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IMPLEMENTATION AND PERCEIVED EFFECTIVENESS OF PROFESSIONAL
LEARNING COMMUNITIES IN THE KANAWHA COUNTY SCHOOL DISTRICT
IN WEST VIRGINIA

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Marshall University

Dissertation submitted to the Faculty of the
Marshall University Graduate College
in partial fulfillment of the
requirements for the degree of

Doctor of Education
in
Curriculum and Instruction

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Tom Williams, Ed.D.

Keywords: professional learning communities, teacher beliefs

Marshall University
2013

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DEDICATION

This work is dedicated to the Kanawha County Schools' teachers who struggle every day to meet the needs of their students. Their willingness to respond to this survey and the comments that they offered show they are passionate about student learning. My hope is that teacher participation in professional learning communities will improve due to this study.

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I would like to thank my doctoral committee. Through their support and encouragement I have grown in my knowledge and understanding of what it means to obtain a doctorate in education. I would not have been able to achieve this goal without them.

To my chair, Dr. Ronald Childress, I express my gratitude for the hours that he spent talking, guiding, encouraging, and teaching me toward a dissertation that I could be proud of. His experience and wisdom were directly related to my ability to present a study that would reflect the professionalism that I desired.

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ABSTRACT

The purpose of this study was to investigate teachers' perceptions of levels of implementation and levels of effectiveness in improving student learning of Professional Learning Communities (PLCs) in Kanawha County Schools. This study also sought to determine differences in levels of implementation and effectiveness for five selected independent variables and examined the relationship between levels of implementation and levels of effectiveness. Finally, this study described teachers' suggestions to enhance their PLC experience and identified challenges that hindered the implementation of PLCs.

A researcher-developed survey was used to collect data. The study population consisted of 1,788 teachers. Respondents (N=1,017) were from 44 elementary schools, 14 middle schools, and eight high schools. Teachers reported PLC implementation levels as some of the time and most of the time and judged them to be somewhat effective and effective in improving student learning. Levels of implementation were significantly different based on organizational structure, grade/developmental level, and sex. Levels of effectiveness were significantly different based on grade/developmental level. The correlation between levels of implementation and levels of effectiveness was significant and moderately strong.

Allowing schools to select content for PLC meetings and more effective team construction were the strategies most often suggested to enhance the PLC experience. The most frequently listed challenges to implementation of PLCs were negative attitude, pre-decided content and inadequate training.

CHAPTER ONE: INTRODUCTION

Educational accountability created by *No Child Left Behind* (NCLB) (2001) has prompted increased public scrutiny of schooling in the United States (Jennings, 2011; Lee, 2010). This enhanced examination of the education system often leaves educators and policymakers struggling to discover ideas and strategies that will effectively produce the needed reforms (Darling-Hammond, 2007; Starnes, Saderholm, & Webb, 2010). Many suggested reforms involve changes to teacher practices (Kalin & Zuljan, 2007; Karakhanyan, van Veen, & Bergen, 2011; Priestley, Edwards, Priestley, & Miller, 2012), and reforms sometimes fail when administrators and policymakers do not examine the beliefs of the teachers who must implement the changes (Davis & Andrzejewski, 2003). Davis and Andrzejewski found that these reforms are often unsuccessful because teachers lack confidence that the reform will actually improve student learning. The influence of teacher beliefs on the successful implementation of educational reform is increasingly the topic of research studies (Griffiths, Gore, & Ladwig, 2006; Qian, n.d.; Savasci-Acikalin, 2009).

NCLB demands that the needs of every child must be met with schooling, and educators are optimistic that these needs can successfully be met through professional learning communities (PLCs) (DuFour, 2004; Hord & Sommers, 2008; Katz & Earl, 2010; Linder, Post, & Calabrese, 2012; Seashore Louis & Wahlstrom, 2011; Song, 2012; Williams, 2013; Wood, 2007). PLCs are defined as teachers working together to continuously improve student learning and holding one another accountable for the results. Founded on Dewey's (1929) idea of collective inquiry and Schaefer's (1967) schools as centers of inquiry, PLCs provide teachers a venue for ongoing professional

development. In addition, teachers benefit from critical discourse focusing on the examination of their classroom instruction against current best practices (Wood, 2007). Wood claims that PLCs encourage the use of collaboration to construct practical solutions for problems in the classroom.

On Common Ground: The Power of Professional Learning Communities

(DuFour, Eaker, & DuFour, 2005) is a collection of ideas from leading authorities on PLCs, and these experienced educators all agree that PLCs represent a powerful reform that can increase student learning through the improved professional development of teachers. Because school systems are beginning to realize the value of a collaborative culture, they are providing professional development that will provide time for teachers to function as a team (Hord & Sommers, 2008). With the objective of increasing student learning (Griffiths, Gore, & Ladwig, 2006), a great deal of time and money is being devoted to this staff development model (Pierce, 2010).

Many groups which call themselves PLCs are not truly PLCs (DuFour, Eaker, & DuFour, 2005) because they use the professional learning community meeting for staff meetings or to carry out agendas prescribed by school system administrators. The work of PLCs must benefit education (Schmoker, 2005) through a culture of collaboration. PLCs must judge their effectiveness by assessing the results of meeting the needs of all students (Thessin & Starr, 2011).

Characteristics of PLCs

Common characteristics of PLCs include shared leadership, shared mission, collaboration, collective inquiry, action orientation and experimentation, continuous learning, and results orientation (Hannaford, 2010). These characteristics are common to

many other studies of PLCs (DuFour, Eaker, & DuFour, 2005; Fullan, 2001; Hord & Sommers, 2008; Ireland, 2010; Lujan & Day, 2010; Neuzil 2010; Schmoker, 2005; Wood, 2007).

Shared leadership is the practice of all participants sharing in the school's decisions and responsibilities (DuFour, Eaker, & DuFour, 2005). Shared mission is knowledge of the school's purpose and how it will be achieved (Hord & Sommers, 2008). Collaboration is a shift from teacher isolation to an organized method for teachers to work together to improve teaching practice according to DuFour, Eaker, and DuFour (2005). Collective inquiry is the practice of comparing experiences and sharing current research in a teacher's area of focus while engaging in critical dialogue regarding those experiences (Wood, 2007).

Action orientation/experimentation is the practice of moving forward in new ways with the expectation that new experiences will enhance teaching and improve student learning (DuFour, Eaker, & DuFour, 2005). Continuous learning uses every opportunity and experience to learn something new (Hord & Sommers, 2008). Results orientation is the practice of knowing what students need to learn, knowing what is learned, and knowing what to do about those who have not learned according to DuFour, Eaker, and DuFour (2005).

Context for Study

Historically the profession of teaching has been characterized by a constructivist model that described an individual enterprise. This demanding individual endeavor often resulted in loneliness and frustration (Roth & Lee, 2006). In the early 1960s, the concept

of PLCs came into being as a result of widespread dissatisfaction with practices related to this teacher isolation (Hord & Sommers, 2008).

Early PLCs were termed communities of practice (Lave & Wenger, 1991) and were focused more on student learning models than a method of adult learning. Cooperative groups for student learning were touted as the panacea for school improvement (DuFour, Eaker, & DuFour, 2005).

During the late 1980s and 1990s, encouraging amounts of research-based literature suggested that teacher collaboration and collective learning represented schools with greater gains in student learning than schools in which teachers worked in isolation (Kruse, Seashore, & Bryk, 1994; Louis & Marks, 1998; Little & McLaughlin, 1993; Newmann & Wehlage, 1995; Rosenholtz, 1989). In the decades since, the practices of PLCs have become increasingly linked to substantial and sustained school improvement.

Support for professional learning intensified with the publication of *Professional Learning Communities at Work: Best Practices for Enhancing Student Achievement* (DuFour & Eaker, 1998). PLCs have been found to have a profound effect on school effectiveness by changing the conversations that teachers have with one another (Kagen & Lahey, 2009); however, the school culture must be receptive to the idea of implementing PLCs (Gladwell, 1998; Linder, Post, & Calabrese, 2012). Research confirms that PLCs provide a powerful tool for school reform but are not successful without administrative endorsement (Fullan, 1996).

In the fall of 2007, the Kanawha County School System in central West Virginia instituted a professional development program which included PLC models for its 44 elementary schools, 14 middle schools, and eight high schools. A total of 1,788 teachers

were included. Each teacher in the county was required to become part of a PLC in their school and attend regularly scheduled team meetings. Participating teachers were expected to identify actions that fulfill the school's goals and then commit to implementing the identified tasks. Teachers were held accountable for these tasks by the PLC facilitator as well as the school administrator. Oversight for school accountability was under the supervision of Kanawha County Schools' Director of Professional Development.

These PLCs were designed to meet the demands of *No Child Left Behind* with the intent of encouraging teachers to work cooperatively to improve student learning (DuFour, 2004; Fullan, 2000, 2001). *No Child Left Behind* mandates positive student achievement that can be confirmed by improved standardized test scores. Fullan and DuFour maintain that the underlying intent of the PLC initiative is to improve student learning through formative assessment as well as to create a positive culture for learning within the school. Formative assessment provides the foundation to modify instruction based on what students are actually learning. PLCs provide a venue for teachers to critically analyze assessments and instructional practices with the end result of improved student learning.

Conceptual Framework

Progressivism is an educational theory that supports the goals of PLCs. The foundation of progressivism is a view that people work cooperatively to solve problems in everyday life (Dewey, 1929). One branch of progressivism is social constructivism (Counts, 1932) which more closely describes the framework of PLCs. Counts describes social constructivism as a society-centered way of thinking that asks teachers to become

the vehicle of societal change. Teachers are encouraged to work together to process information and construct new knowledge to solve problems in the schools (Bertsch, 2012) and ultimately in society.

Social constructivism underscores the necessity for collaboration among learners and relationships among practitioners (Bunker, 2008; Gredler, 1997; Lave & Wenger, 1991; McMahon, 1997) and encourages communities of practice to achieve educational goals. Each teacher is unique with previously constructed knowledge. PLCs support teachers' construction of communities of practice in which they share their previously constructed knowledge and construct new knowledge (Bertsch, 2012). Educational theory attempts to answer the following four basic questions with regard to education: What is the purpose of education? What is the content of the school curriculum? What is the place of students? and What is the role of teachers? (Newman, 2006). Knowledge to answer these questions is constructed through participation in PLCs. However, it takes time to construct new knowledge. In developing successful PLCs, teachers need sufficient time to construct new beliefs and experiences (Jones, 2010b). PLCs offer teachers time and a setting to formulate and reflect on new ideas. The inevitable changes that take place in beliefs and experiences strengthen teachers' growth and development.

Two fundamental assumptions for PLCs are teachers experiences are best understood through critical reflection, and teachers who participate in PLCs increase their knowledge and improve student learning (Buysse, Sparkman, & Wesley, 2003). The strength of PLCs is derived from reflection and discussion among school colleagues to solve problems that arise within the process of education (DuFour, DuFour, & Eaker, 2008), and this purposeful reflection is deemed a characteristic of professionalism (Jeon,

2003). PLCs were founded on the idea that facilitators along with principals will provide guidance to group participants (Flynn, 2010). Time for meeting is built into the school calendar and each meeting focuses on an area of instruction. Central office staff members are assigned to supervise the program under the direction of a lead administrator. Coaches provide summaries of each meeting to the lead administrator and funding for PLCs is provided under the budget umbrella of professional development.

According to Schmoker (2005), PLCs are groups of educators who meet regularly to determine the specific learning needs of their students, whether the students are meeting identified needs, and share strategies to address students who are not successfully meeting these needs. In order to effectively address student learning there must be a school culture of collaboration in which all participants are committed to the mission of student learning and willingness to share examples of practice and engage in reflective discourse (Scribner, Cockrell, Cockrell, & Valentine, 1999). PLCs are increasingly popular with principals as an action learning strategy (Hanson, 2010).

PLCs provide a framework for schools to increase student achievement and are based on the idea that professional development for teachers results in the greatest success for students (DuFour, DuFour, & Eaker, 2008). PLCs are becoming the most popular school reform measures to increase student achievement (Hickman, Schrimpf, & Wedlock, 2009). Hickman, Schrimpf, and Wedlock's research, which included PLC characteristics similar to the current study, concluded that such characteristics provide a concrete model to successfully develop and implement PLCs.

The 2001 NCLB mandate by the federal government was enacted to ensure that all students learn. Research reveals that one model of school improvement that

effectively improves student instruction and performance is the PLC (DuFour, Eaker, & DuFour, 2005; Fullan, 2001; Hannaford, 2010; Hord & Sommers, 2008; Ireland, 2010; Lujan & Day, 2010; Neuzil 2010; Schmoker, 2005; Wood, 2007). In the fall of 2007 as a direct result of school reform measures created by NCLB, Kanawha County Schools adopted PLCs to be a model for school improvement. This study examined the level that PLCs were implemented in Kanawha County Schools and the level of teachers' beliefs regarding their effectiveness to positively affect student learning.

Hannaford's model (2010) of PLCs was used as the framework to guide this study. This model investigated teacher perceptions for seven identified characteristics that were common to all PLCs. To clearly understand PLCs this framework of PLC categories was applied to guide the design and investigation (Rossi, Lipsey, & Freeman, 2004) as well as connect actions to outcomes and provide justification for what was done.

Problem Statement

Successful PLCs have participants who appreciate what such a group will be able to achieve (Nelson, Deuel, Slavit, & Kennedy, 2010) and even though research supports a collaborative school culture and shared leadership, many teachers continue to work in isolation (Seashore Louis & Wahlstrom, 2011). Some of the barriers to working in PLCs are: focusing on PLC protocols to the exclusion of instructional content; lack of confidence to share with colleagues; issues of trust and equity; unsupportive leadership; changes in practice with undocumented results; and implementation of PLCs not ensuring change in practice (Annenburg Institute for School Reform, 2004). For an understanding of whether teachers have confidence in the characteristics that describe PLCs, it is important to know what teachers believe about these practices (Davis & Andrzejewski,

2003; Griffiths, Gore, & Ladwig, 2006; Qian, n.d.; Savasci-Acikalin, 2009) and the level to which these practices are implemented in a given setting.

A body of research suggests that PLCs positively affect student learning (DuFour, Eaker, & DuFour, 2005; Fullan, 2001; Hannaford, 2010; Hord & Sommers, 2008; Ireland, 2010; Lujan & Day, 2010; Neuzil 2010; Schmoker, 2005; Wood, 2007). However, there is a lack of research regarding the extent to which teachers believe PLCs are effective in positively affecting student learning. It is imperative that we examine to what degree PLCs are implemented and to what degree teachers believe PLCs affect student learning.

Purpose of the Study

The purpose of this study was to examine the level of implementation and effectiveness, as perceived by teachers, of PLCs in Kanawha County Schools. In addition, the study investigated the differences in the levels of implementation and effectiveness in positively affecting student learning based on selected demographic/attribute variables: organizational structure of participants' PLC, age, total years of teaching, grade/developmental level taught, and teacher sex. The study also examined the relationship between the level of implementation and level of perceived effectiveness. Finally, the study sought to identify teacher challenges and suggestions for enhancement related to implementing PLCs.

Research Questions

Specific research questions which guided the study were:

RQ1 What is the level of implementation of PLCs as perceived by teachers in Kanawha County Schools?

- RQ2 What are the differences, if any, in level of implementation of PLCs as perceived by teachers based on organizational structure, age, total years of teaching, grade/developmental level taught, and sex?
- RQ3 What is the level of Kanawha County Schools' teachers' beliefs of effectiveness of PLCs to positively affect student learning?
- RQ4 What are the differences, if any, in levels of effectiveness of PLCs, as perceived by teachers, based on organizational structure, age, total years of teaching, grade/developmental level taught, and sex?
- RQ5 What is the relationship, if any, between the level of implementation and level of effectiveness in positively effecting student learning as perceived by teachers of PLCs?
- RQ6 What are teachers' suggestions to enhance their experience with PLCs?
- RQ7 What have been teachers' greatest challenges with PLCs?

Significance of the Study

This study adds to the available literature base for PLCs and offers insight into the beliefs of teachers who participate. The importance of believing in a process cannot be understated. Whether teachers judge PLCs as useful and productive is an indication of whether this reform will succeed (Handal & Herrington, 2003). This study provides further knowledge into the practice of PLCs and brings to light issues relevant to the improvement of this tool for student learning. The potential beneficiaries of this research include: students, teachers, administrators, policy makers, and educational committees dealing with professional development.

The data from this study provide insight for those professionals who participate in PLCs as well as to those who make decisions about changes in the delivery of classroom instruction, especially in a time of limited and diminishing resources. Demographic data gathered on organizational structure of participants' PLC, age, total years of teaching, grade/developmental level taught, and sex provide additional information to those who plan for professional development. The insights and findings provide direction to all schools participating or interested in PLCs and also benefit the PLCs that are the focus of the study.

Delimitations of the Study

This study is limited to all teachers in the Kanawha County School District in West Virginia. The population included 1,788 teachers who participated in PLCs during the spring of 2012 at 44 elementary schools, 14 middle schools, and eight high schools in the Kanawha County School District.

Operational Definitions

The following variables were operationally defined for use in this study:

Level of implementation of individual PLC indicator items - an individual teacher's perception of level of implementation of individual PLC indicator items as measured by teachers' responses to individual items on the *Implementation and Effectiveness of Professional Learning Communities Survey*, using the five point descriptive scale (1-never, 2-infrequently, 3-some of the time, 4-most of the time, and 5-all the time) provided for each indicator item included in Part B of the survey instrument.

Level of implementation of PLC indicator item categories - an individual teacher's perception of level of implementation of individual PLC indicator items as measured by

teachers' responses to individual items on the *Implementation and Effectiveness of Professional Learning Communities Survey*, using the five point descriptive scale (1-never, 2-infrequently, 3-some of the time, 4-most of the time, and 5-all the time) provided for each indicator item included in Part B of the survey instrument: individual category implementation level scores were calculated by summing the responses to the three individual indicator items in each category.

Total level of implementation of PLC indicator items - an individual teacher's perception of level of implementation of individual PLC indicator items as measured by teachers' responses to individual items on the *Implementation and Effectiveness of Professional Learning Communities Survey*, using the five point descriptive scale (1-never, 2-infrequently, 3-some of the time, 4-most of the time, and 5-all the time) provided for each indicator item included in Part B of the survey instrument: individual total implementation level scores were calculated by summing the responses to each of the 21 individual indicator items in Part B of the survey instrument.

Level of effectiveness of individual PLC indicator items – an individual teacher's perception of level of effectiveness of individual PLC indicator items as measured by teachers' responses to individual items on the *Implementation and Effectiveness of Professional Learning Communities Survey*, using the five point descriptive scale (1-not effective, 2-of little effectiveness, 3-somewhat effective, 4-effective, and 5-very effective) provided for each indicator item included in Part C of the survey instrument.

Level of effectiveness of PLC indicator item categories – an individual teacher's perception of level of effectiveness of individual PLC indicator items as measured by

teachers' responses to individual items on the *Implementation and Effectiveness of Professional Learning Communities Survey*, using the five point descriptive scale (1-not effective, 2-of little effectiveness, 3-somewhat effective, 4-effective, and 5-very effective) provided for each indicator item included in Part C of the survey instrument; individual category effectiveness level scores were calculated by summing the responses to the three individual indicator item in each category.

Total level of effectiveness of PLC indicator items – an individual teacher's perception of level of effectiveness of individual PLC indicator items as measured by teachers' responses to individual items on the *Implementation and Effectiveness of Professional Learning Communities Survey*, using the five point descriptive scale (1-not effective, 2-of little effectiveness, 3-somewhat effective, 4-effective, and 5-very effective) provided for each indicator item included in Part C of the survey instrument; individual total effectiveness scores were calculated by summing the responses to each of the 21 individual indicator items in Part C of the survey instrument.

Organizational structure of participants' PLC – the way teacher's participation in PLC is organized as measured by teachers' responses to the demographic item regarding organizational structure on the *Implementation and Effectiveness of Professional Learning Communities Survey*; teachers' choices were: grade level, subject/department, team, or schoolwide.

Age - teacher's years in age as measured by teachers' responses to the demographic item regarding age on the *Implementation and Effectiveness of Professional Learning Communities Survey*; choices provided were 20-29, 30-39, 40-49, 50-59, and 60+.

Total years of teaching – teacher’s total years of teaching experience as measured by teachers’ responses to the demographic item regarding experience on the *Implementation and Effectiveness of Professional Learning Communities Survey*; teachers gave their number of total years of full-time teaching, including the current year.

Grade/Developmental level taught – teacher’s grade/developmental level taught as measured by teachers’ responses to the demographic item regarding level of teaching on the *Implementation and Effectiveness of Professional Learning Communities Survey*; choices provided were Elementary School, Middle School, and High School.

Sex – teacher’s gender as measured by teachers’ responses to the demographic item regarding sex on the *Implementation and Effectiveness of Professional Learning Communities Survey*; choices provided were Male or Female.

Suggestions to Enhance PLCs – factors identified by teachers to enhance their experience with PLCs. These data were collected from participant responses to an open-ended question in Part D of the survey instrument, *Implementation and Effectiveness of Professional Learning Communities Survey*.

Challenges to the Implementation of PLCs – factors identified by teachers as the greatest challenges of their experience with PLCs. These data were collected from participant responses to an open-ended question in Part D of the survey instrument, *Implementation and Effectiveness of Professional Learning Communities Survey*.

Organization of Study

The first chapter of this study includes an introduction, theoretical framework, problem statement, purpose of the study, research questions, significance, delimitations,

and operational definitions sections. Chapter Two provides a review of the available literature regarding PLCs. Chapter Three outlines research methods and data collection procedure that effectively address the stated research questions. Chapter Four offers findings. Chapter Five presents a study summary, provides conclusions, offers a discussion and implications section, and presents recommendations for additional research.

CHAPTER TWO: LITERATURE REVIEW

This chapter provides an examination of literature relevant to the study. The review is divided into five sections. Section one presents the history and development of PLCs. Section two describes common characteristics of PLCs. Section three reviews research related to teachers' beliefs. Section four describes the theoretical framework. Section five presents research describing the implementation and effectiveness of PLCs.

History and Development of PLCs

From the birth of the nation, American education has developed gradually with decisions made primarily by those directly involved in its practice. During this time of growth historians concluded that American schools were sound with no cause for criticism (Newman, 2006). The 1950s experienced an explosion of school population growth resulting in overcrowded classrooms. Toward the end of the decade the Russian launching of Sputnik became a turning point in American education (Hewitt, 2006). Math and science education became the focus and federal intervention increased due to fears that America was falling behind in the education of its citizenry. By late 1960s public support of schools was weakening and criticism of the schools was strengthening (Tyack & Cuban, 1995). Tyack and Cuban concluded that with the 1983 publication of *A Nation at Risk* it became clear that American schools were in trouble.

Throughout its history education has wrestled with reform in an attempt to improve its delivery. The 1983 publication *A Nation at Risk*, by the National Commission on Excellence in Education, sparked numerous revolutionary ideas to

perfect education (Archer, 2012). This publication condemned American schools in their failure to teach. Archer maintains that this 1983 publication preceded a flood of educational reforms throughout the 1990s.

An early precursor of PLCs was exemplified in *The Fifth Discipline* (Senge, 1990) which identified five disciplines critical to learning: systems thinking, personal mastery, mental models, building shared vision, and team learning. Senge proposed that organizations striving to become learning organizations must focus on these disciplines. Although Senge's emphasis was on a successful business model, these characteristics closely resemble PLCs. Blacklock (2009) examined these five dimensions as they pertain to PLCs and found that these characteristics were evident in high performing schools.

The undertaking to reform teaching and learning in the schools continued to heighten with the 2001 passage of *No Child Left Behind* (NCLB). Educational accountability prompted by increased public scrutiny of schooling in the United States (Jennings, 2011; Lee, 2010) began to expand. Archer (2012) explained this closer scrutiny of America's schools revealed that schools successful in raising student achievement shared characteristics that were common to PLCs. NCLB demanded that the needs of every child must be met with schooling, and educators were becoming optimistic that these needs could successfully be met through PLCs (DuFour, 2004; Hord & Sommers, 2008; Katz & Earl, 2010; Seashore Louis & Wahlstrom, 2011; Wood, 2007).

The concept of PLCs began to rapidly emerge in the field of education evidenced by the vast amount of available literature (Hannaford, 2010; Hanson, 2010;

Hord & Hirsh, 2009; Hord & Sommers, 2008; Ireland, 2010; Morgan, 2010; Pierce, 2010; Wood, 2007). The popularity stems from the fact that PLCs have been positively correlated to student learning and recently associated with teacher learning along with the notion of highly effective teaching (Wood, 2007). Implementing PLCs in the schools began to appear as a solution to education's decline.

A preliminary Internet search revealed almost half a million items under the topic of PLCs. The West Virginia Department of Education website (WVDE, 2013) lists more than 700 relevant references and the United States Department of Education website (USDE, 2013) lists more than 12,000 references. In addition the Southwest Educational Development Laboratory (SEDL, 2013) website, which offers research based studies to improve education, lists more than 2,000 articles. PLCs are a popular model for public school reform and often touted as a solution to numerous problems within the public school system (Hord & Sommers, 2008; Thompson, Gregg, & Niska, 2004) PLCs also represent a viable response to necessary increased educational accountability and demand for reform created by *No Child Left Behind* (Darling-Hammond, 2007; Henry, 2004; Thessin & Starr, 2011).

Increased accountability and demand for reform have caused many school systems to implement PLCs to effectively meet student needs (Schmoker, 2005). PLCs are founded on the premise that teachers benefit from critical discourse which focuses on the examination of classroom instruction against current practices (Wood, 2007). Wood claims that PLCs encourage the use of collaboration to construct practical solutions for problems in the classroom. PLCs have the added benefit of providing effective and authentic professional development.

PLCs as Professional Development

One of the significant advantages to PLCs is the opportunity for the professional development of teachers. Educators at times adopt false beliefs that knowledge is primarily gained through pre-service preparation and that pre-service teachers are assumed to have gained all of the knowledge they will need to solve the problems of everyday practice in their teacher preparation (Buysse, Sparkman, & Wesley, 2003). They maintain that little attention has been given to the notion that novice teachers will need continued support and reflective experiences and suggest that PLCs are the perfect vehicle to offer this support and reflection. Teachers do not know everything they need to know when they begin teaching (Hord & Sommers, 2008; Wood, 2007) or even after years of teaching alone in the classroom.

Teachers' professional growth has traditionally come from the assimilation of personal experience as an isolated development (Elster, 2009). This isolated experience can be enhanced and strengthened through PLCs which offer a supportive environment for teachers to grow professionally. Critical reflection of teaching practices in the presence of colleagues who are undergoing similar experiences adds value and legitimacy to teachers' professional development. Research shows that quality teaching comes with practice and guidance supported by on-going professional development (Annenberg Institute for School Reform, 2004). The Annenberg Institute believes this can be achieved through implementation of PLCs.

Poovey (2012) found that participants in PLCs benefit from statistically higher levels of reflection than those who do not participate in PLCs. Poovey maintained that PLCs provide teachers a venue for reflection and those who engage in reflection of

their practice in the presence of colleagues greatly improve their efficacy. PLCs are one of the most effective methods of increasing the efficacy of teachers through professional development and increasing student achievement (Repicky, 2009). Teachers become better teachers committed to student learning when they engage in reflection with colleagues (Psychoyos, 2012). Jorgensen and Lauridsen (2005) found that PLCs benefit the professional development of those involved.

PLCs provide powerful benefits to teachers and schools are more effective when they employ group investigations (Wood, 2007). Group investigations are the cornerstone of PLCs which provide teachers a venue for on-going professional development with the suggestion that teachers benefit significantly from investigation of their classroom practice with their colleagues (Cherubini, 2008). Research supports that these group investigations benefit teaching and learning (Doolittle, Sudeck, & Rattigan, 2008); and PLCs appear somewhat resistant to education's inability to sustain reforms that have historically plagued education (Giles & Hargreaves, 2006).

Common Characteristics of PLCs

Common characteristics of PLCs include shared leadership, shared mission, collaboration, collective inquiry, action orientation and experimentation, continuous learning, and results orientation (Hannaford, 2010). These characteristics are also recognized by other studies of PLCs (DuFour, Eaker, & DuFour, 2005; Fullan, 2001; Hord, 2009; Ireland, 2010; Lujan & Day, 2010; Neuzil 2010; Schmoker, 2005; Wood, 2007). The following will describe what the literature says about each of these characteristics.

Shared Leadership

Shared leadership is defined as the practice of all staff members sharing in the school's decisions and responsibilities (DuFour, Eaker, & DuFour, 2005).

Schoolwide improvement requires that leadership be distributed among the staff to build a strong schoolwide culture that focuses on the many responsibilities involved in student learning (Seashore Louis & Wahlstrom, 2011). Seashore Louis and Wahlstrom claim that shared leadership is an important component in developing PLCs to encourage new ideas that will increase student achievement. Research reflects that when a principal encourages shared leadership teachers gain a greater sense of responsibility for the school's goals (Dove & Freeley, 2011). Effective schools research reveals that successful change begins with leaders who share their leadership roles with teachers (Lezotte, 2005).

The principal's role in support of PLCs is vital. This support is not only important to teachers but also to the community at large (Fullan, 2005; Hord & Sommers, 2008). The principal has the responsibility of creating an atmosphere for PLCs to grow and flourish. Leadership is the common denominator to the success of PLCs (Neuzil, 2010). This leadership performs best when shared among the professionals at the school (Bullough, & Baugh, 2008).

Consistent with other research, Huffman and Jacobson (2003) found that PLCs and the leadership style of the principal share a significant relationship. Principals who encourage shared leadership are more successful in promoting effective PLCs. Principals who are instrumental in creating a school culture that employs PLCs realize greater academic achievement of students and increased

teacher development (Mullen & Hutinger, 2008). A study of the effect of leadership on group potency (Cashman, 2008) found that shared leadership was one of the supports of team effectiveness and showed a positive relationship between shared leadership and team potency.

Shared Mission

Shared mission is defined as knowledge of the school's purpose and how it will be achieved (Hord & Sommers, 2008). In order to create effective PLCs teachers must be willing to take responsibility that goes beyond their own classroom and share knowledge and experiences with the intent of ensuring that all students learn (Seashore Louis & Wahlstrom, 2011). Teachers who share in the school mission are able to solve problems, and all teachers and students learn remarkably more than they otherwise would (Schmoker, 2005). The collective knowledge of teachers is invaluable when shared with colleagues and will ensure greater student learning. Research reflects that when a principal encourages shared leadership teachers gain a greater commitment to the mission of the school (Dove & Freeley, 2011).

One of the major advantages to the collaborative environment of PLCs is a sense of shared mission which takes into account a shared commitment toward an agreed upon set of learning standards for students (Sharpe, Reiser, & Chase, 2010). Senge (2005), a foremost leader in organizational learning and business strategy, agrees with this positive power of a genuinely shared mission. An understanding and acceptance of a school's mission allows teachers to move forward to improve student learning (Sparks, 2005).

The principal's commitment to a school culture that encourages a shared mission is critical to a school's success (Eason-Watkins, 2005). Eason-Watkins received national recognition for implementing a model professional learning community at a Chicago elementary school and later became the chief education officer of Chicago Public Schools. Eason-Watkins has become an advocate for the educational benefits of PLCs and supports the value of a shared mission through strong PLCs throughout the Chicago Public School System to raise student achievement. Understanding of a clearly focused mission by all school personnel is critical to the PLCs value (Doolittle, Sudeck, & Rattigan, 2008) because, when participants of a group work together to accomplish a shared mission, they are more successful (Vasquez, Johnson, & Johnson, 1993).

Collaboration

Collaboration is defined as a shift from teacher isolation to a structured method for teachers to work together to improve teaching practice (DuFour, Eaker, & DuFour, 2005). Teachers do not automatically know how to collaborate effectively but must be taught and supported in this endeavor (Thessin & Starr, 2011). Schmoker (2005) sums up available research on PLCs by emphasizing that collaboration is the key to improving teaching and learning as well as increasing teacher morale due to the professional support it provides. Teacher collaboration solves problems, and all teachers and students learn remarkably more than they otherwise would (Schmoker, 2005).

PLCs derive from work begun by Rosenholtz (1989) during the 1980s regarding teachers' learning and the need for collaboration. Rosenholtz examined the

relationship of support that teachers receive through networking and teachers' professional development. The findings revealed that teachers' professional growth improved with support which in turn improved student learning. According to Hord (1997b), Rosenholtz's (1989) research was confirmed by Little and McLaughlin 1993 and again by Darling-Hammond in 1996. More recently writings by DuFour, Eaker, and DuFour (2005) and Fullan (1996, 2000, & 2001) affirm the support provided to teachers by PLCs.

Educators should not overlook the abundance of studies revealing that PLCs empower teachers to work collaboratively to positively influence student achievement and must examine how teachers regard this practice. PLCs are based on the idea of collaboration which has been positively correlated to student learning, but has only recently been associated with teacher learning and the notion of highly effective teaching (Loertscher, 2005; Wood, 2007). Thessin and Starr (2011) argue that there is a need for more study in this area and the collaboration experienced through PLCs must involve serious discussion focused on student learning (Schmoker, 2005).

Research supports that collaboration is a significant method of professional development for teachers (Morgan, 2010) and finds that beneficial professional development activities encourage educators to cease working alone and begin to share intellectual as well as concrete resources to the benefit of student learning (DuFour, 2004). DuFour maintains that a collaborative relationship among teachers will lend power to successful school improvement. According to DuFour teachers who work collectively will see learning rise to greater heights than through individual effort.

Neuzil (2010) believes that most educators work in isolation and credits Fullan (2001) with questioning this concept of professional autonomy. Teaching cannot succeed in an atmosphere of seclusion. The literature indicates that working in communities results in greater success to increased student achievement. Research equates the isolation that teachers experience in the classroom as a barrier to effective collaborative relationships (Morgan, 2010).

Competition among teachers and self-ownership of knowledge must be replaced with sharing successes as well as failures for the benefit of both teachers and students (Hord, 1997a). Research has found that teams encourage relationships and practices that are essential for school reform (Benard, 2005) and it is critical to change the school culture to one that encourages collaboration rather than isolation (Fullan, 2001). Successful teachers must share their knowledge with colleagues in a continuous effort to increase student learning and in so doing become stronger teachers and encourage greater student learning (Hord & Sommers, 2008).

Educational literature is filled with examples of research regarding collaborative school cultures that are successful in their school improvement efforts (Waldron & McLeskey, 2010), but teachers must be taught how to engage effectively in meaningful, collaborative dialogue (Hanson, 2010) to reform effectively the delivery of instruction. Carrigan (2008) also emphasized that members of the learning organization must be taught the skill of critical discourse to be effective.

Collective Inquiry

Collective inquiry is defined as the practice of comparing experiences and engaging in critical dialogue regarding those experiences (Wood, 2007). PLCs

provide teachers a venue for on-going professional development with the suggestion that teachers benefit from examination of their teaching practice. Merriam and Brockett (2007) stress the importance of collaborative inquiry with adult learners and maintain that shared experiences encourage growth and learning. Teachers must embrace the practice of collaborative inquiry in order to improve the learning for all students (DuFour, Eaker, & DuFour, 2005).

Research indicates that academic achievement is strongly related to teaching practice (Annenberg Institute for School Reform, 2004) which depends on the continued professional development that teachers receive. Effective professional development is described as continuous and embedded within a culture of inquiry based learning. The Annenberg report confirms that PLCs meet these guidelines and maintains that to improve learning there must be continuous, serious discussion and reflection of practice among the teachers regarding instructional practices and their legitimacy to classroom behaviors. Teachers must make use of their combined knowledge and experience and share this rich wisdom with one another (DuFour, Eaker, & DuFour, 2005).

Buyse, Sparkman, and Wesley (2003) examined numerous PLCs to discover how teachers integrate knowledge with practice and concluded that collective inquiry develops intellectual capacity that facilitates finding solutions to education's problems.

Action Orientation and Experimentation

Action orientation and experimentation are defined as the practice of moving forward in new ways with the expectation that these new experiences will enhance

teaching to improve student learning (DuFour, Eaker, & DuFour, 2005). Lezotte (2005) maintains that PLCs are an example of effective schools research in action in which teachers are willing to embrace school reform to improve student learning and will succeed through their actions within a PLC.

According to Hannaford (2010) teachers must be prepared to act on their beliefs and be open to new approaches while working toward successful student outcomes. Hannaford believes that PLCs offer a secure and stimulating environment that encourages action and experimentation in the quest to improve student learning.

Encouraging action orientation and experimentation will provide the practice that teachers need as a basis for reflection and discourse in PLCs to improve student learning (Hord & Sommers, 2008). Discourse within the PLC leads to action which is the basis for further action and reflection. Hord and Sommers conclude that teachers learn more from reflection and dialogue of the experience than from the initial experience.

Continuous Learning

Continuous learning is defined as the practice of using every opportunity and experience to learn something new (Hord & Sommers, 2008). Although the concept of PLCs was not included in the initial effective schools research, continuous learning is supported by effective schools research (Lezotte, 2005). Lezotte maintains that as PLCs mature and become stronger they provide an ever-present opportunity and nurturing environment for continuous learning.

School improvement occurs when teachers are proactive and determined to engage in meaningful dialogue of their practice (Joyce, 2004). Professional

development embraces a philosophy of lifelong learning and is best exhibited through teachers' experiences examined through dialogue with colleagues (Leite, 2006; Shacham & Od-Cohen, 2009).

Results Orientation

Results orientation is defined as the practice of knowing what students need to learn, knowing what is learned, and knowing what to do about those who have not learned (DuFour, Eaker, & DuFour, 2005). DuFour, Eaker, and DuFour argue that many groups that call themselves PLCs are not truly a PLC because they are not focused on results of student learning. To be effective PLCs must focus on assessment of student work and adjustments to facilitate instruction (Schmoker, 2005). Schmoker believes that the work of PLCs must be centered on student learning through a culture of collaboration and judge its effectiveness by assessing results of meeting the needs of all students (Thessin & Starr, 2011). On-going assessment of student learning is a powerful tool for teachers and is strengthened through dialogue with other teachers (Stiggins & DuFour, 2009).

Little, Gearhart, Curry, and Kafka (2003) in an examination of school reforms found that the practice of teachers collectively analyzing student work is critical to teaching and learning. Teachers have traditionally examined student work on their own, but the potency of this practice comes from engaging in the activity collectively through input and inquiry with other teachers. Bitterman (2010) in a study investigating teachers' perceptions of PLCs impact on teaching and learning emphasized collaborative assessment of student work guarantees that learning is taking place.

Each of these seven characteristics is influenced by teachers' beliefs. The following reviews the literature on the impact of teachers' beliefs.

Importance of Teachers' Beliefs

The influence of teachers' beliefs on successful implementation and effectiveness of educational reform are increasingly the topic of research studies (Griffiths, Gore, & Ladwig, 2006; Qian, n.d.; Savasci-Acikalin, 2009) with teacher beliefs being significantly related to the success of the reform (Kalin & Zuljan, 2007). Implementing a new reform without considering teachers' beliefs can result in unexpected and unwanted consequences, since teachers have the greatest influence on student learning (Davis & Andrzejewski, 2003; Laguardia, Brink, Wheeler, Grisham & Peck, 2002). However, the success of PLCs results from teachers' understanding of this reform (Davis & Andrzejewski, 2003) and its potential to improve student learning.

The fundamental theory behind the significance of teacher's beliefs derives from Rosenthal's (2002) research of the self-fulfilling prophecy and the assumption that belief has a powerful influence over actions. When teachers believe that PLCs are an effective means of improving their own learning as well as student learning then this reform will succeed (Handal & Herrington, 2003). Handal and Herrington claim that history is scattered with failed educational reforms which could be attributed to the lack of consideration for teachers' beliefs. Whether PLCs succeed or fail does not depend on the concept of the reform but on participating teachers' commitment (DuFour, 2004) because it is clear that teachers represent the most important means of change (Kaplan, 2008).

A recent study of teachers' beliefs about PLCs in a southern middle school revealed that overall teachers possess positive beliefs about improving their instructional practice (Hannafor, 2010). However, when teachers are forced to participate in instructional reforms that they are not committed to, these reforms often fail (Karaagac & Threlfall, 2004). Educators will more readily accept reforms to education when they represent authentic change or embody what is relevant to them and applies to what they do (Huffman & Jacobson, 2003). Bandura is credited with the idea that classroom decisions teachers make are clearly guided by beliefs (as cited in Savasci-Acikalin, 2009). Savasci-Acikalin suggests that more research must be done regarding the effect of beliefs on practice. Unless PLCs are embraced by teachers, this reform will be neither successful nor sustainable (Lezotte, 2005; Moss, 2008; Tyack & Cuban, 1995). Schmoker (2005) argues that teachers must believe that PLCs will improve student learning.

Some PLCs experience more success than others because participants appreciate what such a group will be able to achieve (Nelson, Deuel, Slavit, & Kennedy, 2010) and, even though research supports this collaborative school culture, many teachers continue to work in isolation (Seashore Louis & Wahlstrom, 2011). For an understanding of whether functioning PLCs achieve what is intended, it is important to know how teachers feel about these PLCs (Davis & Andrzejewski, 2003; Griffiths, Gore, & Ladwig, 2006; Qian, n.d.; Savasci-Acikalin, 2009).

Recognizing that teachers' knowledge influences student learning creates the need for lifelong learning. Over and over again studies prove that there is a powerful relationship between teachers' beliefs and their practice (Griffiths, Gore, & Ladwig,

2006; Lee & Smith, 1996; Leonard, Newton, & Evans, 2009; Maslow, 2008).

Teachers who examine their own beliefs and are willing to modify those beliefs for the betterment of students will not only add to their professional growth but also improve instructional delivery (Schmoker, 2005). The complexity of teachers' beliefs demands increased examination to provide meaningful professional development and encourage a willingness to accept new reforms (Buehl & Fives, 2009; Savasci-Acikalin, 2009). The success of reform depends on teacher beliefs as well as teachers' ability to make the change (Kalin & Zuljan, 2007). Teacher beliefs are critical to the success of educational reform. Because teacher beliefs strongly impact student learning educators must take care to address teacher beliefs when developing educational reforms.

Jones (2010b) found that changing teacher attitudes and beliefs can be facilitated in a teacher study group. Although Jones refers to teacher study groups in the description of the research, the characteristics are common to PLCs. This study points out that teachers need time to understand and practice the reform while adjusting to new beliefs and experiences. During this time of development, engaging in critical dialogue strengthens the construction of new beliefs and experiences. When teachers are able to talk and share with their colleagues they are more willing to adjust their attitudes and beliefs.

However, for teachers to change their beliefs and practices, time is needed (Elster, 2009). Elster argues that as important as the need for time, the need for trust is more important because sharing the good and bad of what goes on in the classroom requires an environment in which teachers believe they will not be judged or

ridiculed. Teachers' beliefs about teaching can hinder their ability to make changes to their practice (Sutor, 2010). Teachers often teach in the same way that they were taught. Teachers traditionally have relied on their own beliefs and experiences to solve the challenges in teaching. Professional development efforts must take into account that it is difficult to change teachers' beliefs. A theoretical framework of PLCs helps to address changing teachers' beliefs. The following addresses the framework and reviews the relevant literature.

Implementation and Effectiveness of PLCs

Research repeatedly finds that teachers improve their practice and increase student achievement through professional development that includes collaborative learning (Benson, 2011). Protocols guarantee that PLCs accomplish what is intended (Little, Gearhart, Curry, & Kafka, 2003). Protocols ensure that the PLC is focused and addresses the relevant issues (Bitterman, 2010).

DuFour, Eaker, and DuFour (2005) are leaders in research related to PLCs and school improvement. Their book, *On Common Ground: The Power of Professional Learning Communities*, is a collection of ideas from leading authorities on PLCs and labeled as the best book for professionals (Loertscher & Rosenfeld, 2007). These experienced educators all agree that PLCs represent a powerful reform to increase student learning through the improved professional development of teachers. Some of those listed in *On Common Ground* who support PLCs are: Barth, Castenell, Delpit, Rebecca DuFour, Richard DuFour, Eaker, Eason-Watkins, Fullan, Glickman, Hilliard, Hirsh, Jordan, Lezotte, Marzano, Reeves, Saphier, Schmoker, Sparks, Stiggins, Wagner, and Wise.

Another significant text, *Revisiting Professional Learning Communities at Work* (DuFour, Eaker, & DuFour, 2005), summarizes views corroborating the compelling need to implement PLCs as a method of school reform that produces lasting and significant increases in student learning as well as teacher learning. Sources cited by DuFour, Eaker, and DuFour include such authorities as Annenberg Institute for School Reform, Bryk, Covey, Cravens, Darling-Hammond, Drucker, Elliott, Fullan, Goldring, Handy, Hord, Joyce, Kruse, Louis, Merrill, Murphy, Newmann, Porter, Raywid, Seashore Louis, Senge, Showers, Sparks, and Wehlage. Schmoker (2005) adds to this list of leading researchers who advocate PLCs with such names as: Calhoun, Darling-Hammond, Elmore, Joyce, Little, Lortie, McLaughlin, Newmann, Rosenholtz, Stigler, Talbert, Walk, Whelage, and Wiggins. These sources offered insight and expertise into effective strategies to bring about shift from a traditional school to a PLC.

To further substantiate the reasoning which supports implementation of PLCs to benefit teacher efficacy and student learning, DuFour, Eaker, and DuFour (2005) also credit the following organizations for their support: the National Commission on Teaching and America's Future; the National Board for Professional Teaching Standards; the Interstate New Teacher Assessment and Support Consortium; the National Council of Teachers of Mathematics; the National Council of Teachers of English; the National Science Teachers Association; the Southwest Educational Development Laboratory; the National Education Association; the National Middle School Association; the National Association of Elementary School Principals; The National Association of Secondary School Principals; the National Staff

Development Council; and the North Central Association Commission on Accreditation and School Improvement. This impressive list continues with studies that support PLCs such as a five-year study and field research by the Center on Organization and Restructuring of Schools that linked PLCs with school improvement and increased student learning; and research by WestEd points to the critical nature of professional community to teachers as well as students (DuFour, DuFour, & Eaker, 2008). The volume of organizations and experts validates the belief that implementation of PLCs is an effective school reform that improves teacher practice as well as increases student learning.

One study which combined learning and teaching fellowships within communities of practice and found that PLCs successfully improved teaching and learning (Jones, 2010a). Jones's research found that fellowship grants which included academic research and educational growth not only improved learning but the benefits were amplified when PLCs were evident. School systems across the country are beginning to realize the value of this collaborative culture and professional development plans are now in place to provide time for teachers to function as a team (Hord & Sommers, 2008; Monroe-Baillargeon & Shema, 2010). With the objective of increasing student learning (Griffiths, Gore, & Ladwig, 2006), a great deal of time and money are being devoted to this model of staff development (Pierce, 2010). Educators are optimistic that this model will increase student learning as well as provide professional growth to teachers (Langer, 2000; Lewis, 2002; Wood, 2007).

However, many groups that call themselves PLCs are not truly a PLC (DuFour, Eaker, & DuFour, 2005) because they are not centered on student learning. Protocols are established for providing structure to the meeting and ensure that the PLC is focused and addresses the relevant issues (Bitterman, 2010). Protocols include issues such as effective questioning, incorporating innovative thinking, and listening. The work of PLCs must focus on student learning (Schmoker, 2005) through a culture of collaboration and judge its effectiveness by assessing results of meeting the needs of every student (Thessin & Starr, 2011). PLCs offer a venue for teachers to solve their own problems through collaborative sharing of experience and reflection by critical inquiry. This collaboration can be successfully achieved with schoolwide support (Fogarty & Pete, 2009).

Lindahl (2011) found that the research based characteristics were present in PLCs that were studied with the conclusion that strong administrative leadership in the schools encouraged and supported these characteristics. When a principal focuses on developing staff capacity through a PLC then the level of implementation for the PLC is greater than in the absence of such a principal (Scroggins, 2008). This study concluded that principal leadership has a positive relationship on the capacity of teachers and the level of implementation of PLCs. Moore (2010) in a study of leadership practices and the implementation of PLCs found a significant relationship between leadership and PLC implementation.

In a study of strategies used by successful PLCs (Arroyo, 2011) findings showed that the implementation of PLCs increased both teaching and learning. Arroyo suggested that schools make PLCs a priority, provide time for their growth

and development, limit the paperwork, and intentionally plan for the assimilation of new members. Often the challenge of teacher turnover or new hires is not addressed by those implementing a PLC.

Numerous studies have been conducted as to why PLCs should be implemented and best practices for how they should be implemented with many relating teacher collaboration with student success. One study regarding the effect of PLCs and teacher collaboration on student achievement found that teacher skill with the collaborative process correlated significantly with student achievement (Bunker, 2008). Although much education reform falls in the one size fits all category, each PLC is unique with its own values and practices. Bunker determined that this uniqueness was what made the PLC most effective and concluded that what all PLCs do have in common is improving teacher capacity through interaction and collaboration with stronger colleagues. PLCs encourage schools to view themselves not only as a learning place for students but also for teachers.

PLCs help teachers connect research to practice (Griffith, 2009) which not only improves teaching but also student achievement. Griffith's study examined the implementation of a PLC in an elementary school to determine if the characteristics of a PLC were in practice. Griffith found that the PLC developed over time and teacher capacity increased. The growth was attributed to a deeper understanding of what constituted a PLC which increased its level of implementation. Higgins (2010) also found implementation requires an increase of time allotments and resources to be successful. Higgins examined PLCs and teacher perceptions of implementation and found that additional time and resources would improve academic goals.

One study that investigated a school's transitioning to PLCs (Honnert, 2010) found that support was required from all levels of education. Not only do teachers need to support this reform but also school administrators and central office administrators. Honnert found, as other researchers have (Hickman, Schrimpf, & Wedlock, 2009; Ikhwan, 2011; Jones, 2010b), that PLCs require time and practice to be successfully implemented. Honnert (2010) refers to the development toward PLCs as a complex journey which will benefit both teaching and learning. Ikhwan (2011) maintains that supportive leadership is critical to the successful implementation of PLCs. A study on the development of a collaborative school culture found in most PLC models that a collaborative environment strengthens both teacher and student learning (Jones, 2010b). Lee and Smith (1996) found that PLCs foster a collective responsibility on the part of teachers which increased student achievement.

Often non-classroom educators find it difficult to fit into a PLC comprised of teachers who teach in a classroom. One article that describes eight possible roles for school librarians in the implementation of PLCs argues that librarians can positively impact the effectiveness of PLCs within the school (Hughes-Hassell, Brasfield, & Dupree, 2012). All PLC participants can benefit from including school support personnel. The differing perspectives and experiences of all school personnel whether or not they are classroom teachers can enhance the PLC experience.

One study shows a significant relationship between a principal's emotional intelligence and the level of implementation of PLCs (Shanklin, 2009). Two of the strongest indicators of emotional intelligence that will impact the level of implementation of PLCs are self-awareness and relationship management. Self-

awareness is the keystone of emotional intelligence and describes a sense of certainty about one's feelings. Relationship management is managing the emotions of others (Goleman, 1995).

PLC facilitators have a significant influence on the level of implementation of PLCs (Stein, 2009). Stein maintains that the facilitator's actions inspire PLC participants in effective collaboration and inquiry to support learning. To contribute to an effective level of implementation, facilitators must be adept at sharing the leadership role. One of the advantages of a high level of PLC implementation is that members are able to share their diverse perspectives which are discussed in depth. Practices are examined, questioned, and participants are encouraged to try the methods suggested by others.

A study of enabling school structures and the impact on PLCs (Tylus, 2009) found that when teachers believed that the bureaucracy supported PLCs the level of implementation increased. Tylus concluded that when the bureaucracy facilitated PLC implementation teacher professional development and change was considerable. In this study it was shown that teachers believed that membership in a PLC led to change in classroom practice. Also, teachers are more willing to participate in the implementation of PLCs when they view the bureaucratic structure as encouraging the process.

The school district modification of the school day to allow time for the PLCs to meet was critical to the level of PLC implementation. Further, when the implementation level was high student achievement increased (Voelkel, 2011). The level of PLC implementation has a positive relationship with teacher efficacy. This

study affirmed the need for strong and supportive leadership. School leadership is critical to the level of PLC implementation and the professional growth of teachers (Wilson, 2011). Effective practices of principals influence the level of implementation of PLCs (Wolford, 2011).

Arne Duncan (2010), the United States Secretary of Education, in a lecture at the William J. Clinton Presidential Library argued that if the United States were to again become a leader in education, teachers needed data and feedback to improve their practice and ultimately help students learn. He underscored that teacher collaboration was a good way to disseminate these data, share their meaning, and identify methods to benefit learning. One study found that successful PLCs thrive on a culture of trust and mutual respect (Blacklock, 2009). Increased levels of implementation and effectiveness occur when participants are encouraged to share the good and bad of what goes on in their classrooms. Sharing is eased when colleagues value other perspectives.

Research of Benefits to PLC Implementation

Research on the effectiveness of PLCs lends value to practice (Hannaford, 2010). Encouraging results of successful PLCs include numerous benefits to those who implement them such as positive cultural exchanges, leadership opportunities, support for adult learning theory, and stronger bonds among the community of learners (Annenberg Institute for School Reform, 2004). The Annenberg Institute for School Reform lists the following benefits: minimizes feelings of isolation; stronger commitment to shared purpose of the school; mutual accountability for student learning; increased job fulfillment and confidence; improved attendance; and

supports on-going school improvement efforts. PLCs have a positive effect on student learning as well as improve the practice of teaching (Jones, 2010b).

The most common benefit listed in the literature is the collegiality that empowers teachers to do their job well. PLCs are a sensible and economical method to improve learning and teaching in our schools (Schmoker, 2005), and have also found to contribute to teachers' happiness (Webb, Vulliamy, Sarja, Hamalainen, & Poikonen, 2009). PLCs are found to be a powerful tool to increase student achievement and teachers believe that they learn more from their fellow teachers than any other source (Williams, 2013). Williams concluded that PLCs not only increase student achievement but also improve teacher quality and found that schools which implement PLCs are often rated higher than those which do not. Findings of a study on the relationship between PLCs and reading and math scores found a significantly strong relationship (Wheaton, 2008).

One study looked at implementation of PLCs in community schools with the intent of forming university-school partnerships (Linder, Post, & Calabrese, 2012). The researchers identified the following characteristics as leading to successful PLCs: sense of community, teachers deciding the content and direction of the meetings, and leadership. These researchers who were also education faculty at a university wanted to identify the factors of success so they could facilitate the implementation of successful PLCs in the schools as well as build relationships with teachers. Linder, Post, and Calabrese point out that one of these identified factors leading to successful PLCs is that teachers want to decide the course of the meetings instead of being

micromanaged. Teachers want to be responsible for their own learning which will help them buy into the reform.

Siguroardottir (2010) found that level of implementation of PLCs is strongly related to their level of effectiveness in schools in Iceland and concluded that as the implementation of PLCs is improved then their effectiveness will increase and student achievement will rise. Jorgensen and Lauridsen (2005) conducted a study of reflexive learning in PLCs and found that improving professional practice comes about through examination and discussion of other views of a problem.

“Communities of Practice: Connecting What We Know With What We Do” (Buyse, Sparkman, & Wesley, 2003) affirmed that PLCs equip teachers to solve complicated educational problems through an inquiry process. Moore (2010) concluded that PLCs had a positive impact on school climate. Moore maintains that PLCs provide valuable solutions to problems that confront schools.

Teachers who participate in PLCs experience statistically higher levels of reflection than those who do not participate in PLCs (Poovey, 2012). PLCs offer teachers an opportunity to achieve a greater depth of reflection and Poovey concluded that teachers who reflect on their practice in the presence of their colleagues are able to improve their efficacy at a greater rate than those who do not. The greatest hope of PLCs is to increase student learning by increasing the efficacy of teachers (Repicky, 2009) because PLCs are one of the most effective methods of teachers’ professional development.

Psychoyos (2012) conducted a case study of PLCs and the practice of teachers helping one another develop professionally. Psychoyos concluded that teachers

experience greater commitment to student learning through reflection of experiences with their colleagues. Maslow (2008) concluded that when teachers accept a collective responsibility for their students, academic achievement improves. Jorgensen and Lauridsen (2005) conclude that conditions to enhance PLCs will benefit the professional development of those involved.

Research of Challenges to PLC Implementation

Recent educational literature suggests that there are a number of roadblocks to the creation of PLCs. Beyond obstacles caused by lack of teacher participation are obstacles related to procedures, personalities, and politics (Johnson, 2006) as well as constraints involving resources such as a lack of time (Lujan & Day, 2010; Marley, 2010; Maslow, 2008; Sutor, 2010). Lack of sufficient time to meet and collaborate was often mentioned as a barrier to the level of implementation of PLCs. Other barriers to successful PLCs are too much focus on process rather than content, teachers' hesitancy to share, issues of trust and equality, lack of leadership, undocumented success, and difficulty in carryover to practice (Annenberg Institute for School Reform, 2004).

Lujan (2009) identified several barriers to the implementation of PLCs: not enough time, lack of understanding of what a PLC is and can do, and teacher negativity. Marley (2010) found that collaboration and shared leadership are often not supported in schools. Another study found barriers to the implementation of PLCs that include lack of mission, inadequate time to conduct meetings, lack of skill in collaborating, and a divide between district and school's need for professional development (Senechal, 2011).

One research study which examined teacher accountability by using students' standardized test scores, found that when schools emphasize specific results within the short term, implementation of successful PLCs suffer (Benson, 2011). Under the guise of reforming education teachers are inundated with countless tasks to accomplish which leave teachers overwhelmed with responsibilities (Maslow, 2008). Maslow concludes that, although teachers believe collaboration is important, they have little time or energy to participate in this practice. Hughes-Hassell, Brasfield, and Dupree (2012) reiterate that lack of time and a never-ending list of responsibilities have a negative effect on the implementation of successful PLCs.

Another obstacle to implementation of PLCs is when principals and teachers do not agree on the function of a PLC or what it can accomplish. Phillips (2009) conducted a study of principals' perceptions of the level of implementation of PLCs compared to other members of the PLC and found that principals and other participants of the PLC do not share the same perceptions. Pillari (2011) conducted a study of PLCs and found that participants do not have a clear understanding of what PLCs are and can accomplish. This lack of understanding can also be found among district administrators and schools (Senechal, 2011).

One issue that must be addressed in the implementation and effectiveness of PLCs is that of teacher turnover and new hires. It takes time to build connections among participants. This need for more time creates challenges for the assimilation of new members into a functioning PLC and the issue of support and integration of new teachers must be addressed (Reynolds, 2008).

Dynamics of the group also play a significant part in the ability to implement a successful PLC. How teachers work together and develop professionally greatly affects the potential for student learning (Rose, 2008). When teachers are not willing to participate or to change it becomes extremely difficult to make them. When teachers are stressed with innumerable tasks and responsibilities they are not receptive to innovative reforms. Overcoming these difficulties can be achieved with effective leadership (Dove & Freeley, 2011) and time afforded to train participants in the protocols and functions of the PLCs.

Implementation and Effectiveness of PLCs by Selected Variables

There are numerous demographic factors that affect the implementation and effectiveness of PLCs. Research shows that age, total years of teaching, grade/developmental level taught, and sex can influence beliefs and behaviors (Cizek, Fitzgerald, & Rachor, 1996; Graham, 2007; McNair, Bhargava, Adams, Edgerton, & Kypros, 2003). It is reasonable and beneficial to expect that these demographics would impact teachers' perceptions of the levels of implementation and effectiveness of PLCs.

One study related to perceptions of leadership in PLCs to determine whether a relationship existed between perceptions of leadership and actual leadership behaviors selected the following variables: grade level, subject, sex, and years of teaching experience (Bertsch, 2012). Another study (Curry, 2010) dealing with implementation of PLCs and teacher perceptions included data on how demographic variables affect the implementation of PLCs. Seven demographic characteristics were selected: gender, grade level, total years of teaching experience, total years at current

school, total years in a PLC, highest level of education, and length of time the principal had served. Curry's study determined that there was a positive relationship between grade level and implementation of the PLC.

A study of teachers' assessment practices found that practices varied depending on years of experience (Cizek, Fitzgerald, & Rachor, 1996). Differences existed between teachers with minimal experience and those with greater years of experience. Additionally, Cizek, Fitzgerald, and Rachor suggest that the variability of practice for teachers of differing subject areas and gender are also important to the examination of teacher performance. Grade level was found to be a significant indicator of teacher assessment practice in a study by McNair, Bhargava, Adams, Edgerton, & Kypros (2003).

Organization of the PLC team was examined in a 2007 case study (Graham) regarding improving teacher effectiveness through collaboration. Although interdisciplinary teams were traditionally used for the organizational structure of PLCs, Graham found that grade level and subject were more powerful determinates of successful PLCs and suggested that educators needed to rethink the configuration of teams. Graham also found disparity in PLC implementation by years of experience, grade level taught, and subject taught.

Summary

Research supports the value of implementing PLCs to improve student learning, and increased accountability in the schools has caused many school systems to implement this reform to effectively meet student needs. The preceding review addressed literature relevant to implementation and effectiveness of PLCs providing a

foundation for this research study. The following chapter will provide a description of the methods used in this study.

CHAPTER THREE: METHODS

This study examined the implementation and effectiveness levels of PLCs as perceived by teachers in the Kanawha County School District in West Virginia. Also investigated were differences in levels of perceived implementation and effectiveness based on selected attribute and demographic variables: organizational structure, age, total years of teaching, grade/developmental level, and sex. Additionally, the relationship between levels of implementation and levels of effectiveness in improving student learning of PLCs was examined. Finally, this study described teachers' suggestions to enhance their PLC experience and identified challenges that hindered the implementation of PLCs. This section provides a description of the techniques used in this study, research design, population, instrumentation, data collection procedures, and data analysis.

Research Design

This study was completed using a one-shot, cross-sectional survey design focused on determining the levels of implementation and perceived effectiveness of characteristics of PLCs in Kanawha County Schools. According to Fink (2003), a cross-sectional design may be used to gather data of a selected group's opinions at one point in time. Empirical data were gathered using a researcher developed descriptive survey. Items representing the seven commonly accepted characteristics of PLCs were used. Teachers were asked to specify the level of implementation and perceived effectiveness for each of seven characteristics of PLCs. Data on selected attributes and demographic variables were also collected.

Population and Sample

The population for this study consisted of 1,788 teachers at 44 elementary schools, 14 middle schools, and eight high schools in the Kanawha County School District. The entire population was included in the sample.

Instrumentation Development and Validation

The survey instrument was a four page, four-part researcher developed questionnaire (Appendix A). Part A contained the demographic and attribute questions: organizational structure, age, total years of teaching, grade/developmental level, and sex. Part B asked respondents to use a five-point scale to indicate the level of implementation of 21 PLC indicator items. Part C asked respondents to use a five-point scale to indicate the level of effectiveness of 21 PLC indicator items. Part D consisted of two open-ended response questions requesting respondents to identify factors that would enhance their PLC experience and identify challenges of their PLC experience. The 21 indicator items were derived from the seven characteristics identified by Hannaford (2010). Three indicator items were identified for each characteristic.

To ensure content validity a draft of the survey, *Implementation and Effectiveness of Professional Learning Communities*, was reviewed by a panel of five PLC experts (Appendix C). They were asked whether they thought the 21 identified indicator items accurately reflected PLCs in Kanawha County Schools. The group included the director of professional development and supervisor of all PLCs in Kanawha County Schools, four assistant superintendents including one in each grade area (Elementary Schools, Middle Schools, and High Schools) and the assistant

superintendent for Curriculum and Instruction for Kanawha County Schools. The survey was then pilot tested with two elementary school teachers and one middle school teacher.

Recommendations for instrument change included some editing corrections along with clarification to the demographic section (Part A). *How many total years of full-time teaching experience, including the current year, do you have?* was changed to read *How many years have you taught full time (including the current year)?* and the demographic grade/departmental level, *Elementary*, changed to include Pre-school (*Elementary/Preschool*). One reviewer suggested including a description of the term *inquiry based*. It was decided that teachers who participate in PLCs have a good understanding of this term. Concern was expressed for the length of the survey but it was decided that limiting the indicator items would jeopardize the results.

Data Collection Procedures

A meeting was held with the Kanawha County Schools Superintendent to obtain permission to survey all Kanawha County School teachers. Upon approval by the superintendent (Appendix E) and with assistance from Kanawha County Schools' staff, data were collected using a researcher developed descriptive survey. The total population was surveyed.

This survey was distributed electronically using Zoomerang online survey software to all Kanawha County Schools' teachers along with a cover letter describing the intent of the survey (Appendix A & B). A deadline of four weeks from the date of distribution was specified for completion (Appendix D). At the end of three weeks a reminder with a brief request along with the survey link was provided

including the cutoff date for completion of the survey (Appendix D). Final data were submitted electronically.

Data Analysis Techniques

Data collected to address Research Questions One and Three were analyzed by individual item, category, and total for implementation and effectiveness. Mean scores and standard deviations were calculated for each item, category, and the total, and a one-sample t-test was conducted to determine the level of significance with a $p < .05$. The sample means for each item, category, and total score were compared to the means from hypothetical normal distributions for each item, category, and the total.

To address Research Questions Two and Four an independent samples t-test ($p < .05$) was used for variables with two groups and an Analysis of Variance (ANOVA) for variables with more than two groups. Each demographic variable was analyzed based on level of implementation and level of belief about PLC effectiveness.

To address Research Question Five sample mean scores for implementation and effectiveness for category and total were calculated. A Pearson correlation between the level of implementation and effectiveness was then calculated for each category and total score. Strength of relationships indicated by correlation coefficients was categorized on a scale of no relationship to strong relationship, using the values and categories identified by Salkind (2004) as: .0 - .2 = weak or no relationship, .2 - .4 = weak relationship, .4 - .6 = moderate relationship, .6 - .8 = strong relationship, .8 - 1.0 very strong relationship.

Research Questions Six and Seven were addressed by using Emergent Category Analysis (Stemler, 2001) to categorize responses by common themes. The use of emergent category analysis provided a secondary measure of analysis to the listing of narrative responses for suggestions to enhance PLC experience and greatest challenges of the PLC experience. This offered percentages of those comments identified most often to least often.

Limitations

This study used a one-shot descriptive survey with the limitations of a self-report design. Additional limitations existed due to the constraint of only three selected indicator items for each of the seven PLC characteristic.

Summary

This chapter provided a description of the methods used in this study. The research design was a one-shot, cross-sectional survey which was distributed electronically to a population of 1,788 teachers in the Kanawha County School District. The data was analyzed using a one-sample T-test (RQ 1 & 3) to determine level of significance, analysis of variance and independent samples t-test (RQ 2 & 4) to address differences, a Pearson correlation (RQ 5) to reveal relationship, and Emergent Category Analysis (RQ 6 & &) to identify suggestions and challenges. The following chapter will present an analysis of the data.

CHAPTER FOUR: ANALYSIS OF FINDINGS

Introduction

The purpose of this study was to examine teacher perceptions of the level of implementation and effectiveness in positively affecting student learning of PLCs.

Findings presented in this chapter are organized around the following sections:

(a) data collection, (b) participant characteristics, (c) major findings for each of the seven research questions examined in this study, and (d) a summary of the findings.

Data Collection

On March 27, 2012, the link to the researcher developed survey (Appendix A), *Implementation and Effectiveness of Professional Learning Communities*, was distributed to all Kanawha County Schools' teachers (Appendix D). A cover letter explaining the purpose of this study (Appendix B) and the IRB approval letter (Appendix F) were attached. The survey was adapted for electronic distribution using Zoomerang through consultation with and assistance from Kanawha County Schools' staff.

A deadline of April 27, 2012, was specified for survey completion. On April 10, 2012, a reminder (Appendix D) with the related information and a link to the survey was emailed to all teachers. Data collection was concluded on April 29, 2012.

The population for this study included 1,788 teachers at 44 elementary schools, 14 middle schools, and eight high schools in the Kanawha County School System in central West Virginia. The total population was surveyed and 1,017 teachers responded. The overall response rate was 56.9%. Respondents with

incomplete surveys were not included in the final data analysis. Responses from 969 teachers were judged to be usable for this study resulting in a usable response rate of 54.2%.

Participant Characteristics

Section one of the survey requested participants respond to five demographic questions: organizational structure of participant's PLC, participant's age, years of experience, grade/developmental level taught, and participant's sex. These data are presented in Table 1.

Participants were asked to identify the organizational structure of the PLC in which they participated as either (a) grade level, (b) subject/department, (c) team, or (d) schoolwide. Participating teachers reported the following responses: grade level 31.48% (n=305), subject/department 34.57% (n=335), team 18.27% (n=177), and schoolwide 15.69% (n=152).

Participants were asked to identify their age group from a choice of five groups: 20-29, 30-39, 40-49, 50-59, and 60+. Responding teachers reported the following: 20-29 (9.70%), 30-39 (22.29%), 40-49 (21.67%), 50-59 (33.23%), and 60+ (12.59%).

Participants were also asked to select one of the following groups to report their total number of years of full-time teaching experience: 1-7 years, 8-16 years, 17-27 years, and 28-47 years. Teachers reported the following responses: 1-7 years (25.5%), 8-16 years (26.3%), 17-27 years (24.7%), and 28-47 years (23.5%). The mean number of years of teaching experience was 17.56 years (SD=11.37).

Participants were asked to select the grade/developmental level they taught from three groups: elementary school/preschool, middle school, and high school. Participating teachers reported the following responses: elementary/preschool 47.78% (n=463), middle school 21.67% (n=210), and high school 29% (n=281).

Finally participants were asked to identify their sex: male or female. Participating teachers reported the following responses: male 16.10% (n=156) and female 82.35% (n=798).

Table 1

Demographic Characteristics of Participants

Demographic	<i>n</i>	%
Organizational Structure		
Grade Level	305	31.48
Subject/Department	335	34.57
Team	177	18.27
Schoolwide	152	15.69
Age		
20-29	94	9.70
30-39	216	22.29
40-49	210	21.67
50-59	322	33.23
60+	122	12.59
Teaching Experience		
1-7 Years	247	25.5
8-16 Years	255	26.3
17-27 Years	239	24.7
28-47 Years	227	23.5
Grade/Developmental Level taught		
Elementary/Preschool	463	47.78
Middle School	210	21.67
High School	281	29.00
Sex		
Male	156	16.10
Female	798	82.35

N = 969

Major Findings

This section of Chapter Four presents the major findings from the study. The presentation of findings is organized around each of the seven research questions. A summary of these major findings concludes the chapter.

Research Question One: Levels of PLC Implementation

Participants rated the level of implementation of each of 21 PLC indicator items using a scale of 1-5, with 1 = never, 2 = infrequently, 3 = some of the time, 4 = most of the time, and 5 = all of the time. A one-sample t-test, comparing the sample mean for each item to the mean score ($M=3.0$) from a hypothetical normal distribution, was conducted on each of the 21 indicator items.

The 21 indicator items were grouped into seven categories for analysis based on the Hannaford (2010) model of PLCs. Three indicator items were associated with each of the seven categories. Total scores for each category were calculated by summing the responses for the three related indicator items. A one-sample t-test, comparing each total categorical mean score to the mean score ($M=9$) from a hypothetical normal distribution, was conducted for each of the seven categories.

Finally, a total level of implementation score was calculated for each respondent by summing the responses on each of the 21 indicator items. A one-sample t-test, comparing the sample total mean score to the mean score ($M=63$) from a hypothetical normal distribution, was conducted.

Each of the 21 implementation items ranged from a low score of one to a high score of five. An analysis of respondent mean scores for each of the 21 indicator items for level of implementation were categorized into three levels of response: three

items had mean scores less than 3.75; eleven items fell between 3.76 and 3.99; and seven items had mean scores between 4.0 and 5.0. Those items with mean level of implementation scores less than 3.75 included “Is learning inquiry-based?” (M=3.73, SD=.98); “Do teachers hold one another accountable?” (M=3.51, SD=1.10); and “Are teachers receptive to new strategies/approaches?” (M=3.67, SD=.95).

Those indicator items with level of implementation scores 3.76 and 3.99 included “Do teachers experiment with new methods?” (M=3.76, SD=.95); “Do teachers generally take advantage of opportunities to learn something new?” (M=3.78, SD=.97); “Is decision-making shared and participatory?” (M=3.79, SD=1.05); “Is staff training collaborative and embedded?” (M=3.83, SD=1.03); “Do teachers engage in critical dialogue about experiences?” (M=3.83, SD=1.06); “Are teachers’ roles and responsibilities shared?” (M=3.85, SD=1.00); “Is current research shared among participants?” (M=3.85, SD=1.07); “Do meetings address goals designed to achieve mission?” (M=3.91, SD=1.04); “Is continuous learning nurtured?” (M=3.92, SD=1.05); “Do teachers share a sense of responsibility for mission?” (M=3.92, SD=1.02); and “Do teachers collaborate to improve practice?” (M=3.95, SD=1.00).

Those indicator items with level of implementation scores between 4.0 and 5.0 included “Is the principal supportive?” (M=4.41, SD=.86); “Do teachers have knowledge of school mission?” (M=4.33, SD=.87); “Are decisions guided by school mission?” (M=4.08, SD=.96); “Are teachers encouraged to share ideas and suggestions?” (M=4.22, SD=.96); “Do teachers know what students need to learn?”

(M=4.33, SD=.76); “Do teachers continually assess student progress?” (M=4.40, SD=.77); and “Do teachers ensure that all students learn?” (M=4.20, SD=.81).

When compared to the mean score (M=3.0) from a hypothetical normal distribution, one-sample t-test results indicated the differences between the normal distribution and sample mean scores for each of the 21 indicator items were statistically significant at $p < .001$. Data for the individual indicator items are presented in Table 2.

When responses were analyzed based on the seven categories, category total level of implementation means ranged from 11.01 to 12.81 (R=3-15). From lowest to highest, the mean scores for each category were: Category 5 - Action Orientation and Experimentation (M=11.01, SD=2.87); Category 6 – Continuous Learning (M=11.21, SD=2.85); Category 4 – Collective Inquiry (M=11.28, SD=2.93); Category 3 – Collaboration (M=11.89, SD=2.82); Category 1 – Shared Leadership (M=11.99, SD=2.56); Category 2 – Shared Mission (M=12.18, SD=2.72); and Category 7 – Results Orientation (M=12.81, SD=2.28). When each sample category mean was compared to the mean (M=9) from a hypothetical normal distribution for each category, one-sample t-test results indicated the differences between the normal distribution mean scores and each of the sample category means were significantly different at $p < .001$. Data for the level of implementation by categories are provided in Table 3.

The total sample level of implementation mean score (M=82.38, SD=16.16, R=21-105) was compared to the mean (M=63) from a hypothetical normal

distribution. One sample t-test results ($t(969)=37.33$) revealed that the difference in the two means was statistically significant at $p < .001$.

Table 2

Level of Implementation of PLCs as Perceived by Teachers

PLC Indicator Item	Level of Implementation		
	<i>M</i> *	<i>SD</i>	<i>t</i> value
a. Is decision-making shared and participatory?	3.79	1.05	23.40***
b. Are teachers' roles and responsibilities shared?	3.85	1.00	26.47***
c. Is the principal supportive?	4.41	.86	51.17***
d. Do teachers have knowledge of school mission?	4.33	.87	47.23***
e. Are decisions guided by school mission?	4.08	.96	34.82***
f. Do teachers share a sense of responsibility for mission?	3.92	1.02	27.96***
g. Do teachers collaborate to improve practice?	3.95	1.00	29.66***
h. Is staff training collaborative and embedded?	3.83	1.03	25.01***
i. Are teachers encouraged to share ideas and suggestions?	4.22	.96	39.60***
j. Is current research shared among participants?	3.85	1.07	24.65***
k. Do teachers engage in critical dialogue about experiences?	3.83	1.06	24.48***

*Comparison $M = 3.0$ *** $p < .001$ $N = 969$ Scale: 1 = Never, 2 = Infrequently, 3 = Some of the time, 4 = Most of the time, 5 = All of the time

Table 2

Level of Implementation of PLCs as Perceived by Teachers (continued)

PLC Indicator Item	<u>Level of Implementation</u>		
	<i>M</i> *	<i>SD</i>	<i>t</i> value
l. Is learning inquiry-based?	3.73	.98	23.06***
m. Do teachers experiment with new methods?	3.76	.95	24.81***
n. Do meetings address goals designed to achieve mission?	3.91	1.04	27.01***
o. Do teachers hold one another accountable?	3.51	1.10	14.24***
p. Is continuous learning nurtured?	3.92	1.05	27.24***
q. Do teachers generally take advantage of opportunities to learn something new?	3.78	.97	24.91***
r. Are teachers receptive to new strategies/approaches?	3.67	.95	21.92***
s. Do teachers know what students need to learn?	4.33	.76	54.19***
t. Do teachers continually assess student progress?	4.40	.77	56.71***
u. Do teachers ensure that all students learn?	4.20	.81	46.09***

*Comparison $M = 3.0$ *** $p < .001$ $N = 969$ Scale: 1 = Never, 2 = Infrequently, 3 = Some of the time, 4 = Most of the time, 5 = All of the time

Table 3

Level of Implementation of PLCs by Categories as Perceived by Teachers

PLC Category	Level of Implementation		
	<i>M</i> *	<i>SD</i>	<i>t</i> value
1. Shared Leadership Sum of items a, b, c	11.99	2.56	36.37***
2. Shared Mission Sum of items d, e, f	12.18	2.72	36.40***
3. Collaboration Sum of items g, h, i	11.89	2.82	31.98***
4. Collective Inquiry Sum of items j, k, l	11.28	2.93	24.29***
5. Action Orientation and Experimentation Sum of items m, n, o	11.01	2.87	21.72***
6. Continuous Learning Sum of items p, q, r	11.21	2.85	24.14***
7. Results Orientation Sum of items s, t, u	12.81	2.28	51.88***

*Comparison M = 9.0 ***p = <.001 N = 969 Scale: 1 = Never, 2 = Infrequently, 3 = Some of the time, 4 = Most of the time, 5 = All of the time R=3-15

Research Question Two: Differences in Levels of Implementation

Participant responses were analyzed to determine if there were differences in perceptions of implementation levels for each of the seven PLC categories and the total level of implementation score based on the five independent variables. Means and standard deviations were determined, and an ANOVA or independent samples *t*-test was used to determine if there were statistically significant differences in implementation levels based on each of the five variables.

Organizational Structure

A one-way between groups analysis of variance was conducted to explore the differences in PLC implementation levels based on organizational structure. There were statistically significant differences in level of implementation based on organizational structure for collective inquiry $F(3, 965) = 2.76, p < .05$; action orientation and experimentation $F(3, 965) = 4.48, p < .01$; and results orientation $F(3, 965) = 4.93, p < .01$. The highest and lowest levels of implementation reported for each of these categories were from grade level and subject/department respectively. There were no significant differences based on organizational structure for the shared leadership, shared mission, collaboration, or continuous learning categories. The data are presented in Table 4.

There was a statistically significant difference in total level of PLC implementation by organizational structure $F(3, 965) = 3.59, p < .05$. The highest total level of implementation scores for each category of organizational structure reported was grade level. The lowest total level of implementation scores for each category of organizational structure reported was subject/departmental.

Table 4

Means Standard Deviations, and One-Way Analysis of Variance for Category and Total Levels of Implementation by Organizational Structure

PLC Category/Totals	<u>Organizational Structure</u>								<i>F</i> (3, 965)
	<u>Grade Level</u>		<u>Subject/Dept.</u>		<u>Team</u>		<u>Schoolwide</u>		
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
1. Shared Leadership Sum of items a, b, c	12.18	2.53	11.75	2.66	12.03	2.52	12.10	2.41	1.71
2. Shared Mission Sum of items d, e, f	12.39	2.68	11.94	2.79	12.39	2.57	12.07	2.82	1.86
3. Collaboration Sum of items g, h, i	12.21	2.81	11.60	2.83	11.97	2.92	11.82	2.64	2.58
4. Collective Inquiry Sum of items j, k, l	11.60	2.88	10.94	3.05	11.31	2.99	11.36	2.61	2.76*
5. Action Orientation/Exper. Sum of items m, n, o	11.39	2.90	10.58	2.85	11.01	2.96	11.18	2.68	4.48**
6. Continuous Learning Sum of items p, q, r	11.40	2.90	10.91	2.81	11.36	2.74	11.33	2.95	1.93
7. Results Orientation Sum of items s, t, u	13.08	2.41	12.46	2.22	13.07	2.03	12.72	2.36	4.93**
Total Level of Implementation	84.25	16.24	80.18	16.13	83.14	15.91	82.58	15.92	3.59*

p* < .05 *p* < .01 *N* = 969 *n* = 305 (grade level), *n* = 335 (subject/dept.), *n* = 177 (team), *n* = 152 (school-wide)

Age

A one-way between groups analysis of variance was conducted to explore the differences in PLC implementation levels based on age. There was a statistically significant difference in levels of implementation based on age for results orientation $F(4, 959) = 2.43, p < .05$. The highest mean score in the results orientation category were reported by the 50-59 age group ($M=13.01$). The lowest mean score ($M=12.52$) reported in this category came from the 30-39 age group. There were no statistically significant differences based on age for the shared leadership, shared mission, collaboration, collective inquiry, action orientation and experimentation, or continuous learning categories. There was no statistically significant difference in total level of PLC implementation by age. The data are presented in Table 5.

Teaching Experience

A one-way between groups analysis of variance was conducted to explore the difference in PLC implementation level based on teaching experience. There were no significant differences based on teaching experience in total implementation level or implementation levels for any of the seven categories. The data are presented in Table 6.

Table 5

Means Standard Deviations, and One-Way Analysis of Variance for Category and Total Levels of Implementation by Age

PLC Category/Totals	<u>Age</u>										<i>F</i> (4, 959)
	<u>20-29</u>		<u>30-39</u>		<u>40-49</u>		<u>50-59</u>		<u>60+</u>		
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
1. Shared Leadership Sum of items a, b, c	12.16	2.34	12.10	2.50	11.96	2.60	11.92	2.62	12.00	2.59	.26
2. Shared Mission Sum of items d, e, f	12.07	2.77	12.07	2.53	12.12	2.77	12.32	2.76	12.29	2.75	.39
3. Collaboration Sum of items g, h, i	12.06	2.60	11.79	2.81	11.95	2.91	11.93	2.80	11.82	2.82	.21
4. Collective Inquiry Sum of items j, k, l	11.03	2.85	11.34	3.00	11.31	2.93	11.35	2.83	11.18	3.05	.28
5. Action Orientation/Exper. Sum of items m, n, o	11.00	2.97	11.06	2.91	11.01	2.86	11.10	2.81	10.70	2.89	.46
6. Continuous Learning Sum of items p, q, r	11.13	2.94	10.94	3.09	11.17	2.67	11.42	2.78	11.30	2.75	.99
7. Results Orientation Sum of items s, t, u	12.83	2.17	12.52	2.42	12.78	2.22	13.01	2.07	12.61	2.54	2.43*
Total Level of Implementation	82.29	15.51	81.81	16.59	82.30	16.11	83.13	15.57	81.89	16.92	.27

**p* < .05 *N* = 969 *n* = 94 (20-29), *n* = 216 (30-39), *n* = 210 (40-49), *n* = 322 (50-59), *n* = 122 (60+)

Table 6

Means Standard Deviations, and One-Way Analysis of Variance for Category and Total Levels of Implementation by Teaching Experience

PLC Category/Totals	<u>Teaching Experience</u>								<i>F</i> (3, 964)
	<u>1-7 Years</u>		<u>8-16 Years</u>		<u>17-27 Years</u>		<u>28-47 Years</u>		
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
1. Shared Leadership Sum of items a, b, c	12.20	2.40	11.82	2.85	12.11	2.28	11.84	2.66	1.41
2. Shared Mission Sum of items d, e, f	12.27	2.64	11.85	2.97	12.30	2.62	12.36	2.62	1.80
3. Collaboration Sum of items g, h, i	12.19	2.71	11.60	3.02	12.07	2.67	11.72	2.83	2.51
4. Collective Inquiry Sum of items j, k, l	11.47	2.86	11.11	3.15	11.40	2.77	11.16	2.91	.93
5. Action Orientation/Exper. Sum of items m, n, o	11.23	2.79	10.78	3.05	11.13	2.79	10.89	2.83	1.29
6. Continuous Learning Sum of items p, q, r	11.32	2.89	10.93	3.03	11.36	2.65	11.25	2.81	1.18
7. Results Orientation Sum of items s, t, u	12.77	2.06	12.60	2.57	13.07	1.99	12.81	2.46	1.82
Total Level of Implementation	83.47	15.39	80.68	18.11	83.45	14.56	82.01	16.19	1.70

N = 969 n = 247 (1-7 Years), n = 255 (8-16 Years), n = 239 (17-27 Years), n = 227 (28-47 Years)

Grade/Developmental Level

A one-way between groups analysis of variance was conducted to explore the differences in PLC implementation levels based on grade/developmental. There was a statistically significant difference in levels of implementation based on grade/developmental level for shared leadership $F(2, 951) = 4.30, p < .05$; collaboration $F(2, 951) = 9.30, p < .01$; collective inquiry $F(2, 951) = 11.49, p < .01$; action orientation and experimentation $F(2, 951) = 11.36, p < .01$; continuous learning $F(2, 951) = 7.37, p < .01$; and results orientation $F(2, 951) = 14.81, p < .01$. The highest and lowest levels of PLC implementation reported for each of these categories were from elementary schools/preschools and high schools respectively. There were no significant differences in implementation levels based on grade/developmental level and the shared mission category. The data are presented in Table 7.

There was a statistically significant difference in total level of PLC implementation by grade/developmental level $F(2, 951) = 11.06, p < .01$. The highest and lowest total levels of PLC implementation reported for each of these categories were from elementary school/preschool and high school respectively.

Table 7

Means Standard Deviations, and One-Way Analysis of Variance for Category and Total Levels of Implementation by Grade/Developmental Level

PLC Category/Totals	Grade/Developmental Level						<i>F</i> (2,951)
	<u>Elementary School/Preschool</u>		<u>Middle School</u>		<u>High School</u>		
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
1. Shared Leadership Sum of items a, b, c	12.23	2.50	11.94	2.68	11.67	2.58	4.30*
2. Shared Mission Sum of items d, e, f	12.33	2.80	12.23	2.52	11.91	2.76	2.12
3. Collaboration Sum of items g, h, i	12.27	2.71	11.84	2.92	11.35	2.88	9.30**
4. Collective Inquiry Sum of items j, k, l	11.71	2.77	11.26	2.86	10.65	3.14	11.49**
5. Action Orientation/Exper. Sum of items m, n, o	11.42	2.84	10.96	2.79	10.40	2.91	11.36**
6. Continuous Learning Sum of items p, q, r	11.56	2.76	11.15	2.84	10.74	2.96	7.37**
7. Results Orientation Sum of items s, t, u	13.21	2.15	12.60	2.21	12.31	2.46	14.81**
Total Level of Implementation	83.72	15.59	81.98	15.89	79.03	16.98	11.06**

p* < .05 *p* < .01 *N* = 969 *n* = 463 (Elementary School/Preschool), *n* = 210 (Middle School), *n* = 281 (High School)

Sex

An independent samples t-test was conducted to explore the differences in PLC implementation levels based on sex. There were statistically significant differences in implementation levels for action orientation and experimentation for male (M=10.56, SD=3.15) and female (M=11.12, SD=2.79) $t(952) = -2.236$, ($p=.026$) at $p < .05$; continuous learning for male (M=10.62, SD=3.07) and female (M=11.36, SD=2.77) $t(952) = -3.011$, ($p = .003$) at $p < .01$; and results orientation for male (M=12.37, SD=2.54) and female (M=12.92, SD=2.20) $t(952) = -2.792$ ($p = .005$) at $p < .01$. The highest levels of PLC implementation reported for each of these categories were from female respondents. There were no significant differences in implementation levels based on sex for shared leadership, shared mission, collaboration, or collective inquiry categories. The data are presented in Table 8.

There was a statistically significant difference in total level of PLC implementation by sex ($p=.031$) at $p < .05$. Female respondents reported the highest levels of implementation for total levels of implementation.

Table 8

Means Standard Deviations, and One-Way Analysis of Variance for Category and Total Levels of Implementation by Sex

PLC Category/Totals	<u>Sex</u>					<i>t</i> (952)
	<u>Male</u>		<u>Female</u>			
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
1. Shared Leadership Sum of items a, b, c	11.89	2.74	12.03	2.51	-.639	
2. Shared Mission Sum of items d, e, f	11.99	2.76	12.24	2.70	-1.042	
3. Collaboration Sum of items g, h, i	11.56	2.91	11.98	2.79	-1.691	
4. Collective Inquiry Sum of items j, k, l	11.00	3.16	11.37	2.86	-1.441	
5. Action Orientation/Exper. Sum of items m, n, o	10.56	3.15	11.12	2.79	-2.236*	
6. Continuous Learning Sum of items p, q, r	10.62	3.07	11.36	2.77	-3.011**	
7. Results Orientation Sum of items s, t, u	12.37	2.54	12.92	2.20	-2.792**	
Total Levels of Implementation	79.99	17.54	83.02	15.70	-2.159*	

p* < .05 *p* < .01 *N* = 969 *n* = 156 (Male), *n* = 798 (Female)

Research Question Three: Levels of PLC Effectiveness

Participants rated the level of effectiveness of each of 21 PLC indicator items using a scale of 1-5, with 1 = not effective, 2 = of little effectiveness, 3 = somewhat effective, 4 = effective, and 5 = very effective. A one-sample t-test, comparing the sample mean for each item to the mean score ($M=3.0$) from a hypothetical normal distribution, was conducted on each of the 21 indicator items.

The 21 indicator items were grouped into seven categories for analysis based on the Hannaford (2010) model of PLCs. Three indicator items were associated with each of the seven categories. Total scores for each category were calculated by summing the responses for the three related indicator items. A one-sample t-test, comparing each total categorical mean score to the mean score ($M=9$) from a hypothetical normal distribution, was conducted for each of the seven categories.

Finally, a total level of effectiveness score was calculated for each respondent by summing the responses on each of the 21 indicator items. A one-sample t-test, comparing the sample total mean score to the mean score ($M=63$) from a hypothetical normal distribution, was conducted.

An analysis of respondent mean scores for each of the 21 indicator items for level of effectiveness revealed three levels of response: seven items had mean scores less than 3.75; ten items fell between 3.76 and 3.99; and four items had mean scores between 4.0 and 5.0. Those items with mean level of effectiveness scores less than 3.75 included “Holding one another accountable” ($M=3.58$, $SD=1.08$), “Shared and participatory decision-making” ($M=3.62$, $SD=1.02$), “Shared roles and responsibilities” ($M=3.63$, $SD=1.04$), “Sharing of current research” ($M=3.67$,

SD=1.07); “Experimentation with new methods” (M=3.72, SD=.97); “Inquiry-based learning” (M=3.73, SD=1.01); and “Receptivity to new strategies/approaches” (M=3.74, SD=1.01).

Those indicator items with level of effectiveness scores between 3.76 and 3.99 included “Meetings address goals designed to achieve the mission” (M=3.78, SD=1.03); “Collaborative and embedded staff training” (M=3.79, SD=1.05); “Shared sense of responsibility for mission” (M=3.81, SD=1.03); “Taking advantage of opportunities to learn something new” (M=3.81, SD=.98); “Critical dialogue about classroom experiences” (M=3.83, SD=1.05); “Nurturing continuous learning” (M=3.84, SD=1.03); Collaboration to improve practice (M=3.86, SD=1.02); “Decisions guided by the school mission” (M=3.87, SD=1.00); “Shared ideas and suggestions” (M=3.92, SD=1.00); and “Knowledge of the school mission” (M=3.96, SD=.98). Those indicator items with level of effectiveness scores between 4.0 and 5.0 included “Ensuring that all students learn” (M=4.01, SD=.96); “Continually assessing student progress” (M=4.09, SD=.95); “Knowing what students need to learn” (M=4.11, SD=.91); and “Supportive principal” (M=4.22, SD=.99).

When compared to the mean score (M=3.0) from a hypothetical normal distribution, one-sample t-test results indicated the differences between the normal distribution and sample mean scores for each of the 21 indicator items were statistically significant at $p < .001$. Data for the individual indicator items are presented in Table 9.

When responses were analyzed based on the seven categories, category total levels of effectiveness means ranged from 9.87 to 10.89 (R=3-15). From lowest to

highest, the mean scores for each category were: Category 5 – Action Orientation and Experimentation (M=9.87, SD=4.27); Category 4 – Collective Inquiry (M=10.01, SD=4.39); Category 6 – Continuous Learning (M=10.14, SD=4.38); Category 1 – Shared Leadership (M=10.28, SD=4.28); Category 3 – Collaboration (M=10.35, SD=4.44); Category 2 – Shared Mission (M=10.37, SD=4.45); and Category 7 – Results Orientation (M=10.89, SD=4.47). When each sample category mean was compared to the mean (M=9) from a hypothetical normal distribution for each category, one-sample t-test results indicated the differences between the normal distribution mean scores and each of the sample category means was significantly different at $p < .001$. Data for the level of effectiveness categories are provided in Table 10.

The total sample level of effectiveness mean score (M=71.91, SD=29.42, R=21-105) was compared to the mean (M=63) from a hypothetical normal distribution. One sample t-test results ($t(969)=9.43$) revealed that the difference in the two means was statistically significant at $p < .001$.

Table 9

Level of Effectiveness of PLCs as Perceived by Teachers

PLC Characteristic	Level of Effectiveness		
	<i>M</i> *	<i>SD</i>	<i>t</i> value
a. Shared and participatory decision-making	3.62	1.02	18.05***
b. Shared roles and responsibilities	3.63	1.04	17.99***
c. Supportive principal	4.22	.99	36.60***
d. Knowledge of the school mission	3.96	.98	28.65***
e. Decisions guided by the school mission	3.87	1.00	25.50***
f. Shared sense of responsibility for mission	3.81	1.03	23.17***
g. Collaboration to improve practice	3.86	1.02	24.96***
h. Collaborative and embedded staff training	3.79	1.05	22.11***
i. Shared ideas and suggestions	3.92	1.00	27.20***
j. Sharing of current research	3.67	1.07	18.55***
k. Critical dialogue about classroom experiences	3.83	1.05	23.08***

*Comparison M=3.0 ***p = <.001 N = 969 Scale: 1 = Not effective, 2 = Of little effectiveness, 3 = Somewhat effective, 4 = Effective, 5 = Very effective

Table 9

Level of Effectiveness of PLCs as Perceived by Teachers (continued)

PLC Characteristic	<u>Level of Effectiveness</u>		
	<i>M*</i>	<i>SD</i>	<i>t</i> value
l. Inquiry-based learning	3.73	1.01	21.31***
m. Experimentation with new methods	3.72	.97	22.05***
n. Meetings address goals designed to achieve the mission	3.78	1.03	22.05***
o. Holding one another accountable	3.58	1.08	15.80***
p. Nurturing continuous learning	3.84	1.03	23.85***
q. Taking advantage of opportunities to learn something new	3.81	.98	24.23***
r. Receptivity to new strategies/approaches	3.74	1.01	21.56***
s. Knowing what students need to learn	4.11	.91	35.86***
t. Continually assessing student progress	4.09	.95	33.81***
u. Ensuring that all students learn	4.01	.96	31.03***

*Comparison M=3.0 ***p = <.001 N = 969 Scale: 1 = Not effective, 2 = Of little effectiveness, 3 = Somewhat effective, 4 = Effective, 5 = Very effective

Table 10

Level of Effectiveness of PLCs by Categories as Perceived by Teachers

PLC Category	<u>Level of Effectiveness</u>		
	<i>M*</i>	<i>SD</i>	<i>t</i> value
1. Shared Leadership Sum of items a, b, c	10.28	4.28	9.36***
2. Shared Mission Sum of items d, e, f	10.37	4.45	9.55***
3. Collaboration Sum of items g, h, i	10.35	4.44	9.50***
4. Collective Inquiry Sum of items j, k, l	10.01	4.39	7.17***
5. Action Orientation and Experimentation Sum of items m, n, o	9.87	4.27	6.33***
6. Continuous Learning Sum of items p, q, r	10.14	4.38	8.06***
7. Results Orientation Sum of items s, t, u	10.89	4.47	13.16***

*Comparison M=9.0) ***p = <.001 N = 969 Scale: 1 = Not effective, 2 = Of little effectiveness, 3 = Somewhat effective, 4 = Effective, 5 = Very effective

Research Question Four: Differences in Levels of Effectiveness

Participant responses were analyzed to determine if there were differences in perceptions of effectiveness levels for each of the seven PLC categories and the total level of effectiveness score based on the five independent variables. Means and standard deviations were determined, and an ANOVA or independent samples *t*-test was used to determine if there were statistically significant differences in effectiveness levels based on each of the five variables.

Organizational Structure

A one-way between groups analysis of variance was conducted to explore the differences in effectiveness levels based on organizational structure. There were no significant differences in levels of effectiveness based on organizational structure for the total or any of the category scores. The data are presented in Table 11.

Age

A one-way between groups analysis of variance was conducted to explore the differences in effectiveness levels based on age. There were no significant differences in effectiveness levels based on age for the total or any of the category scores. The data are presented in Table 12.

Teaching Experience

A one-way between groups analysis of variance was conducted to explore the difference in effectiveness level based on teaching experience. There were no significant differences in effectiveness levels based on teaching experience for the total or any of the category scores. The data are presented in Table 13.

Table 11

Means Standard Deviations, and One-Way Analysis of Variance for Category and Total Levels of Effectiveness by Organizational Structure

PLC Category/Totals	<u>Organizational Structure</u>								<i>F</i> (3, 965)
	<u>Grade Level</u>		<u>Subject/Dept.</u>		<u>Team</u>		<u>Schoolwide</u>		
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
1. Shared Leadership Sum of items a, b, c	10.28	4.46	10.13	4.22	10.67	4.10	10.20	4.23	.66
2. Shared Mission Sum of items d, e, f	10.54	4.55	10.03	4.41	10.74	4.31	10.31	4.51	1.23
3. Collaboration Sum of items g, h, i	10.58	4.60	10.06	4.39	10.67	4.33	10.18	4.31	1.11
4. Collective Inquiry Sum of items j, k, l	10.30	4.47	9.63	4.30	10.29	4.32	9.95	4.49	1.56
5. Action Orientation/Exper. Sum of items m, n, o	10.19	4.39	9.43	4.18	10.14	4.20	9.89	4.25	2.00
6. Continuous Learning Sum of items p, q, r	10.30	4.53	9.74	4.29	10.50	4.25	10.24	4.41	1.50
7. Results Orientation Sum of items s, t, u	11.23	4.63	10.40	4.38	11.20	4.35	10.93	4.41	2.21
Total Level of Effectiveness	73.42	30.31	69.41	28.82	74.20	28.69	71.70	29.58	1.44

N = 969 n = 305 (grade level), n = 335 (subject/dept.), n = 177 (team), n = 152 (schoolwide)

Table 12

Means Standard Deviations, and One-Way Analysis of Variance for Category and Total Levels of Effectiveness by Age

PLC Category/Totals	<u>Age</u>										<i>F</i> (4, 959)
	<u>20-29</u>		<u>30-39</u>		<u>40-49</u>		<u>50-59</u>		<u>60+</u>		
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
1. Shared Leadership Sum of items a, b, c	9.88	4.84	10.36	4.17	10.01	4.45	10.47	4.18	10.53	3.89	.69
2. Shared Mission Sum of items d, e, f	9.81	5.00	10.13	4.32	10.26	4.57	10.72	4.39	10.48	4.11	1.07
3. Collaboration Sum of items g, h, i	10.22	5.01	10.40	4.38	10.22	4.59	10.44	4.36	10.47	3.86	.13
4. Collective Inquiry Sum of items j, k, l	9.67	4.85	10.13	4.32	9.83	4.53	10.17	4.35	10.07	3.90	.38
5. Action Orientation/Exper. Sum of items m, n, o	9.76	4.79	9.94	4.23	9.79	4.36	9.91	4.20	9.95	3.84	.07
6. Continuous Learning Sum of items p, q, r	9.98	4.92	10.11	4.36	10.08	4.44	10.21	4.34	10.30	3.88	.11
7. Results Orientation Sum of items s, t, u	10.50	5.11	10.96	4.33	10.65	4.64	11.17	4.41	10.85	3.88	.66
Total Level of Effectiveness	69.82	33.72	72.04	28.99	70.83	30.49	73.09	28.81	72.66	25.58	.34

N = 969 n = 94 (20-29), n = 216 (30-39), n = 210 (40-49), n = 322 (50-59), n = 122 (60+)

Table 13

Means Standard Deviations, and One-Way Analysis of Variance for Category and Total Levels of Effectiveness by Teaching Experience

PLC Category/Totals	<u>Teaching Experience</u>								<i>F</i> (3, 964)
	<u>1-7 Years</u>		<u>8-16 Years</u>		<u>17-27 Years</u>		<u>28-47 Years</u>		
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
1. Shared Leadership Sum of items a, b, c	10.53	4.20	9.82	4.61	10.32	4.17	10.51	4.06	1.51
2. Shared Mission Sum of items d, e, f	10.43	4.38	9.88	4.79	10.46	4.35	10.73	4.23	1.56
3. Collaboration Sum of items g, h, i	10.70	4.35	9.93	4.80	10.43	4.31	10.43	4.18	1.33
4. Collective Inquiry Sum of items j, k, l	10.23	4.33	9.70	4.69	9.98	4.24	10.21	4.24	.78
5. Action Orientation/Exper. Sum of items m, n, o	10.27	4.24	9.42	4.50	9.77	4.12	10.07	4.12	1.88
6. Continuous Learning Sum of items p, q, r	10.45	4.34	9.69	4.70	10.18	4.23	10.28	4.16	1.39
7. Results Orientation Sum of items s, t, u	10.96	4.43	10.55	4.72	10.90	4.39	11.24	4.26	.99
Total Level of Effectiveness	73.57	29.24	68.99	31.71	72.05	28.35	73.46	27.78	1.32

N = 969 n = 247 (1-7 Years), n = 255 (8-16 Years), n = 239 (17-27 Years), n = 227 (28-47 Years)

Grade/Developmental Level

A one-way between groups analysis of variance was conducted to explore the differences in effectiveness levels based on grade/developmental. The data are presented in Table 14.

There were statistically significant differences in levels of PLC effectiveness based on grade/developmental level for collaboration $F(2, 951) = 3.39, p < .05$ and collective inquiry $F(2, 951) = 3.49, p < .05$. The highest and lowest levels of effectiveness reported for each of these categories were from elementary school/preschool and high school respectively. There was no significant difference in level of PLC effectiveness by grade/developmental level for shared leadership, shared mission category, action orientation/experimentation, continuous learning, or results orientation. There was also no significant difference in total level of PLC effectiveness by grade/developmental level.

Sex

An independent samples t-test was conducted to explore the differences in effectiveness levels by sex. There were no significant differences by sex for any of the categories. The data are presented in Table 15. There was also no statistically significant difference in total level of PLC effectiveness by sex.

Table 14

Means Standard Deviations, and One-Way Analysis of Variance for Category and Total Levels of Effectiveness by Grade/Developmental Level

PLC Category/Totals	<u>Grade/Developmental Level</u>						<i>F</i> (2,951)
	<u>Elementary School/Preschool</u>		<u>Middle School</u>		<u>High School</u>		
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
1. Shared Leadership Sum of items a, b, c	10.38	4.56	10.36	4.20	10.07	3.93	.47
2. Shared Mission Sum of items d, e, f	10.49	4.70	10.53	4.38	9.98	4.17	1.37
3. Collaboration Sum of items g, h, i	10.63	4.67	10.56	4.25	9.79	4.18	3.39*
4. Collective Inquiry Sum of items j, k, l	10.33	4.56	10.11	4.31	9.46	4.19	3.49*
5. Action Orientation/Exper. Sum of items m, n, o	10.12	4.49	9.99	4.14	9.41	4.02	2.49
6. Continuous Learning Sum of items p, q, r	10.29	4.62	10.41	4.25	9.72	4.10	1.99
7. Results Orientation Sum of items s, t, u	11.17	4.73	10.94	4.31	10.37	4.15	2.82
Total Level of Effectiveness	73.41	31.09	72.90	28.75	68.80	27.41	2.28

**p* < .05 N = 969 n = 463 (Elementary School/Preschool), n = 210 (Middle School), n = 281 (High School)

Table 15

Means Standard Deviations, and One-Way Analysis of Variance for Category and Total Levels of Effectiveness by Sex

PLC Category/Totals	<u>Sex</u>					<i>t</i>
	<u>Male</u>		<u>Female</u>			
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
1. Shared Leadership Sum of items a, b, c	10.33	3.74	10.31	4.37	.044	
2. Shared Mission Sum of items d, e, f	10.42	4.12	10.38	4.52	.085	
3. Collaboration Sum of items g, h, i	10.20	3.88	10.43	4.52	-.668	
4. Collective Inquiry Sum of items j, k, l	10.01	4.00	10.06	4.46	-.127	
5. Action Orientation/Exper. Sum of items m, n, o	9.91	3.86	9.91	4.34	.001	
6. Continuous Learning Sum of items p, q, r	10.15	3.87	10.18	4.46	-.102	
7. Results Orientation Sum of items s, t, u	10.79	3.94	10.94	4.55	-.394	
Total Levels of Effectiveness	71.79	26.17	72.22	29.97	-.165	

N = 969 n = 156 (Male), n = 798 (Female)

Research Question Five: Relationship of Implementation and Effectiveness

A Pearson product-moment correlation coefficient was used to determine whether significant relationships existed between level of implementation and level of effectiveness for the seven PLC categories and the total mean scores for implementation and effectiveness. Relationships were described on a scale of weak to very strong using the categories (.0 - .2 = weak or no relationship, .2 - .4 weak relationship, .4 - .6 moderate relationship, .6 - .8 strong relationship, .8 – 1.0 very strong relationship) identified by Salkind (2004). Table 16 includes the means and standard deviations, organized and presented by PLC category and total. Table 17 contains the Pearson r findings for the seven categories and total.

The overall correlations between the level of implementation and level of effectiveness ranged from .451 for the results orientation category to .545 for the continuous learning category. The relationships between levels of implementation and level of effectiveness for all seven categories were statistically significant ($p < .01$) and moderately strong.

The correlation coefficient between total level of implementation ($M = 82.38$, $SD = 16.16$) and total level of effectiveness ($M = 71.91$, $SD = 29.42$) was .562. This relationship was statistically significant ($p < .01$) and moderately strong.

Table 16

Correlation Mean and Standard Deviation Totals for Implementation and Effectiveness by PLC Category

PLC Category/Total	<u>Implementation</u>		<u>Effectiveness</u>	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
1. Shared Leadership Sum of items a, b, c	11.99	2.56	10.28	4.28
2. Shared Mission Sum of items d, e, f	12.18	2.72	10.37	4.45
3. Collaboration Sum of items g, h, i	11.89	2.82	10.35	4.44
4. Collective Inquiry Sum of items j, k, l	11.28	2.93	10.01	4.39
5. Action Orientation/Exper. Sum of items m, n, o	11.01	2.87	9.87	4.27
6. Continuous Learning Sum of items p, q, r	11.21	2.85	10.14	4.38
7. Results Orientation Sum of items s, t, u	12.81	2.28	10.89	4.47
Total	82.38	16.16	71.91	29.42
Implementation N = 969			Effectiveness N = 969	

Table 17

Pearson Correlation Between Levels of Implementation and Effectiveness for PLC Categories and Total

Measure	1	2	3	4	5	6	7	8
1. Shared Leadership - Implementation	.486*							
2. Shared Mission - Implementation		.491*						
3. Collaboration - Implementation			.520*					
4. Collective Inquiry - Implementation				.516*				
5. Action Orientation/Exper. - Implementation					.531*			
6. Continuous Learning – Implementation						.545*		
7. Results Orientation - Implementation							.451*	
Total Level of Implementation								.562*

*p < .01

Implementation N = 969

Effectiveness N = 969

Research Question Six: Suggestions to Enhance PLCs

In Part D, Item 1 of the survey, participants were asked to respond to the open-ended question: What suggestions do you have to enhance the PLC experience in your school? Three-hundred fifty-five teachers responded to this question. Fifty-three responded with more than one comment (duplicated count/each comment was counted separately). A total of 602 comments were received regarding suggestions to enhance the PLC experience. These data are presented in Table 18.

A combination of coding and emergent category analysis (Stemler, 2001) was used to analyze and categorize these responses. The most frequently reported suggestions were related to: content (39.5%, n = 238); team construction/logistics (16.9%, n = 102); training (facilitator, administration, participants) (13.1%, n = 79); and time (8.8%, n = 53). Seventy-eight teachers responded with *None* or said that their PLC was working well. Fifty-one respondents said PLCs had no relevance or to do away with them.

Those responses related to content included more school input on topics and less outside direction. Those responses related to team construction/logistics included gathering by grade, content, or subject rather than combining areas. Those responses related to facilitator, administration, and participant training included how facilitators are chosen as well as the impact of their time away from the classroom; principals' support of PLC; and expectations and guidance of those who participate in the PLC. Those responses related to time included more time to meet and more time to implement changes.

Research Question Seven: Challenges to PLCs

In Part D, Item 2 of the survey, participants were asked to respond to the open-ended question: What have been the greatest challenges with PLCs in your school? Two-hundred eighty-five teachers responded to this question. One-hundred seventy responded with more than one comment (duplicated count/each comment counted separately). A total of 757 comments were received regarding challenges to the PLC experience. These data are presented in Table 19.

A combination of coding and emergent category analysis (Stemler, 2001) was used to analyze and categorize these responses. The most frequently reported challenges were: negative attitude (27.3%, n = 207); pre-decided content (25.4%, n = 193); inadequate facilitator training (20.4%, n = 155); lack of sufficient time (13.4%, n = 102); ineffective construction of team (8.5%, n = 65). Those who responded with *None* or said that their PLC was working well totaled 35.

Those responses related to negative attitude included frustrated teachers with poor attitudes. Those responses related to pre-determined content included making content worthwhile and more school input/less county input. Those responses related to inadequate training (facilitator, administration, participants) included facilitators not being prepared; lack of leadership; and participants not understanding what a PLC is and can do. Those responses related to time included more time to meet and more time to implement changes. Those responses related to ineffective team construction/logistics included group being too large and incorporating non-classroom teachers such as librarians.

Table 18

Teachers' Suggestions to Enhance the PLC Experience in Their School as Reported in Part D, Item 1 Responses

Suggestions related to:	*n	%
Content	238	39.5
Team construction/logistics	102	16.9
Training (facilitator, administration, participants)	79	13.1
Time	53	8.8
None (working well/no relevance)	130	21.6

N = 969 *Duplicated count

Table 19

Teachers' Perceptions of the Greatest Challenges to PLC Experience in Their Schools as Reported in Part D, Item 2 Responses

Challenges related to:	*n	%
Negative attitude	207	27.3
Pre-decided content	193	25.4
Inadequate training (facilitator, administration, participants)	155	20.4
Lack of sufficient time	102	13.4
Ineffective team construction/logistics	65	8.5
None (works well)	35	4.6

N = 969 *Duplicated count

Ancillary Findings

This study also investigated the perceptions of teachers regarding their belief in whether or not their PLC was effective overall in their school. Teachers were asked to respond with a yes or no to the question: Are PLCs effective in your school? Eight-hundred twenty teachers responded to this question with 505 (62%) responding with *yes* and 315 (38%) responding with *no*.

Instrument Reliability

The internal consistency of the *Implementation and Effectiveness of Professional Learning Communities* survey instrument, Part B and Part C, was tested using Cronbach's alpha coefficient. The alpha coefficients for the levels of implementation and effectiveness for each of the seven PLC categories and total levels of implementation and effectiveness were calculated. Reliability of the instrument was described according to the levels of acceptability found in Salkind (2004). These data are provided in Table 20.

The internal consistency (r) for the level of implementation for the seven PLC categories ranged from a high of .882 ($M=11.28$, $SD=2.93$) for collective inquiry to a low of .805 ($M=11.99$, $SD=2.56$) for shared leadership. The internal consistency for the total 21 implementation items was .962 ($M=82.38$, $SD=16.16$). These alpha coefficients indicate a desirable level of reliability (above .8) for each of the seven categories (Salkind, 2004). The internal consistency for the implementation total suggests a desirable level of reliability (above .8) overall for the implementation scale.

The internal consistency (r) for the level of effectiveness for the seven PLC categories ranged from a high of .942 ($M=10.37$, $SD=4.45$) for shared mission to a low of .858 ($M=10.28$, $SD=4.28$) for shared leadership. The internal consistency for the total 21 effectiveness items was .980 ($M=71.91$, $SD=29.42$). These alpha coefficients indicate a desirable level of reliability (above .8) for each of the seven categories (Salkind, 2004). The internal consistency for the effectiveness total suggests a desirable level of reliability (above .8) overall for the effectiveness scale.

Table 20

Cronbach's Alpha Coefficient for Instrument Reliability: Implementation and Effectiveness of PLCs

Category/Totals	n scale items	Internal Consistency		Alpha Coefficient
		<i>M</i>	<i>SD</i>	
<u>Implementation Level</u>				
1. Shared Leadership	3	11.99	2.56	.805
2. Shared Mission	3	12.18	2.72	.880
3. Collaboration	3	11.89	2.82	.875
4. Collective Inquiry	3	11.28	2.93	.882
5. Action Orientation/Exper.	3	11.01	2.87	.828
6. Continuous Learning	3	11.21	2.85	.875
7. Results Orientation	3	12.81	2.28	.859
Total Implementation Level	21	82.38	16.16	.962
<u>Effectiveness Level</u>				
1. Shared Leadership	3	10.28	4.28	.858
2. Shared Mission	3	10.37	4.45	.942
3. Collaboration	3	10.35	4.44	.939
4. Collective Inquiry	3	10.01	4.39	.913
5. Action Orientation/Exper.	3	9.87	4.27	.881
6. Continuous Learning	3	10.14	4.38	.930
7. Results Orientation	3	10.89	4.47	.925
Total Effectiveness Level	21	71.91	29.42	.980

Summary of Findings

The purpose of this chapter was to present data gathered for a study examining the levels of implementation and levels of effectiveness of PLCs based on perceptions of Kanawha County Schools' teachers. Respondents were asked to rate their levels of implementation and effectiveness of 21 indicator items and provide suggestions to enhance as well as provide the greatest challenges to the PLC experience in their school.

In general, teachers described the level of implementation of the indicator items for PLCs in their school as occurring some of the time or most of the time. When asked to describe the level of effectiveness of these indicator items teachers responded with somewhat effective or effective. These same patterns were evident when both implementation and effectiveness responses were analyzed by category and totals.

Statistically significant differences were found for total level of PLC implementation based on organizational structure, grade/developmental level, and sex. No statistically significant differences were found for total level of PLC effectiveness for any of the demographics. Correlation coefficients indicated the relationships between implementation and effectiveness for individual indicator items, categories, and total scores were moderate (Salkind, 2004).

When asked to provide suggestions to enhance the PLC experience in their school, teachers favored school choice over mandated content and more effective team construction/logistics with other suggestions related to improved training and increased time for participation in PLCs. The greatest challenges that teachers pointed

to were negative attitude, pre-decided content, inadequate training, lack of sufficient time, and ineffective team construction/logistics.

Ancillary findings indicate that overall teachers believe that PLCs are effective. Cronbach's alpha results indicate a desirable level of reliability overall for implementation and effectiveness categories for the survey instrument. Coefficients indicate a desirable level (above .8) for all seven categories and the total implementation and effectiveness scales (Salkind, 2004).

CHAPTER FIVE: CONCLUSIONS, IMPLICATIONS, AND RECOMMENDATIONS

Introduction

This chapter reviews the purpose of the study, demographic data, and methods. A summary of the findings is also included. The chapter finishes with a presentation of conclusions for the seven research questions and ancillary findings, discussion and implications, recommendations for further research and concluding remarks.

Purpose of the Study

The purpose of this study was to examine and describe the levels of implementation and the levels of effectiveness of PLCs as perceived by teachers in Kanawha County Schools by the following PLC characteristics: shared leadership, shared mission, collaboration, collective inquiry, action orientation and experimentation, continuous learning, and results orientation (Hannaford, 2010). The study also looked at differences in levels of implementation and effectiveness of PLCs based on organizational structure, age, total years of teaching experience, grade/developmental level taught, and sex. In addition, this study determined what relationships, if any, existed between levels of implementation and effectiveness in positively effecting student learning as perceived by teachers of PLCs. Finally, this study sought to identify suggestions to enhance the PLC experience and challenges that hindered PLC implementation. The following research questions guided the study:

- RQ1 What is the level of implementation of PLCs as perceived by teachers in Kanawha County Schools?

- RQ2 What are the differences, if any, in level of implementation of PLCs as perceived by teachers based on organizational structure, age, total years of teaching, grade/developmental level taught, and sex?
- RQ3 What is the level of Kanawha County Schools' teachers' beliefs of effectiveness for PLCs to positively affect student learning?
- RQ4 What are the differences, if any, in levels of effectiveness of PLCs, as perceived by teachers, based on organizational structure, age, total years of teaching, grade/developmental level taught, and sex?
- RQ5 What is the relationship, if any, between the level of implementation and level of effectiveness in positively effecting student learning as perceived by teachers of PLCs?
- RQ6 What are teachers' suggestions to enhance their experience with PLCs?
- RQ7 What have been teachers' greatest challenges with PLCs?

Demographic Data

The population for this study included all Kanawha County School teachers which consisted of 1,788 teachers at 44 elementary schools, 14 middle schools, and eight high schools in the Kanawha County School System. All teachers in the population were included in the sample. Participants were asked to respond to five demographic questions regarding organizational structure of participant's PLC, participant's age, years of experience, grade/developmental level taught, and participant's sex.

Selections for organizational structure included grade, subject/department, team, or schoolwide. The question regarding age provided a choice in 10-year spans from 20 to 60+. The years of experience question requested total years of teaching experience. The selection for grade/developmental level was divided into three levels: elementary school/preschool, middle school, and high school. Finally, respondents were asked to select male or female.

Methods

This study was completed using a mixed methods, primarily quantitative research design. These data were collected using a one-shot, cross-sectional survey focused on determining the levels of implementation and perceived effectiveness of characteristics of PLCs in Kanawha County Schools. Empirical data were gathered using a researcher developed descriptive survey. Data on selected attributes and demographic variables were also collected.

The survey instrument was a four page, four-part researcher developed questionnaire. Part A contained demographic and attribute questions. Part B asked respondents to use a five-point scale to indicate level of implementation of 21 PLC indicator items. Part C asked respondents to use a five-point scale to indicate level of effectiveness of 21 PLC indicator items. Part D consisted of two open-ended response questions requesting respondents to provide suggestions that would enhance their PLC experience and identify challenges to their PLC experience. An expert panel of educators validated the instrument.

This survey was distributed electronically using Zoomerang online survey software to all Kanawha County Schools' teachers along with a cover letter describing the intent of the survey. Final data were submitted electronically.

Data collected to address Research Questions One and Three were analyzed by individual item, category, and total for implementation and effectiveness. Mean scores and standard deviations were calculated for each item, category, and the total, and a one-sample t-test was conducted to determine the level of significance with $p < .05$. To address Research Questions Two and Four an independent samples t-test ($p < .05$) was used for variables with two groups and an Analysis of Variance (ANOVA) for variables with more than two groups. To address Research Question Five sample mean scores for implementation and effectiveness for each item, category, and total were calculated. A Pearson correlation between the level of implementation and effectiveness was then calculated for category and total score. Research Questions Six and Seven were addressed by using emergent category analysis.

Summary of the Findings

In general, Kanawha County School teachers described the level of implementation in their school of the 21 indicator items as some of the time or most of the time. When asked to describe the level of effectiveness of the 21 indicator items they responded with somewhat effective or effective. Relationships between level of implementation and level of effectiveness for individual indicator items, categories, and total scores were moderate.

Statistically significant differences were found for total level of PLC implementation based on organizational structure, grade/developmental level, and sex. No statistically significant differences were found for total level of PLC effectiveness for any of the demographics.

Teachers' suggestions to enhance the PLC experience in their school most often included school choice over mandated content and more effective team construction/logistics. Other suggestions were related to training and more time for team meetings. The greatest challenges that teachers pointed to were negative attitude, pre-decided content, inadequate training, lack of sufficient time, and ineffective team construction/logistics. The survey instrument exhibited an overall desirable level of reliability.

Conclusions

Data collected as a part of this study were sufficient to support the following conclusions:

Research Question One: Levels of Implementation

Overall, Kanawha County Schools' teachers reported PLCs in their schools were implemented some of the time or most of the time. The level of implementation was consistent across the 21 individual indicator items, the seven categories, and the total implementation level.

Research Question Two: Differences in Levels of Implementation

PLCs organized by grade level reported the highest total level of implementation and those organized by subject/department the lowest levels.

Elementary school/preschool reported the highest levels of implementation and high schools the lowest levels. Additionally, females reported higher levels of implementation than males. There were no significant differences in total levels of implementation based on age or years of teaching experience.

PLCs organized by grade level had the highest implementation scores and those organized by subject/department the lowest scores for three categories (collective inquiry, action orientation/experimentation, and continuous learning). For age, respondents in the 50-59 group had the highest scores and those in the 30-39 group the lowest scores in the results orientation category. There were no significant differences in implementation levels for any category based on years of teaching experience. Respondents for elementary school/preschool reported the highest implementation levels and those from high school the lowest for all but one (shared mission) category. Females reported higher levels of implementation than males for three (action orientation/experimentation, continuous learning, and results orientation) of the seven categories.

Research Question Three: Levels of Effectiveness

Overall, Kanawha County Schools' teachers reported PLCs in their schools were somewhat effective or effective. The level of effectiveness was consistent across the 21 individual indicator items, the seven categories, and the total effectiveness level.

Research Question Four: Differences in Levels of Effectiveness

No statistically significant differences were found for total level of PLC effectiveness based on PLC structure (grade level, subject/department, team, and schoolwide). Statistically significant differences were found in the level of PLC effectiveness based on grade/developmental level for collaboration and collective inquiry. Elementary school/preschool PLCs reported the highest level of effectiveness and high school the lowest. No other significant differences were found based on organizational structure, age, years of teaching experience, grade/developmental level, and sex.

Research Question Five: Relationship of Implementation and Effectiveness

Overall, the relationship between levels of implementation and effectiveness were moderate. This finding was consistent for the relationship between levels of implementation and effectiveness for categories and totals.

Research Question Six: Suggestions to Enhance PLCs

Overall, Kanawha County Schools' teachers most often listed school choice over mandated content and more effective team construction/logistics to enhance their PLC experience. Suggestions listed less often related to improved training and increased time for participation in PLCs.

Research Question Seven: Challenges to the Implementation of PLCs

Overall, Kanawha County Schools' teachers most often listed negative attitude, pre-decided content, and inadequate training as the greatest challenges to the PLC experience. Challenges listed less often related to lack of sufficient time and ineffective team construction/logistics.

Conclusions from Ancillary Research Findings

The majority of Kanawha County Schools' teachers responded *yes* when asked if they thought that the PLC in their school was effective. Such a positive response indicated that overall teachers find that the PLC experience is positive.

The internal consistency of the *Implementation and Effectiveness of Professional Learning Communities* survey instrument, Part B and Part C, was tested using Cronbach's alpha coefficient. The internal consistency for the individual implementation items, PLC categories, and implementation total indicate a desirable level of reliability. The internal consistency for the individual effectiveness items, PLC categories, and effectiveness total indicate a desirable level of reliability.

Discussion and Implications

The following discussion of implications is organized in four sections. Section one takes into account Research Questions 1, 3, and 5 regarding implementation and effectiveness levels and their relationship. Section two deals with Research Questions 2 and 4 concerning the differences based on demographics. The third section discusses Research Questions 6-7 and the responses to the open-ended questions regarding teachers' suggestions and challenges to the PLC experience. The final section provides a summary of the implications.

Implementation and Effectiveness Levels and Their Relationship

Kanawha County teachers who responded to the survey actively participate in PLCs in their schools and believe that they are effective. The current findings add to a growing body of literature on the implementation and effectiveness of PLCs. Implementation and effectiveness is supported by the literature on effective PLCs and

it is not surprising that items regarding the importance of a supportive principal would receive high response rates. Several studies suggest that the support of the principal is critical to increased levels of implementation and effectiveness of PLCs (Lindahl, 2011; Moore, 2010; Neuzil, 2010; Scroggins, 2008). Principals who are instrumental in creating a school culture that encourages the implementation of PLCs realize greater academic achievement of students, increased teacher development, and greater school-wide improvement (Mullen & Hutinger, 2008).

One of the major advantages to PLCs is a shared commitment toward an agreed upon set of learning standards for students (Senge, 2005; Sharpe, Reiser, & Chase, 2010). The value of the PLC experience is founded on an understanding of a clearly focused mission (Doolittle, Sudeck, & Rattigan, 2008) and Kanawha County teachers support the importance of identifying actions that fulfill the school's mission. When participants of a PLC work together to accomplish a set of learning standards for students, they are more successful (Schmoker, 2005; Sparks, 2005; Vasquez, Johnson, & Johnson, 1993). The chief education officer of Chicago Public Schools advocates PLC development and promotes the benefits of a shared commitment to the mission as a method of increasing student achievement (Eason-Watkins, 2005).

Collaboration is the cornerstone of PLCs and is positively correlated to student learning (Loertscher, 2005; Wood, 2007) as well as teachers' professional growth (Morgan, 2010). Teacher efficacy has generally developed in isolation (Elster, 2009) but can be strengthened through the supportive environment of a PLC. The potency of PLCs is derived from reflection and dialogue among school colleagues to solve problems that arise within the course of education (DuFour, DuFour, & Eaker,

2008). Kanawha County teachers' responses to the item regarding teacher sharing confirms that they understand and value this practice. However, teachers must be taught how to collaborate effectively (Thessin & Starr, 2011) which benefits not only teaching and learning but also promotes teacher morale (Schmoker, 2005).

Critical reflection of teaching practices in the presence of colleagues who are undergoing similar experiences adds value and legitimacy to teachers' professional development (Annenberg Institute for School Reform, 2004). PLCs offer teachers a venue for reflection of practice in the presence of colleagues which greatly improves their practice (Cherubini, 2008; Doolittle, Sudeck, & Rattigan, 2008, 2008; Jorgensen & Lauridsen, 2005; Poovey, 2012; Psychoyos, 2012; Repicky, 2009; Wood, 2007).

Kanawha County teachers' responses reinforce research that finds effective PLCs focus on assessment of student work and make adjustments to facilitate instruction (Schmoker, 2005). PLCs highlight student learning through a culture of collaboration and assess results of meeting the needs of all students (DuFour, Eaker, & DeFour, 2005; Thessin & Starr, 2011).

The moderately strong relationship found for implementation and effectiveness in this study is confirmed in the available literature (Benson, 2011; DuFour, Eaker, & DuFour, 2005; Jones, 2010b). It makes sense that the higher levels of effectiveness are related to higher levels of implementation and research repeatedly finds that teachers improve their practice and increase student achievement through the collaborative culture of PLCs. Over time, it would be expected that levels of implementation and effectiveness would remain high or increase.

Differences based on Demographics

Research has found that demographic factors such as those described by Kanawha County teachers can affect the implementation of PLCs (Bertsch, 2012; Curry, 2010; Graham, 2007; & McNair, Bhargava, Adams, Edgerton, & Kypros, 2003). A 1996 study (Cizek, Fitzgerald, & Rachor) of teachers' assessment practices found that practices varied depending on years of experience. It is interesting that Cizek, Fitzgerald, and Rachor found that differences did exist between teachers with minimal experience and those with greater years of experience because Kanawha County teachers found no differences in levels of implementation and effectiveness based on teaching experience. The current study found significant differences in levels of implementation based on all demographics except years of teaching experience. Cizek, Fitzgerald, and Rachor also suggested that the variability of practice by sex is important to the examination of teacher performance which is supported by the Kanawha County Schools study which found significant differences by sex.

Suggestions and Challenges to PLC implementation

In general, it seems that the suggestions and challenges offered by teachers provide insight for policymakers and administrators to improve and increase levels of implementation and effectiveness of PLCs by providing teachers more autonomy in decisions regarding PLCs. Respondents believed that PLC meetings were primarily focused on district requirements and little time remained to reflect on specific school needs. Senechal (2011) supports this finding with a study of PLCs concluding that a divide exists between the district and the school's need for professional development.

Senechal suspected that district administrators may not have a clear understanding of what PLCs are and can accomplish and form their own ideas about what should be the focus of PLCs. Kanawha County teachers who responded believe that their PLCs could be more effective when they have autonomy to decide the content of the PLC meeting, because when the content for the meeting is pre-decided it is difficult for teachers to see relevance to the specific needs of their students.

Many teachers expressed a negative attitude toward the use of PLCs in their schools or indicated that some of their peers did not “buy in” to the concept of PLCs. Research supports this negative attitude as a barrier to effective PLC implementation (Annenberg Institute for School Reform, 2004; Johnson, 2006; Lujan, 2009; Rose, 2008). Kanawha County teachers also believe that their PLCs could be more effective when they are able to choose the structure of their PLC. Team structure was examined in a 2007 case study which found that grade level and subject were more powerful determinates of successful PLCs (Graham). This was supported by Kanawha County teachers who found that grade level influenced levels of effectiveness.

Kanawha County teachers want additional training for themselves and their facilitators. Research supports this need for more effective training because PLCs are less effective when participants lack skill to collaborate (Lujan, 2009). At times principals and teachers may not agree on the function of a PLC and what it can accomplish because they lack appropriate and sufficient training (Phillips, 2009; & Pillari, 2011). PLCs offer a significant opportunity for the professional development of teachers (Cherubini, 2008; Psychoyos, 2012; Repicky, 2009) and are one of the

most effective methods of increasing the efficacy of teachers. Research supports that teacher efficacy develops from practice and guidance through on-going professional development (Annenberg Institute for School Reform, 2004).

Research supports the constraints of sufficient time to meet and collaborate, and lack of time was consistently listed as a barrier to implementation and effectiveness of PLCs (Hughes-Hassell, Brasfield, & Dupree, 2012; Lujan & Day, 2010; Marley, 2010; Maslow, 2008; Sutor, 2010.) These researchers believe that additional time to meet and carry out the identified tasks would strengthen the effectiveness because PLCs provide teachers a time and setting to reflect on their actions to improve their teaching practice (Hord & Sommers, 2008). Powerful advantages are afforded to teachers and schools who implement PLCs (Wood, 2007) and PLCs seem to resist the inability to sustain improvements that have historically plagued educational reform (Giles & Hargreaves, 2006). As schools realize the value of implementing PLCs, plans for professional development are including time and resources for teachers to function as a team (Hord & Sommers, 2008; Monroe-Baillargeon, 2010; Pierce, 2010).

Summary

Clearly Kanawha County teachers regularly participate in PLCs and answer affirmatively when asked whether PLCs in their schools are effective. It would be expected that these high levels of implementation and effectiveness would continue and may increase with increased participation. These findings contribute to the research base for implementation and effectiveness of PLCs and provide a foundation upon which Kanawha County Schools PLCs may be evaluated, pre-service teacher

education programs may be improved, teacher efficacy may be strengthened through professional development, and student learning may increase. The suggestions to enhance PLCs that were identified from this research help our understanding of the role that teachers want as they participate in PLCs such as selecting specific content to achieve their school's goals and deciding on an organizational structure that corresponds to their needs.

It would be expected that levels of implementation and effectiveness would increase with further participation because efficacy of any reform requires time to develop. Pre-service teacher preparation would benefit from consideration of this research and provide content related to function and practice of PLCs (Buisse, Sparkman, & Wesley, 2003; Hord & Sommers, 2008; Wood, 2007). The results of this research suggest that pre-service teacher preparation programs would benefit from attention to this research and provide content related to function and practice of PLCs. Efforts to improve professional development for teachers could benefit from building teacher support through PLCs. The fundamental purpose of schools is to increase student learning and this goal may be achieved through implementation and development of PLCs.

The suggestions and challenges offered by teachers who participate in these PLCs provide insight for policymakers and administrators to improve and increase levels of implementation and effectiveness of PLCs. Research describes the strong influence of teachers' beliefs on successful implementation and effectiveness of educational reform (Griffiths, Gore, & Ladwig, 2006; Qian, n.d.; Savasci-Acikalin, 2009) with teachers' beliefs being significantly related to the success of the reform

(Kalin & Zuljan, 2007). Teachers have the greatest influence on student learning (Davis & Andrzejewski, 2003; Laguardia, Brink, Wheeler, Grisham & Peck, 2002) and this study shows that Kanawha County Schools' teachers believe that high levels of implementation and effectiveness can be found throughout the district's schools.

Teachers want to select specific content to achieve their school's goals and select an organizational structure that corresponds to their needs. A lack of enthusiasm occurs when teachers are asked to perform tasks in which they have no choice. It is understandable that teachers would want to choose the content they address to ensure that it meets the needs of their students. It is also apparent that teachers want a say in the organization of teams that will work together to solve classroom problems. Teachers are frustrated by the lack of time to meet as well as insufficient time to carry out the specific tasks addressed.

The present study provides additional evidence with respect to teacher negativity as a lack of enthusiasm occurs when teachers are asked to perform tasks in which they have no choice, and teachers become frustrated by the lack of time to meet and to carry out the specific tasks addressed. The evidence from this study implies that administrative and district efforts to improve professional development for teachers could benefit from building teacher support through PLCs. Finally, this research will serve as a base for future studies of training for administrators, facilitators, and classroom teachers of the roles and responsibilities in the implementation of PLCs as these findings support the idea that there is not a clear understanding of their function and purpose.

Ancillary Findings

When asked to respond with a yes or no to the question: Are PLCs effective in your school? 62% responded with *yes* and 38% responded with *no*. Overall, this indicates that teachers believe that PLCs are effective in their schools.

Instrument Reliability

The internal consistency of the *Implementation and Effectiveness of Professional Learning Communities* survey instrument was tested using Cronbach's alpha coefficient and reliability of the instrument was described according to the levels of acceptability found in Salkind (2004). The internal consistency for the level of implementation and effectiveness for the 21 implementation items, the seven PLC categories and the implementation total suggests a desirable level of reliability for the implementation and effectiveness scales.

Recommendations for Further Research

This study investigated and provided insight into the levels of implementation and the levels of effectiveness of PLCs in Kanawha County Schools. The study also sought to determine the differences in levels of implementation and the levels of effectiveness based on five independent variables: organizational structure, age, teaching experience, grade/developmental level, and sex. Additionally, this study sought to describe relationships, if any, between levels of implementation and the levels of effectiveness. Finally, the study examined teachers' suggestions to enhance the PLC experience and identified challenges that inhibited the implementation and effectiveness of PLCs. Based on study findings, the following recommendations for further research are provided:

1. This study focused on Kanawha County Schools' Teachers. Expanding this study to include a larger population such as other selected counties or the entire state of West Virginia may provide additional data that would support general conclusions and implications regarding PLC implementation and effectiveness to improve student learning.
2. Respondents in this study perceive that principals are influential to the levels of implementation and effectiveness of PLCs. Conducting a study that would include all Kanawha County principals may provide additional data that would support general conclusions and implications regarding PLC implementation and effectiveness to improve student learning.
3. Respondents in this study perceive that training of facilitators, administration, and participants influence the implementation and effectiveness of PLCs. A study investigating knowledge and training methods may provide data that would improve this training.
4. The survey instrument in this study included two open-ended items asking respondents to identify suggestions to enhance the PLC experience and challenges that inhibited the implementation of PLCs. Conducting a study that used more qualitative research methods (focus groups, field observations, interviews) may provide a more detailed understanding of teachers' perceptions related to implementation and effectiveness of PLCs.
5. This study was conducted using a one-shot survey instrument. Developing a pre-survey to be administered to first-year teachers would provide baseline data of perceptions of level of implementation and effectiveness of PLCs. The

survey could be administered again after the teacher had been a participant of a PLC for five years. This type of study may provide comparative data of perceived implementation and effectiveness of PLCs over time.

6. This study focused on perceptions of teachers regarding implementation and effectiveness of PLCs. A study could be conducted regarding improved teacher efficacy through the implementation of PLCs. This would provide data for those who develop professional development activities to improve their practice.

Concluding Remarks

Study findings provide a foundation for Kanawha County Schools' officials, those who design and present professional development to teachers, and those teachers who participate in PLCs. Kanawha County Schools' teachers described the levels of PLC implementation in their schools as most of the time to some of the time and their belief in the levels of effectiveness of PLCs to improve student learning as effective to somewhat effective. Data indicate a moderately strong relationship between levels of implementation and levels of effectiveness. In addition, respondents identified suggestions to enhance their PLC experience and challenges that hindered implementation of the PLC.

Findings describe the levels of implementation and effectiveness perceived by all Kanawha County Schools' teachers which provide a foundation for administrators, professional development designers, and teachers to improve their practice. Teachers perceptions that PLCs exhibit high levels of implementation and effectiveness in Kanawha County Schools may significantly increase the usefulness of PLCs in this

county. Perceptions of high levels of implementation and effectiveness demonstrate that this method of school reform has value to teachers who believe that PLC implementation is effective to improve student learning.

REFERENCES

- Annenburg Institute for School Reform. (2004) *Professional Learning Communities: Professional Development Strategies That Improve Education*. Providence, RI: Brown University.
- Archer, K.R. (2012). *The historical context and development of professional learning communities*. (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses. (3524335)
- Arroyo, H. (2011). *Strategies used by successful professional learning communities to maintain Hord's dimensions of PLCs and include new members*. (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses. (3479665)
- Benard, B. (2005). *What is it about tribes? The research-based components of the developmental process of tribes learning communities*. Windsor, CA: CenterSource Systems.
- Benson, K. (2011). *Teacher collaboration in context: Professional learning communities in an era of standardization and accountability*. (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses. (3461799)
- Bertsch, C.C. (2012). *Perceptions of supportive leadership behaviors for professional learning communities in secondary schools*. (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses. (3528605)
- Bitterman, T. (2010). *Teacher perceptions of the impact of professional learning communities on teaching and learning in middle school science*. (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses. (3422937)

- Blacklock, P.J. (2009). *The five dimensions of professional learning communities in improving exemplary Texas elementary schools: A descriptive study*. (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses. (3399395)
- Buehl, M.M., & Fives, H. (2009). Exploring teacher beliefs about teaching knowledge: Where does it come from? Does it change? *Journal of Experimental Education*, 77(4), 367-408.
- Bullough, R.V., & Baugh, S.C. (2008). Building professional learning communities within a university - public school partnership. *Theory Into Practice*, 47(4), 286-293.
- Bunker, V.J. (2008). *Professional learning communities, teacher collaboration, and student achievement in an era of standards based reform*. (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses. (3297571)
- Buysse, V., Sparkman, K.L., & Wesley, P.W. (2003). Communities of practice: Connecting what we know with what we do. *Exceptional Children*, 69(3), 263-277.
- Carrigan, M.D. (2008). *On becoming a professional: The experience of novice teachers in professional learning communities*. (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses. (3312046)
- Cashman, D.M. (2008). *The effects of vertical leadership, team demographics, and group potency upon shared leadership emergence within technical organizations*. (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses. (3320543)

- Cherubini, L. (2008). Teacher-candidates' perceptions of schools as professional communities of inquiry: A mixed-methods. *Professional Educator*, 32(1), 16-34.
- Cizek, G.J., Fitzgerald, S.M., & Rachor, R.E. (1996). Teachers' assessment practices: Preparation, isolation, and the kitchen sink. *Educational Assessment*, 3(2), 159-179.
- Counts, G.S. (1932). Dare progressive education be progressive? *Progressive Education*, IX(4), 257-263.
- Curry, N.D. (2010). *The implementation of professional learning communities components and perceptions of self-efficacy by teachers and school administrators*. (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses. (3430294)
- Darling-Hammond, L. (2007). Race, inequality and educational accountability: The irony of No Child Left Behind. *Race, Ethnicity & Education*, 10(3), 245-260.
- Davis, H., & Andrzejewski, C. (2003). Teacher beliefs. *Education.com*. Retrieved from <http://www.education.com/print/teacher-beliefs/>.
- Dewey, J. (1929). *The sources of a science of education*. New York: Liveright.
- Doolittle, G., Sudeck, M., & Rattigan, P. (2008). Creating professional learning communities: The work of professional development schools. *Theory Into Practice*, 47(4), 303-310.
- Dove, M.G., & Freeley, M.E. (2011). The effects of leadership on innovative program implementation. *The Delta Kappa Gamma Bulletin: International Journal for Professional Educators*, 77(3), 25-32.

- DuFour, R. (2004). Schools as learning communities. *Educational Leadership*, 61(8), 6-11.
- DuFour, R., & Eaker, R. (1998). *Professional learning communities at work: Best practices for enhancing student achievement*. Bloomington, IA: National Education Service.
- DuFour, R., DuFour, R., & Eaker, R. (2008). *Revisiting professional learning communities at work*, Bloomington, IN: Solution Tree.
- DuFour, R., Eaker, R., & DuFour, R. (Eds.). (2005). *On common ground: The power of professional learning communities*. Bloomington, IN: Solution Tree Press.
- Duncan, A. (2010, August 25). Secretary Arne Duncan's Remarks at the Statehouse Convention Center in Little Rock, Arkansas. Retrieved from <http://www.ed.gov/news/speeches/secretary-arne-duncans-remarks-statehouse-convention-center-little-rock-arkansas>.
- Eason-Watkins, B. (2005). Implementing PLCs in the Chicago public schools. In R. DuFour, R. Eaker, & R. DuFour (Eds.). *On common ground*, (pp. xi-xvi). Bloomington, IN: Solution Tree Press.
- Elster, D. (2009). Biology in context: Teachers' professional development in learning communities. *Journal of Biological Education*, 43(2), 53-61.
- Fink, A. (2003). *How to design survey studies (2nd Edition)*. Thousand Oaks, CA: SAGE Publications.
- Flynn, M. (2010). Kanawha County Schools: Breaking new ground. *Education Executive; Redcoat Publishing*.

- Fogarty, R., & Pete, B. (2009). Professional learning 101. *Phi Delta Kappan*, 91(4), 32-34.
- Fullan, M. (1996). Professional culture and educational change. *School Psychology Review*, 25(4), 496-500.
- Fullan, M. (2000). The three stories of educational reform. *Phi Delta Kappan*, 81(8), 581-585.
- Fullan, M. (2001). Whole school reform: Problems and promises. *Ontario Institute for Studies in Education*, University of Toronto. Paper commissioned by the Chicago Community Trust. Retrieved from <http://www.michaelfullan.com/media/13396044810.pdf>.
- Giles, D., & Hargreaves, A. (2006). The sustainability of innovative schools as learning organizations and professional learning communities during standardized reform. *Educational Administration Quarterly*, 42(1), 124-156.
- Gladwell, M. (1998). Do parents matter? *The New Yorker*, 74(24), 54.
- Goleman, D. (1995). *Emotional intelligence*. New York: Bantam Books.
- Graham, P. (2007). Improving teacher effectiveness through structured collaboration: A case study of a professional learning community. *Research in Middle Level Education Online*, 31(1), 1-17.
- Gredler, M.E. (1997). *Learning and instruction: Theory into practice* (3rd ed). Upper Saddle River, NJ: Prentice-Hall.
- Griffith, L.A. (2009). *Professional learning communities: Teachers working collaboratively for continuous improvement*. (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses. (3379815)

- Griffiths, T., Gore, J., & Ladwig, J. (2006). Teachers' fundamental beliefs, commitment to reform, and the quality of pedagogy. Paper prepared for presentation at Australian Association for Research in Education Annual Conference. Adelaide, November 26-30, 2006.
- Handal, B., & Herrington, A. (2003). Mathematics teacher beliefs and curriculum reform. *Mathematics Education Research Journal*, 15(1), 59-69.
- Hannaford, D. (2010). *A study of teacher perceptions toward a professional learning community in a rural middle school*. (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses. (3419574)
- Hanson, K.R. (2010). *Action learning strategies on continuous improvement efforts in elementary schools*. (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses. (3430702)
- Henry, M.N. (2004). No child left behind? Educational malpractice litigation for the 21st century. *California Law Review*, 92(4), 1119-1171.
- Hewitt, T.W. (2006). *Understanding and shaping curriculum: What we teach and why*. Thousand Oaks, CA: Sage Publications.
- Hickman, P., Schrimpf, M., & Wedlock, D. (2009). *A problem based learning project investigating the underlying dimensions of professional learning communities in public primary and secondary schools in the state of Missouri*. (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses. (3383301)
- Higgins, K.E. (2010). *An investigation of professional learning communities in North Carolina school systems*. (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses. (3464551)

- Honnert, A.M. (2010). *PLCs require more than learning a secret handshake: A case study of the transition to professional learning communities in one Midwestern suburban middle school*. (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses. (3401057)
- Hord, S.M. (1997a). Creating a professional learning community: Cottonwood Creek School. *Issues...about Change* 6(2), 1-8.
- Hord, S.M. (1997b). *Professional learning communities: Communities of continuous inquiry and improvement*. Austin, Texas: Southwest Educational Development Laboratory.
- Hord, S.M., & Hirsh, S.A. (2009). The principal's role in supporting learning communities. *Educational Leadership*, 66(5), 22-23.
- Hord, S.M., & Sommers, W.A. (2008). *Leading professional learning communities: Voices from research and practice*. Thousand Oaks: Corwin Press and National Association of Secondary School Principals.
- Huffman, J.B., & Jacobson, A.L. (2003). Perceptions of professional learning communities. *International Journal of Leadership in Education*, 6(3), 239-250.
- Hughes-Hassell, S., Brasfield, A., & Dupree, D. (2012). Making the most of professional learning communities. *Knowledge Quest*, 41(2) 30-37.
- Ikhwan, S.N. (2011). *A qualitative ethnographic study of how teachers who participate in professional learning communities construct knowledge*. (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses. (3451133)

- Ireland, M.W. (2010). *An examination of the relationship between teachers' perceptions of the presence of professional learning community attributes and student achievement*. (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses. (3424356)
- Jennings, J. (2011). The policy and politics of rewriting the nation's main education law. *Phi Delta Kappan*, 92(4), 44-49.
- Jeon, K. (2003). Understanding teacher reflection as a significant tool for bringing reform-based teaching to college mathematics. *The Journal of Mathematics and Science: Collaborative Explorations*, 6, 191-200.
- Johnson, C.C. (2006). Effective professional development and change in practice: Barriers science teachers encounter and implications for reform. *School Science & Mathematics*, 106(3), 150-161.
- Jones, J. (2010a). Building pedagogic excellence: Learning and teaching fellowships within communities of practice at the University of Brighton. *Innovations in Education & Teaching International*, 47(3), 271-282.
- Jones, J. (2010b). *Professional growth among K-12 teachers: The development of a culture of experimentation, reflection, and collaboration*. (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses. (3439054)
- Jorgensen, U., & Lauridsen, E.H. (2005). Environmental professional competences: The role of communities of practice and spaces for reflexive learning. *Greener Management International*, 49, 57-67.
- Joyce, B. (2004). How are professional learning communities created? *Phi Delta Kappan*, 86(1), 76-83.

- Kagen R., & Lahey, L. (2009). *Immunity to change: How to overcome it and unlock the potential in yourself and your organization*. Cambridge, MA: Harvard Business School Publishing.
- Kalin, J., & Zuljan, M.V. (2007). Teacher perceptions of the goals of effective school reform and their own role in it. *Educational Studies*, 33(2), 163-175.
- Kaplan, J.S. (2008). The National Writing Project: Creating a professional learning community that supports the teaching of writing. *Theory Into Practice*, 47(4), 336-344.
- Karaagac, M.K., & Threlfall, J. (2004). The tension between teacher beliefs and teacher practice: The impact of the work setting. *Proceedings of the 28th Conference of the International Group for the Psychology of Mathematics Education*, 3, 137-144.
- Karakhanyan, S., van Veen, K., & Bergen, T.C.M.. (2011). Teachers' voices in the context of higher education reforms in Armenia. *European Journal of Education*, 46(4), 508-523.
- Katz, S., & Earl, L. (2010). Learning about networked learning communities. *School Effectiveness & School Improvement* 21(1), 27-51.
- Kruse, S., Seashore, K., & Bryk, A. (1994). *Building professional community in schools*. Madison, WI: Center on Organization and Restructuring of Schools, University of Wisconsin.
- Laguardia, A., Brink, B., Wheeler, M., Grisham, D., & Peck, C. (2002). From agents to objects: The lived experience of school reform. *Child Study Journal*, 32(1), 1-18.

- Langer, J.A. (2000). Excellence in English in middle and high school: How teachers' professional lives support student achievement. *American Educational Research Journal*, 37(2), 397-439.
- Lave J., & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation*. Cambridge: Cambridge University Press.
- Lee, J. (2010). Trick or treat: New ecology of education accountability system in the USA. *Journal of Education Policy*, 25(1), 73-93.
- Lee, V.E., & Smith, J.B. (1996). Collective responsibility for learning and its effect on gains in the achievement for early secondary school students. *American Journal of Education*, 104(2), 103-147.
- Leite, L. (2006). Prospective physical sciences teachers' willingness to engage in learning communities. *European Journal of Teacher Education*, 29(1), 3-22.
- Leonard, J., Newton, K., & Evans, B. (2009). The influence of a reform-based mathematics methods course on preservice teachers' content knowledge and beliefs. *Proceedings of the 31st annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education*. Atlanta, GA: Georgia State University Retrieved from <http://www.pmena.org/2009/proceedings/TEACHER%20KNOWLEDGE/teachknowRR370428.pdf>.
- Lewis, A.C. (2002). School reform and professional development. *Phi Delta Kappan*, 83(7), 488-490.

- Lezotte, L.W. (2005). More effective schools: Professional learning communities in action. In R. DuFour, R. Eaker, & R. DuFour (Eds.). *On common ground*, (pp. xi-xvi). Bloomington, IN: Solution Tree Press.
- Lindahl, R. (2011). *Research-based characteristics of professional learning communities at the high school level*. (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses. (3443956)
- Linder, R.A., Post, G., Calabrese, K. (2012). Professional learning communities: Practices for successful implementation. *Delta Kappa Gamma Bulletin*, 78(3), 13-22.
- Little, J.W., Gearhart, M., Curry, M., & Kafka, J. (2003). Looking at student work for teacher learning, teacher community, and school reform. *Phi Delta Kappan*, 85(3), 184-192.
- Little, J.W., & McLaughlin, M. (Eds.). (1993). *Teacher's work: Individuals, colleagues, and contexts*. New York: Teachers College Press.
- Loertscher, D. (2005). The power of professional learning communities and other professional resources. *Teacher Librarian*, 32(5), 35-39.
- Loertscher, D., & Rosenfeld, E. (2007). Professional learning communities at work plan book. *Teacher Librarian*, 34(4), 46-48.
- Louis, K.S., & Marks, H.M. (1998). Does professional community affect the classroom? Teachers' work and student experiences in restructuring schools. *American Journal of Education*, 106, 532-575.
- Lujan, N., & Day, B. (2010). Professional learning communities: Overcoming the roadblocks. *Delta Kappa Gamma Bulletin*, 76(2), 10-17.

- Lujan, N.R.B. (2009). *Professional leaning communities and their impact on the roadblocks that inhibit collaboration among teachers and certified staff at Berkshire Elementary school*. (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses. (3355811)
- Marley, D.W. (2010). *Teacher perceptions of professional learning communities: Communities that practice continuous learning within Christian schools*. (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses. (3439746)
- Maslow, V.J. (2008). *The American high school: The role of small and professional learning communities in addressing inequities in student learning*. (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses. (3327821)
- McNair, S., Bhargava, A., Adams, L., Edgerton, S., & Kypros, B. (2003). Teachers speak out on assessment practices. *Early Childhood Education Journal*, 31(1), 23-31.
- McMahon, M. (1997). Social constructivism and the World Wide Web – A paradigm for learning. Paper presented at the ASCILITE conference, Perth, Australia.
- Merriam, S.B. & Brockett, R.G. (2007). *The profession and practice of adult education: An introduction*. San Francisco: Josey-Bass.
- Monroe-Baillargeon, A., & Shema, A.L. (2010). Time to talk: An urban school's use of literature circles to create a professional learning community. *Education & Urban Society*, 42(6), 651-673.
- Moore, T. (2010). *Professional learning communities: Do leadership practices impact implementation and sustainability and what is the relationship*

- between a school's PLC and a school's climate?* (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses. (3402809)
- Morgan, J. (2010). *An evaluation of the process and outcomes of teacher collaboration in vocabulary instruction*. (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses. (3409826)
- Moss, J. (2008). Leading professional learning in an Australian secondary school through school-university partnerships. *Asia-Pacific Journal of Teacher Education*, 36(4), 345-357.
- Mullen, C.A., & Hutinger, J.L. (2008). The principal's role in fostering collaborative learning communities through faculty study group development. *Theory Into Practice*, 47(4), 276-285.
- Nelson, T.H., Deuel, A., Slavit, D., & Kennedy, A. (2010). Leading deep conversations in collaborative inquiry groups. *Clearing House*, 83(5), 175-170.
- Neuzil, L.M. (2010). Professional development activities and professional learning community in the Mid-America region of the Association of Christian Schools International. *A Journal of the International Christian Community for Teacher Education* 6(1).
- Newman, J.W. (2006). *America's teachers: An introduction to education*. Boston: Pearson.
- Newmann, F., & Wehlage, G.G. (1995). *Successful School Restructuring: A Report to the Public and Educators*. Madison, WI: University of Wisconsin-Madison, Wisconsin Center for Education Research, Center on Organization and

Restructuring of Schools. Retrieved from

<http://lanes.auburn.edu/cimjournal/Vol1/No1/success.pdf>.

No Child Left Behind Act, 20 USC 6301§ 1001(2001).

Phillips, D.S. (2009). *The relationship among principals' perceptions of professional learning communities and parents' and teachers' satisfaction of schools functioning as professional learning communities*. (Doctoral dissertation).

Retrieved from ProQuest Dissertations and Theses. (3374152)

Pierce, K. (2010). *An exploration of instructional teaming through the eyes of teachers*. (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses. (3425611)

Pillari M.R. (2011). *A feasibility study of implementing professional learning communities in a K-8 school district*. (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses. (3489471)

Poovey, R.R. (2012). *Teachers teaching teachers: A case study of the 2011 ProEd professional learning community and its influence on creating a culture for organizational learning in schools in the Republic of Panama*. (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses. (3530842)

Priestley, M., Edwards, R., Priestley, A., & Miller, K. (2012). Teacher agency in curriculum making: Agents of change and spaces for manoeuvre. *Curriculum Inquiry*, 42(2), 191-214.

Psychoyos, D.L.S. (2012). *Teachers teaching teachers: A case study of the 2011 ProEd Professional Learning Community and its influence on creating a culture for organizational learning in schools in the Republic of Panama*.

- (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses. (3530842)
- Qian, C. (n.d.). Teacher beliefs and mathematics curriculum reform: A story of Chongqing. Faculty of Education: The University of Hong Kong.
- Repicky, R.M., Jr. (2009). *Critical events in achieving staff support for professional learning communities at the high school level*. (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses. (3405015)
- Reynolds, D. (2008). *How professional learning communities use student data for improving achievement*. (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses. (3324969)
- Rose, J.W. (2008). *Professional learning communities, teacher collaboration and the impact on teaching and learning*. (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses. (3311359)
- Rosenholtz, S.J. (1989). *Teachers' workplace: The social organization of schools*. White Plains, NY: Longman.
- Rosenthal, R. (2002). Covert communication in classrooms, clinics, courtrooms, and cubicles. *American Psychologist*, 57(11), 839-850.
- Rossi, P.H., Lipsey, M.W., & Freeman, H.E. (2004). *Evaluation: A systematic approach* (7th ed.). Thousand Oaks: Sage Publications.
- Roth, W.M., & Lee, Y.J. (2006). Contradictions in theorizing and implementing communities in education. *Educational Research Review*, 1(1), 27-40.
- Salkind, N.J. (2004). *Statistics for people who think they hate statistics*. Thousand Oaks: Sage Publications.

- Savasci-Acikalin, F. (2009). Teacher beliefs and practice in science education. *Asia-Pacific Forum on Science Learning and Teaching*, 10(1).
- Schaefer, R.J. (1967). *The school as center of inquiry*. New York: Harper and Row.
- Schmoker, M. (2005). Here and now: Improving teaching and learning. In R. DuFour, R. Eaker, & R. DuFour (Eds.). *On common ground*, (pp. xi-xvi).
Bloomington, IN: Solution Tree Press.
- Scoggins, K.T. (2008). *The impact of leadership capacity and style on professional learning communities in schools*. (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses. (3376051)
- Scribner, J.P., Cockrell, K.S., Cockrell, D.H., & Valentine, J.W. (1999). Creating professional communities in schools through organizational learning: An evaluation of a school improvement process. *Educational Administration Quarterly*, 35(1), 130-161.
- Seashore Louis, K., & Wahlstrom, K. (2011). Principals as cultural leaders. *Phi Delta Kappan*, 92(5), 52-56.
- Senechal, A. (2011). *Improving student achievement by investigating factors influencing high school teachers' use of professional learning communities*. (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses. (3443669)
- Senge, P.M. (1990). *The fifth discipline: The art and practice of the learning organization*. New York: Doubleday Dell Publishing Group, Inc.
- Senge, P.M. (2005). Missing the boat on leadership. *Leader to Leader* 2005(38), 28-30.

- Shacham, M., & Od-Cohen, Y. (2009). Rethinking PhD learning incorporating communities of practice. *Innovations in Education & Teaching International*, 46(3), 279-292.
- Shanklin, S.L. (2009). *Professional learning communities: People leading change*. (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses. (3374194)
- Sharpe, N.R., Reiser, R.I., & Chase, D.C. (2010). Developing a collaborative assessment framework. *Assessment Update*, 22(1), 4-6.
- Siguroardottir, A.K. (2010). Professional learning community in relation to school effectiveness. *Journal of Educational Research* 54(5), 395-412.
- Song, H. (2012). The role of teachers' professional learning communities in the context of curriculum reform in high schools. *Chinese Education & Society*, 45(4), 81-95.
- Southwest Educational Development Laboratory. (2013). Retrieved from <http://www.sedl.org/about/>.
- Sparks, D. (2005). Leading for transformation in teaching, learning, and relationships. In R. DuFour, R. Eaker, & R. DuFour (Eds.). *On common ground*, (pp. xi-xvi). Bloomington, IN: Solution Tree Press.
- Starnes, B.A., Saderholm, J., & Webb, A. (2010). A community of teachers. *Phi Delta Kappan*, 92(2), 14-18.
- Stein, S. (2009). *Learning, identity and agency: Secondary mathematics professional developers' lived experiences of participation and collaborative inquiry in*

- professional learning communities*. (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses. (3358488)
- Stemler, S. (2001). An overview of content analysis. *Practical Assessment, Research & Evaluation*, 7(17), <http://PAREonline.net/getvn.asp?v=7&n=17>
- Stiggins, R., & DuFour, R. (2009). Maximizing the power of formative assessments. *Phi Delta Kappan*, 90(9), 640-644.
- Sutor, J. (2010). *Inquiry and change: The cases of three mathematics teachers in professional learning communities*. (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses. (3425773)
- Thessin, R.A., & Starr, J.P. (2011). Supporting the growth of effective professional learning communities districtwide. *Phi Delta Kappan*, 92(6), 48-54.
- Thompson, S.C., Gregg, L., & Niska, J.M. (2004). Professional learning communities, leadership, and student learning. *Research in Middle Level Education Online*, 28(1), 35-54.
- Tyack, D., & Cuban, L. (1995). *Tinkering toward utopia: A century of public school reform*. Cambridge, Massachusetts: Harvard University Press.
- Tylus, J.D. (2009). *The impact of enabling school structures on the degree of internal school change as measured by the implementation of professional learning communities*. (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses. (3388625)
- United States Department of Education website. (2013). Retrieved from http://find.ed.gov/search?q=professional+learning+community&client=default_frontend&output=xml_no_dtd&proxystylesheet=default_frontend&sa.x=0&s

[a.y=0&ulang=en&sort=date%3AD%3AL%3Ad1&entqr=3&entqrm=0&oe=UTF-8&ie=UTF-8&ud=1&site=default_collection&btnG.x=0&btnG.y=0](#)

- Vasquez, B., Johnson, D.W., & Johnson, R.T. (1993). The impact of cooperative learning on the performance and retention of U.S. Navy air traffic controller trainees. *Journal of Social Psychology, 133*(6), 769-783.
- Voelkel, R.H. (2011). *A case study of the relationship between collective efficacy and professional learning communities*. (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses. (3449371)
- Waldron, N.L., & McLeskey, J. (2010). Establishing a collaborative school culture through comprehensive school reform. *Journal of Educational & Psychological Consultation, 20*(1), 58-74.
- Webb, R., Vulliamy, G., Sarja, A., Hamalainen, S., & Poikonen, P. (2009). Professional learning communities and teacher well-being? A comparative analysis of primary schools in England and Finland. *Oxford Review of Education, 35*(3), 405-422.
- West Virginia Department of Education Website. (2013). Retrieved from <http://wvde.state.wv.us/search.html?q=professional+learning+communities&x=0&y=0>
- Wheaton, J.A. (2008). *The relationship between professional learning communities: Characteristics and the existence of continuous school improvement as measured by ISAT and PSAT reading and mathematics scores*. (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses. (3340171)

- Williams, D.J. (2013). Urban education and professional learning communities. *Delta Kappa Gamma Bulletin*, 79(2), 31-39.
- Wilson, A.G. (2011). *Understanding the cultivation of teacher leadership in professional learning communities*. (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses. (3465657)
- Wolford, D.W. (2011). *Effective leadership practices in the sustainability of professional learning communities in two elementary schools*. (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses. (3493351)
- Wood, D.R. (2007). Professional learning communities: Teachers, knowledge, and knowing. *Theory Into Practice*, 46(4), 281-290.

APPENDICES

Appendix A: Survey Instrument

*Implementation and Effectiveness of Professional Learning Communities
Survey*

Appendix B: Cover Letter to Teachers (Participants)

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Appendix A: Survey Instrument

Implementation and Effectiveness of Professional Learning Communities

Part A. Background Information – Please provide the following information

1. Which of the following best describes the organizational structure of the professional learning community (PLC) in which you participate:

_____ Grade Level _____ Subject/Department _____ Team
_____ Schoolwide Other (Please Specify) _____

2. What is your age? (Please check one choice.)

_____ 20-29 _____ 30-39 _____ 40-49 _____ 50-59 _____ 60+

3. How many years have you taught full time (including the current year)?

_____ years

4. Which best describes the grade/developmental level you currently teach?

_____ Elementary School/Preschool _____ Middle School _____ High School

5. Sex: _____ Male _____ Female

Continued on next page

Part B. PLC Implementation – Using the scale provided, please rate each of the following characteristics of PLCs in terms of the current *level of implementation* within your school. (Circle the number that corresponds to the level of implementation.)

Level of Implementation

- 1=Never
- 2=Infrequently
- 3=Some of the time
- 4=Most of the time
- 5=All of the time

In the PLCs in your school, to what extent...

- | | | | | | |
|--|---|---|---|---|---|
| 1...is decision-making shared and participatory? | 1 | 2 | 3 | 4 | 5 |
| 2...are teachers' roles and responsibilities shared?..... | 1 | 2 | 3 | 4 | 5 |
| 3...is the principal supportive? | 1 | 2 | 3 | 4 | 5 |
| 4...do teachers have knowledge of school mission?..... | 1 | 2 | 3 | 4 | 5 |
| 5...are decisions guided by school mission?..... | 1 | 2 | 3 | 4 | 5 |
| 6...do teachers share a sense of responsibility for mission? | 1 | 2 | 3 | 4 | 5 |
| 7...do teachers collaborate to improve practice? | 1 | 2 | 3 | 4 | 5 |
| 8...is staff training collaborative and embedded? | 1 | 2 | 3 | 4 | 5 |
| 9...are teachers encouraged to share ideas and suggestions?..... | 1 | 2 | 3 | 4 | 5 |
| 10...is current research shared among participants?..... | 1 | 2 | 3 | 4 | 5 |
| 11...do teachers engage in critical dialogue about experiences? | 1 | 2 | 3 | 4 | 5 |
| 12...is learning inquiry-based? | 1 | 2 | 3 | 4 | 5 |
| 13...do teachers experiment with new methods? | 1 | 2 | 3 | 4 | 5 |
| 14...do meetings address goals designed to achieve mission?..... | 1 | 2 | 3 | 4 | 5 |
| 15...do teachers hold one another accountable? | 1 | 2 | 3 | 4 | 5 |
| 16...is continuous learning nurtured? | 1 | 2 | 3 | 4 | 5 |
| 17...do teachers generally take advantage of opportunities to learn something new? ... | 1 | 2 | 3 | 4 | 5 |
| 18...are teachers receptive to new strategies/approaches? | 1 | 2 | 3 | 4 | 5 |
| 19...do teachers know what students need to learn? | 1 | 2 | 3 | 4 | 5 |
| 20...do teachers continually assess student progress?..... | 1 | 2 | 3 | 4 | 5 |
| 21...do teachers ensure that all students learn? | 1 | 2 | 3 | 4 | 5 |

Continued on next page

*Part C. PLC Effectiveness – Using the scale provided, please rate each of the following characteristics of PLCs in terms of their **effectiveness to improve student learning** within your school. (Circle the number that corresponds to the level of effectiveness.)*

Level of Effectiveness

- 1=Not effective
- 2=Of little effectiveness
- 3=Somewhat effective
- 4=Effective
- 5=Very effective

Within the context of PLCs in your school, to what extent is each of the following PLC characteristics effective for improving student learning?

- | | | | | | |
|---|---|---|---|---|---|
| 1.Shared and participatory decision-making | 1 | 2 | 3 | 4 | 5 |
| 2.Shared roles and responsibilities..... | 1 | 2 | 3 | 4 | 5 |
| 3.Supportive principal | 1 | 2 | 3 | 4 | 5 |
| 4.Knowledge of the school mission..... | 1 | 2 | 3 | 4 | 5 |
| 5.Decisions guided by the school mission | 1 | 2 | 3 | 4 | 5 |
| 6.Shared sense of responsibility for mission | 1 | 2 | 3 | 4 | 5 |
| 7.Collaboration to improve practice | 1 | 2 | 3 | 4 | 5 |
| 8.Collaborative and embedded staff training | 1 | 2 | 3 | 4 | 5 |
| 9.Shared ideas and suggestions..... | 1 | 2 | 3 | 4 | 5 |
| 10.Sharing of current research | 1 | 2 | 3 | 4 | 5 |
| 11.Critical dialogue about classroom experiences | 1 | 2 | 3 | 4 | 5 |
| 12.Inquiry-based learning | 1 | 2 | 3 | 4 | 5 |
| 13.Experimentation with new methods | 1 | 2 | 3 | 4 | 5 |
| 14.Meetings address goals designed to achieve the mission | 1 | 2 | 3 | 4 | 5 |
| 15.Holding one another accountable | 1 | 2 | 3 | 4 | 5 |
| 16.Nurturing continuous learning | 1 | 2 | 3 | 4 | 5 |
| 17.Taking advantage of opportunities to learn something new | 1 | 2 | 3 | 4 | 5 |
| 18.Receptivity to new strategies/approaches | 1 | 2 | 3 | 4 | 5 |
| 19.Knowing what students need to learn | 1 | 2 | 3 | 4 | 5 |
| 20.Continually assessing student progress | 1 | 2 | 3 | 4 | 5 |
| 21.Ensuring that all students learn | 1 | 2 | 3 | 4 | 5 |

Continued on next page

Part D. Open-Ended Response Questions – Please answer the following questions.

1. What suggestions do you have to enhance the PLC experience in your school?

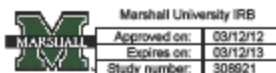
2. What have been the greatest challenges with PLCs in your school?

3. Are PLCs effective in your school? _____ Yes _____ No

Thank you for completing this survey!

Appendix B: Cover Letter to Teachers (Participants)

Consent Form



Dear Educational Professional:

You are invited to participate in a research project entitled “*Implementation and Perceived Effectiveness of Professional Learning Communities in the Kanawha County School District in West Virginia.*” As a Kanawha County Teacher you are in a unique position to provide information about the current level of implementation of professional learning communities in your school and also to offer insight into the level of effectiveness of professional learning communities to affect student learning. The information that you provide will offer assistance to improve the value of professional learning communities.

This study is being conducted as part of my doctoral research at Marshall University and has been approved by the Marshall University Institutional Review Board (see attached letter). The electronic survey is comprised of five demographic questions, 42 items, and three open-ended response questions. The survey should take approximately 5-10 minutes to complete. Your replies will be anonymous, so do not put your name anywhere on the survey. Individual schools will not be identified in this study.

There are no known risks involved with this study. Participation is completely voluntary and there will be no penalty or loss of benefits if you choose not to participate in this research study. You may choose not to answer any question by simply leaving it blank. Completing the survey indicates your consent for use of the answers you supply.

I truly appreciate your taking the time to complete this survey. Please contact me at brucker1@marshall.edu if you have questions or need additional information. If you have any questions concerning your rights as a research participant you may contact the Marshall University Office of Research Integrity at (304) 696-4303. Dr. Ronald Childress, Principal Investigator for this study, may be reached at rchildress@marshall.edu, phone 304-746-1904. You may wish to print a copy of this letter for your records.

Please use this link to access the survey (enter link.)

Again, thank you for your willingness to participate in this study.

Sincerely,

Elizabeth L. Brucker, Ed.S.
Co-Investigator

Appendix C: Panel of Experts

1. Carol Thom, Ed.D.; Director of Professional Development, Kanawha County Schools, 200 Elizabeth Street, Charleston, WV cthom@kcs.kana.k12.wv.us
2. Jane Hoskins Roberts, Assistant Superintendent of Elementary Schools, Kanawha County Schools, 200 Elizabeth Street, Charleston, WV jroberts@kcs.kana.k12.wv.us
3. Melissa Ruddle, Assistant Superintendent of Middle Schools, Kanawha County Schools, 200 Elizabeth Street, Charleston, WV MRUDDLE@kcs.kana.k12.wv.us
4. Mark Milam, Assistant Superintendent of High Schools/Technical/Adult Education, Kanawha County Schools, 200 Elizabeth Street, Charleston, WV memilam@kcs.kana.k12.wv.us
5. Tom Williams, Assistant Superintendent for Curriculum and Instruction, Kanawha County Schools, 200 Elizabeth Street, Charleston, WV twilliams@kcs.kana.k12.wv.us

Appendix D: Electronic Messages to Teachers (Participants)

From: Carol Thom [mailto:cthom@kcs.kana.k12.wv.us]
Sent: Tuesday, March 27, 2012 2:42 PM
To: allteachers@kcs.kana.k12.wv.us
Cc: Elizabeth L. Brucker (davebetsy@suddenlink.net); 'THOMAS E WILLIAMS (TWILLIAMS@kcs.kana.k12.wv.us)'; 'CAROL E THOM' (CTHOM@boe.kana.k12.wv.us)
Subject: PLC Survey

Dear Teachers: Please see attached information about this PLC Survey, and then click on this link to take the survey. Your input is important to us! Deadline is April 27. Thanks!

<http://www.zoomerang.com/Survey/WEB22F78GPWBZD>

From: Carol Thom [mailto:cthom@kcs.kana.k12.wv.us]
Sent: Tuesday, April 10, 2012 9:38 AM
To: allteachers@kcs.kana.k12.wv.us; 'THOMAS E WILLIAMS (TWILLIAMS@kcs.kana.k12.wv.us)'; Elizabeth L. Brucker (davebetsy@suddenlink.net)
Subject: FW: PLC Survey

Dear Teachers---just a reminder to take this PLC survey, if you have not already done so. Over 400 teachers have given us their input so far, and we hope you will too. Deadline is Friday, April 27. Thanks!

<http://www.zoomerang.com/Survey/WEB22F78GPWBZD>

From: CAROL E THOM [mailto:CTHOM@kcs.kana.k12.wv.us]
Sent: Sunday, April 29, 2012 3:44 PM
To: Elizabeth L. Brucker
Cc: Childress, Ronald B.
Subject: Fwd: RE: RE: Survey?

Betsy and Ron--here are the final results. Hope it is what you need. I know it will definitely help us! If there is anything else I can do, just let me know. Best wishes!

Appendix E: Approval from Kanawha County Schools



200 Elizabeth Street, Charleston, West Virginia 25311-2119 • (304) 348-7732 • Fax: (304) 348-7735
Ronald Duerring, Ed.D, Superintendent

January 31, 2012

Dr. Ron Childress
Marshall University
100 Angus E. Peyton Drive
South Charleston, WV 25303-1600

Dear Dr. Childress,

We are pleased to be working with Marshall University and Betsy Brucker on her doctoral study "Implementation and Perceived Effectiveness of Professional Learning Communities in the Kanawha County School District in West Virginia". This study will provide valuable information to our district as we continue to move forward with the implementation of Professional Learning Communities.

As I stated in our meeting, I will do everything I can to help with the implementation of this study. The results can only help us enhance our implementation of PLCs.

Sincerely,

Ron Duerring, Ed. D
Superintendent

Appendix F: IRB Approval Letter



Office of Research Integrity
Institutional Review Board
401 11th St., Suite 1300
Huntington, WV 25701

FWA 00002704

IRB1 #00002205
IRB2 #00003206

March 12, 2012

Ronald Childress, Ed.D.
MUGC Education and Professional Development Department

RE: IRBNet ID# 308921-1
At: Marshall University Institutional Review Board #2 (Social/Behavioral)

Dear Dr. Childress:

Protocol Title: [308921-1] Implementation and Perceived Effectiveness of Professional Learning Communities in the Kanawha County School District in West Virginia

Expiration Date: March 12, 2013

Site Location: MUGC

Submission Type: New Project APPROVED

Review Type: Exempt Review

In accordance with 45CFR46.101(b)(2), the above study and informed consent were granted Exempted approval today by the Marshall University Institutional Review Board #2 (Social/Behavioral) Designee for the period of 12 months. The approval will expire March 12, 2013. A continuing review request for this study must be submitted no later than 30 days prior to the expiration date.

This study is for student Elizabeth Brucker.

If you have any questions, please contact the Marshall University Institutional Review Board #2 (Social/Behavioral/Educational) Coordinator Michelle Woomer, B.A., M.S at (304) 696-4308 or woomer3@marshall.edu. Please include your study title and reference number in all correspondence with this office.

Appendix G: Curriculum Vitae

Professional Vita

Elizabeth L. Brucker

1008 Sand Hill Drive

St. Albans, WV 25177

Phone 304-727-5381

Email: brucker1@marshall.edu

Education

Doctoral student Marshall University Graduate College

MA/Reading Education Marshall University Graduate College

BA/English and Economics West Virginia State University

Certification

Educational Specialist (Ed.S.), Reading Specialist K-12, Language Arts 4-8, Mathematics 4-8, Elementary Education 1-6

Professional Experience

Twenty-one years with Kanawha County Schools, Part-time instructor at Marshall University Graduate College

Professional Affiliations

Delta Kappa Gamma

Professional Activities

Elected Hayes Middle School Sixth Grade Team Leader

Elected Hayes Middle School Faculty Senate Secretary

Hayes Middle School Math Field Day Coordinator and Coach

Kanawha County Schools Title 1 Family Math Night Teacher

Presented Staff Development to Alban Elementary Staff entitled "Why Teach Cultural Diversity? Within Our Already Crowded Curriculum Does It Have Value?"

Presented Workshop at Alban Elementary entitled "Orientation in Tutoring to Parents of Students at Alban Elementary"

Attended Kanawha County Schools Teachers Academy

Attended West Virginia Conference for Teachers of Mathematics at Flatwoods, West Virginia

Attended West Virginia Conference for Teachers of Reading at The Greenbrier, White Sulphur Springs, West Virginia

Attended class entitled "East Asia: A Seminar for Teachers" funded by the Freeman Foundation

Attended Southern Regional Council of Educational Administration Conference, Charleston, WV.