Educational Research Association, Seattle.

Hipp, K.A., Huffman, J.B., Pankake, A.M., & Olivier, D.F. (2008). Sustaining professional learning communities: Case studies. *Journal of Educational Change,* 9(2), 173-195.

Hord, S.M., (1997). *Professional learning communities: Communities of continuous inquiry and improvement*. Austin, Texas: Southwest Educational Development Laboratory.

Hord, S.M., & Rutherford, W.L. (1998). Creating a professional learning community: Cottonwood creek school. *Issues…About Change,* 6(2). Austin, Texas: Southwest Educational Development Laboratory.

Hoy, W.K., Smith, P.A., & Sweetland, S. (2002). The development of the organizational climate index for high schools: Its measure and relationship to faculty trust. *The High School Journal*, 86(2), 38-49.

Hoy, W.K., & Woolfolk, A.E. (1993). Teachers' sense of efficacy and the organizational health of schools. *The Elementary School Journal*, 93(4), 355-372.

Hu, L., & Bentler, P.M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal*, 6, 1-55.

Huffman, J.B., & Hipp, K.A. (2000). *Creating communities of learners: The interaction of shared leadership, shared vision, and supportive conditions.* Paper presented at the annual meeting of the American Educational Research Association, New Orleans.

Hughes, T.A., & Kritsonis, W.A. (2006). A national perspective: An exploration of professional learning communities and the impact on school improvement efforts. *National Journal for Publishing and Mentoring Doctoral Student Research*, 1(1), 1-12.

Hughes, T.A., & Kritsonis, W.A. (2007). Professional learning communities and the positive effects on student achievement: A national agenda for school improvement. *The Lamar University Electronic Journal of Student Research*, Spring, 2007.

Jordan, H.R., Mendro, R.L., & Weerasinghe, D. (1997). *Teacher effects on longitudinal student achievement.* Paper presented at the annual meeting of CREATE, Indianapolis.

Kline, R.B. (1998). *Principals and practices of structural equation modeling.* New York: Guilford.

Kruse, S., Louis, K., & Bryk, A. (1994). Building professional community in schools. *Issues in restructuring schools,* 8(6). Madison, Wisconsin: Center on Organization and Restructuring of Schools.

Kvale, S. (1996). *Interviews: An introduction to qualitative research interviewing*. Thousand Oaks, CA: Sage Publications.

LaRocco, D. J., *On the path to becoming a professional learning community: Charting change in one suburban middle school.* Retrieved September 19, 2008, from http://www.education.uiowa.edu/jrel/LaRocco_0715.htm

Lee, V.E., Dedrick, R.F., & Smith, J.B. (1991). The effect of the social organization of schools on teachers' efficacy and satisfaction. *Sociology of Education*, 64, 190-208.

Lee, V.E. & Smith, J.B. (1996). Collective responsibility for learning and its effects on gains in achievement for early and secondary school students. *American Journal of Education*, 104(2), 103-147.

Lee, V.E., Smith, J.B., & Croninger, R. (1995). How high school organization influences the equitable distribution of learning in mathematics and science. *Sociology of Education*, 70(2), 128-150.

Leithwood, K. (1994). Leadership for school restructuring. *Educational Administration Quarterly*, 30(4), 498-518.

Leithwood, K., & Jantzi, D. (2008). Linking leadership to student learning: The contributions of leader efficacy. *Educational Administration Quarterly*, 44, 496-528.

Leithwood, K., Leonard, L., & Sharratt, L. (1998). Conditions fostering organizational learning in schools. *Educational Administration Quarterly*, 34, 243-276.

Leithwood, K., & Riehl, C. (2003). *What do we already know about successful school leadership?* Piscataway, NJ: Division A of the American Educational Research Association Rutgers University.

Liebman, H., Maldonado, N., Lacey, C.H, & Thompson, S. (2005). *An investigation of leadership in a professional learning community: A case study of a large, suburban, public middle school.* Paper presented at the annual meeting of the Florida Educational Research Association, Miami.

Little, J.W. (1982). Norms of collegiality and experimentation: Workplace conditions of school success. *American Educational Research Journal*, 19(3), 325-340.

Little, J.W. (1990). The persistence of privacy: Autonomy and initiative in teachers' professional relations. *Teacher's College Record*, 91(4), 509-536.

Little, J.W. (2003). Inside teacher community: Representations of classroom practice. *Teacher's College Record*, 105(6), 913-945.

Locke, L.F., Spirduso, W.W., & Silverman, S.J. (2000). *Proposals that work: A guide for planning dissertations and grant proposals* (Fourth ed.). Thousand Oaks, CA: Sage.

Louis, K.S., & Marks, H.M. (1998). Does professional community affect the classroom? Teachers' work and student experience in restructuring schools. *American Journal of Education*, 106(4), 532-575.

Louis, K.S., Marks, H.M., & Kruse, S. (1996). Teachers' professional community in restructuring schools. *American Educational Research Journal*, 33(4), 757-798.

Lynn, L. (1994). Professional community-Three case studies. *Issues in restructuring schools,* 8(6). Madison, Wisconsin: Center on Organization and Restructuring of Schools.

Marzano, R.J. (2003). *What works in schools: Translating research into action*. Alexandria, VA: Association for Supervision and Curriculum Development Publications.

Marzano, R.J., Waters, T., & McNulty, B.A. (2005). *School leadership that works: From research to results*. Alexandria, VA: Association for Supervision and Curriculum Development Publications.

Massell, D., & Goertz, M. (2002). District strategies for building instructional capacity. In Hightower, A., Knapp, M., S., Marsh, J., & McLaughlin, M. (Eds) (2002). *School Districts and Instructional Renewal.* New York, NY: Teachers College Press, pp. 43-60.

McLaughlin, M.W., & Talbert, J.E. (1993). *Contexts that matter for teaching and learning*. Stanford: Center for Research on the Context of Secondary School Teaching, Stanford University.

McLaughlin, M.W., & Talbert, J.E. (2006). *Building school-based teacher learning communities.* New York: Teachers College Press.

Merriam, S.B. (1998). *Qualitative research and case study applications in education* (2nd ed.). San Francisco: Jossey-Bass.

Miles, M.B., & Huberman, A.M. (1994). *Qualitative data analysis: An expanded sourcebook* (2nd ed.). Thousand Oaks, CA: Sage.

Morrissey, M.S. (2000). Professional learning communities: An ongoing exploration. Austin, Texas: Southwest Educational Development Laboratory.

National Commission on Excellence in Education (1983). *A nation at risk: The imperative for educational reform: A report to the nation and the secretary of education, United States Department of Education.* Washington, DC, U.S. Department of Education: 65.

Newmann, F., Rutter, R., & Smith, M. (1989). Organizational factors that affect school sense of efficacy, community, and expectations. *Sociology of Education,* 62(4), 221-238.

Newmann, F., & Wehlage, G. (1995). *Successful school restructuring: A report to the public and educators by the Center for Restructuring Schools*. Madison: University of Wisconsin Press.

Olsen, E.M., & Chrispeels, J.H. (2009). A pathway forward to school change: Leading together and achieving goals. *Leadership and Policy in Schools*.

Pallant, J. (2007). *SPSS Survival Manual* (3rd ed.). Berkshire, England: Open University Press.

Patton, M.Q. (1990). *Qualitative evaluation and research methods* (2nd ed.). Newbury Park, CA: Sage.

Patton, M.Q. (2002). *Qualitative evaluation and research methods* (3rd ed.). Thousand Oaks, CA: Sage.

Pink, D.H. (2006). *A whole new mind.* New York: Riverhead Books.

Reeves, D. B. (2000). *Accountability in action—A blueprint for learning organizations.* Denver, CO: Advanced Learning Centers.

Reeves, D. B. (2004). *Making standards work—How to implement standards-based assessments in the classroom, school, and district.* Englewood, CO: Advanced Learning Press.

Reeves, D. B. (2005). *Three tough decisions that educators and policymakers must make.* Virginia Journal of Education, 7-10.

Rivkin, S.G., Hanushek, E.A., & Kain, J.F. (2005). Teachers, schools, and academic achievement. *Econometrica*, 73(2), 417-458.

Rosenholtz, S. (1989). *Teacher's workplace: The social organization of schools*. New York: Longman.

Ross, J.A., & Gray, P. (2004). *Transformational leadership and teacher commitment to organizational values: The mediating effects of collective teacher efficacy.* Paper presented at the annual meeting of the American Educational Research Association, San Diego.

Rotter, J.B. (1966). Generalized expectancies for internal versus external control of reinforcement. *Psychological Monographs*, 80, 1-28.

Rudestam, K.E., & Newton, R.R. (2007). *Surviving your dissertation: A comprehensive guide to content and process (3rd edition).* Los Angeles: Sage Publications.

Sanders, W.L., & Rivers, J.C. (1996). *Cumulative and residual effects of teachers on future student academic achievement*. University of Tennessee Value-Added Research and Assessment Center, Knoxville, Tennessee.

Schmoker, M. (2005). No turning back: The ironclad case for professional learning communities. In DuFour, R., Eaker, R., & DuFour, R. (Eds.), *On Common Ground*. Bloomington, Indiana: National Educational Service.

Senge, P.M. (1990). *The fifth discipline*. New York: Doubleday Currency.

Senge, P.M. (2006). *The fifth discipline: The art and practice of the learning organization*. New York: Doubleday Currency.

Sergiovanni, T. (1992). *Moral leadership: Getting to the heart of school improvement*. San Francisco: Jossey-Bass.

Skrla, L. (2002). Productive campus leadership responses to accountability: Principals as policy mediators. In W. Hoy & C. Miskel (Eds.), *Studies in Leading and Organizing Schools* (pp. 27-50). Greenwich, CT: Information Age Publishing.

Snipes, J., Doolittle, F., & Herlihy, C. (2002). *Foundations for success: Case studies of how urban school systems improve student achievement*. MDRC for the Council of the Great City Schools.

Stiggins, R. (2006). Balanced assessment systems: Redefining excellence in assessment. Educational Testing Service, 1-10.

Tabachnick, B.G. & Fidell, L.S. (2007). *Using multivariate statistics* (5th ed.). Boston: Pearson Education.

Taylor, B.M., Pressley, M., & Pearson, D. (2000). Effective teachers and schools: Trends across recent studies. *Office of Educational Research and Improvement*.

Thompson, S.C., Gregg, L., & Niska, J. (2004). Professional learning communities, leadership, and student learning. *Research in Middle Level Education*, 28(1), 1-15.

Togneri, W., & Anderson, S.E. (2003). *Beyond islands of excellence: What districts can do to improve instruction and achievement in all schools.* Washington, D.C.: The Learning First Alliance and the Association for Supervision and Curriculum Development.

Toole, J., & Louis, K.S. (2002). The role of professional learning communities in international education. In K. Leithwood, & P. Hallinger, (Eds.), *The second international handbook of educational leadership and administration*, Great Britain: Kluwer Academic Publishers.

Tschannen-Moran, M. (2001). Collaboration and the need for trust. *Journal of Educational Administration*, 39(4), 308-331.

Tschannen-Moran, M., Hoy, A.W., & Hoy, W.K. (1998). Teacher efficacy: Its meaning and measure. *Review of Educational Research*, 68(2), 202-248.

Tschannen-Moran, M., & Hoy, A.W. (2001). Teacher efficacy: Capturing an elusive construct. *Teaching and Teacher Education*, 17, 783-805.

U.S. Department of Education. No Child Left Behind Act (2001). Retrieved November 2, 2008, from http://www.nclb.gov/.

Vescio, V., Ross, D., & Adams, A. (2008). A review of research on the impact of professional learning communities on teaching practice and student learning. *Teaching and Teacher Education*, 24(2008), 80-91.

Wahlstrom, K.L., & Louis, K.S. (2008). How teachers experience principal leadership: The roles of professional community, trust, efficacy, and shared responsibility. *Educational Administration Quarterly*, 44(4), 458-495.

Waters, T., & Cameron, G. (2003). *The balanced leadership framework: Connecting vision with action.* Denver, Colorado: Mid-continent Research for Education and Learning.

Wenger, E.C. & Snyder, W.M. (2000). Communities of practice: The organizational factor. *Harvard Business Review*, 139-145.

Woolfolk, A.E., & Hoy, W.K. (1990). Prospective teachers' sense of efficacy and beliefs about control. *Journal of Educational Psychology*, 82(1), 81-91.

Yin, R.K. (2003). *Case study research: Design and methods (3rd edition)*. Thousand Oaks: Sage Publications.

Zmuda, A., Kuklis, R., & Kline, E. (2004). *Transforming schools: Creating a culture of continuous improvement.* Seattle, WA: New Horizons for Leading.