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A STUDY OF THE RELATIONSHIP BETWEEN PROFESSIONAL LEARNING
COMMUNITY IMPLEMENTATION AND ADEQUATE YEARLY PROGRESS OF
CENTRAL FLORIDA URBAN SCHOOLS

by

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A dissertation submitted in partial fulfillment of the requirements
for the degree of Doctor of Education
in the Department of Educational Research, Technology and Leadership
in the College of Education
at the University of Central Florida
Orlando, Florida

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2010

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ABSTRACT

The focus of this research was to examine the professional learning of school instructional and administrative staff as they focused on the elements of becoming a professional learning community. Existing research examined the components and behaviors collectively or independently. This research describes the relational data between the critical elements of focus, the leader, teams, and individual teacher as related to student achievement.

It was determined through the literature review and results of this study that there were constructs of professional learning communities that were related to student achievement. In particular, a statistically significant relationship between proficiency in reading and teacher reflection was found. Additional behaviors of teachers and leaders were discussed in relation to increased student achievement.

Suggested uses for the study included the consideration of practices by leaders in creating professional learning communities that support student achievement. An additional suggestion was the utilization of reflective practice and action research as means for increased student achievement.

To my family, who collectively have shaped my understanding of what really matters and have greatly impacted how I have found purpose in life.

For those missing who I carry in my heart, my grandmother Mary Jane Wiseman and my mother-in-love Mary Ruth Ellis, I thank for living morally strong and compassionate lives. They continue to inspire me.

I thank my parents, James and Roberta Wiseman, my sisters Beth and Tammy, and my brother Richard, for walking with me wherever my path led.

Finally, I would like to thank my husband Tim, my boys Jamie and Felix, and my daughters Nicki and Destiny. They understand, tolerate, and trust the bumps in the road I often create for them on their personal journeys as a result of my passion for children . . . and love me anyway.

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TABLE OF CONTENTS

LIST OF FIGURES	viii
LIST OF TABLES	ix
CHAPTER 1 THE PROBLEM AND ITS CLARIFYING COMPONENTS.....	1
Introduction.....	1
Purpose of the Study	2
Conceptual Framework.....	4
Research Questions	10
Definitions.....	10
Methodology	16
Study Population.....	17
Instrumentation	18
Data Collection	19
Data Analysis	20
Delimitations of the Study	21
Limitations of the Study.....	22
Significance of Study.....	22
Summary	24
CHAPTER 2 REVIEW OF LITERATURE	25
Introduction.....	25
Professional Learning Communities.....	26
School Focus	29
Leadership and Student Achievement	33
Professional Teams	36
Individual Reflective Members.....	41
Student Achievement and Professional Learning Communities	45
Primary Studies	45
Intermediate Studies.....	49
K-12 Studies.....	53
Summary	59
CHAPTER 3 METHODOLOGY	60
Introduction.....	60
Purpose of the Study	60
Research Questions and Hypotheses	61

Population and Sample	62
Instrumentation	65
Instrument Reliability and Validity	66
Data Collection	66
Data Analysis	69
Summary	72
CHAPTER 4 ANALYSIS OF DATA	73
Introduction.....	73
Population and Sample	74
Research Question 1	76
Research Question 2	85
Research Question 3	89
Research Question 4	92
Summary.....	93
CHAPTER 5 SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS	94
Introduction.....	94
Purpose.....	94
Summary and Discussion of Findings	95
Research Question 1	96
Research Question 2	97
Research Question 3	99
Research Question 4	100
Conclusion	100
Recommendations for Policy.....	102
Recommendations for Practice	102
Questions that Linger.....	104
Recommendations for Practice and Future Research	105
APPENDIX A PROFESSIONAL LEARNING COMMUNITY RUBRIC	107
APPENDIX B UCF INSTITUTIONAL REVIEW BOARD DOCUMENTATION	109
APPENDIX C ORANGE COUNTY PUBLIC SCHOOL RESEARCH APPROVAL	111
LIST OF REFERENCES	113

LIST OF FIGURES

Figure 1. Expected performance in reading.....	80
Figure 2. Expected performance in mathematics.....	81
Figure 3. Expected performance in science	81
Figure 4. Expected learning gains in reading.....	87
Figure 5. Expected learning gains in mathematics	87
Figure 6. Expected learning gains of the lowest 25% in reading.....	90
Figure 7. Expected learning gains of the lowest 25% in mathematics	91

LIST OF TABLES

Table 1	Research Questions and Sources of Data	19
Table 2	Leadership Connections.....	38
Table 3	Analysis of Keck-Centeno's Study (2008).....	46
Table 4	Analysis of Gilrane, Roberts, and Russell's Study (2008).....	47
Table 5	Analysis of Strahan's Study (2008).....	49
Table 6	Analysis of McLaughlin and Talbert Report (1993)	50
Table 7	Analysis of Visscher and Witzier's Study (2004).....	51
Table 8	Analysis of Thibodeau's Study (2008).....	53
Table 9	Analysis of K-20 Study (Williams, Atkinson, Cate, & O'Hare, 2008).....	54
Table 10	Analysis of Vescio, Ross, and Adams' Study (2008)	55
Table 11	Comparison of Primary, Intermediate and K-12 Studies Reviewed.....	58
Table 12	Population and Sample of OCPS Schools: 2008-2009.....	63
Table 13	Demographic Data for Participating Schools (2008-2009)	64
Table 14	Demographics of Sample Schools (N = 24)	74
Table 15	Overall Implementation Mean for Sample Schools (N = 24).....	78
Table 16	Overall Professional Learning Community Implementation by Construct	78
Table 17	Correlations Among Professional Learning Community Implementation and Percentage Proficient	83
Table 18	Disaggregated Data for Overall Reading Proficiency (N = 24).....	84
Table 19	Correlations Among Professional Learning Community Implementation Constructs and Percentage Reaching Learning Goals	88
Table 20	Correlations Among Professional Learning Community Implementation Constructs and Percentage Achieving Lowest Quartile Learning Gains (N = 24).....	92

Table 21 Correlations Among Professional Learning Community Implementation
Constructs and Percentage AYP Standards Attained (N = 24)..... 93

CHAPTER 1 THE PROBLEM AND ITS CLARIFYING COMPONENTS

Introduction

The 1980s, a decade that included the explosion of the Challenger, the leadership of President Reagan, and the discovery of Auto Immune Deficiency Syndrome (AIDS) was also a time of educational reform, partly in response to the 1983 publication of *A Nation at Risk* by the National Commission on Excellence in Education. Simultaneously, public education and the business world had the attention of researchers who were focusing on the influence of climate and culture in the workplace (Hord, 1997; 2004). Hord cited the historical research and work of Darling-Hammond (1996), McLaughlin and Talbert (1993), Rosenholtz (1991), and Senge (1990) as paving the way for what was, at the beginning of the 21st century, a professional learning community. She credited Senge with bringing to the forefront similarities in the corporate workplace, Rosenholtz with applying factors specifically to the teacher workplace, McLaughlin and Talbert with investigating the power of collective inquiry, and Darling-Hammond with emphasizing redesign and transformation through shared decision making and shared teacher practice.

The No Child Left Behind Act of 2001 put forth learning goals for students and addressed teacher needs in receiving quality professional learning that resulted in concrete evidence of increased student achievement. Senge's (2000) statement that, "Schools are not in trouble because of bad or incompetent people but because of very poor design relative to the world we live in today (p. 356)," highlighted the challenges

and complexities related to achieving the educational goals for the nation's children. Wagner (2008) agreed that the difficulty was not school failure but instead an outdated design of schools that was never intended to teach all students to think. Schools, according to Wagner, have not kept up with a changing world. Professional learning communities have been viewed as one design to assist teachers in their quest to positively impact student achievement.

Professional learning communities have been designed with a focus on student learning. They have typically been (a) led by relationship-oriented administrators who are learners and resource providers, (b) executed by collaborative teams that collectively address student learning needs, and (c) comprised of individual members who practice reflectively through shared personal practice (DuFour & Eaker, 1998; Hord & Sommers, 2008). The present study was undertaken to add to the research on professional learning communities in schools and to determine the relationship, if any, between behavioral indicators of a professional learning community and expected performance of schools in terms of student achievement.

Purpose of the Study

This study was conducted to analyze the extent to which professional learning communities were implemented in schools and to determine their ability to achieve at expected levels of proficiency and meet a predetermined percentage of criteria for achieving Adequate Yearly Progress as determined by the Florida State Department of Education. Included will be the perceptions of administrators and teachers at 24 schools

(elementary, middle, and high) in Orange County Public Schools, Florida, which were intentionally working towards functioning as professional learning communities as described in the Professional Learning Community Rubric (Appendix A).

The purpose of this study was to determine the relationship between the teacher behavioral indicators or constructs of selected professional learning communities during implementation and the expected performance of schools within the learning communities in 24 Orange County Public Schools (elementary, middle, and high) in Florida. Performance was measured based on the School Accountability Report Analysis (SOAR) using a regression model. Included in the SOAR report, which reports the effectiveness of each school individually, were data from the following: (a) State Accountability Report Florida Comprehensive Assessment Test (FCAT) 2008 and 2009, (b) School Accountability Report Analysis, and (c) FCAT historical results for 2004 through 2009.

The purpose was also to determine the relationship between the teacher behavioral indicators or constructs and the percentage of criteria met for achieving Adequate Yearly Progress (AYP) as identified by the Florida Department of Education. The determination of a relationship was intended to provide guidance for school districts and site leaders in regard to the elements of professional learning communities. There were also implications for achieving equity, closing the achievement gap, meeting the growing needs of the 21st century learner, and preparing leaders for their role in learning organizations. Additionally, this study was conducted to add to the body of knowledge

linking student achievement with learning organizations functioning as professional learning communities.

Conceptual Framework

The conceptual framework for this study was grounded in the literature and research related to professional learning communities as identified by DuFour and Eaker (1998) and Hord and Sommers (1997). The work of Rosenholtz (1991) provided a foundation from the perspective of the teacher workplace. Her descriptions of shared goals, collaborative teams, leaders, and teacher reflection in the context of schools provided the basis for making connections in this study.

Rosenholtz (1991) described observed behaviors in two types of schools. Her research, using questionnaires, observations, focus groups and interviews, led to the identification of schools as high consensus or low consensus. The process was fundamentally based on the evidence of the shared teaching goals that emerged through the social organization and activities of goal setting, recruitment, socialization, evaluation, management of student conduct, and faculty engagement. A shared goal creates a focus for instruction. The impact on teacher behavior is evident in both high and low consensus schools. In a high consensus school,

teacher's talk reflects a conception of the desirable, explicitly defined and mutually shared, which seems to direct and unify behavior. . . a solidarity, a bringing together, a balance that binds all elements into one entity, from which the removal of a single part may jeopardize the whole. But in lower consensus schools, there is little within the social organization to consolidate common means and ends. Here teachers mingle and separate yet remain utterly distinct. (p. 30)

It is through Rosenholtz's descriptions that the elements of a focus on shared goals, collaborative teams, leaders, and teacher reflection are framed.

According to Rosenholtz (1991), the first element of shared goals reflected the collective thinking of teachers regarding the purpose of teaching and learning and the determination of instructional goals. The degree to which shared goals were evident, defined, and shared provided very different pictures of teaching and learning environments. In schools where there was high consensus among teachers and principals about the purpose of teaching and instructional goals, there was one voice. Teacher talk focused on teaching issues and the best interests of children.

In low consensus schools, teachers functioned more as individuals, and their instructional path was revealed through their interests. When teachers did gather, student failings were the focus of teacher talk. The extent to which shared goals were agreed upon created the context that framed teacher talk, norms, and teacher reality. Rosenholtz believed that shared goals were at the heart of what teachers believed and would support through action. This premise was, therefore, central in examining professional learning communities.

For the purpose of this study, shared goals also included the processes and procedures that were in place to establish and maintain shared goals. The remaining elements of teacher collaboration, leaders, and individual reflection are described here through the lens of shared goals.

Rosenholtz (1991) described teacher collaboration as an outcome of unified thinking through shared goals. Shared goals have resulted in an environment that nurtures

either isolation or collaboration through mutual advice and assistance. School organization has either encouraged or created barriers to collaboration. The following workplace conditions have encouraged collaboration: (a) teachers' certainty of their own instructional practice and that of their school culture, (b) shared teaching goals, (c) involvement in the school's technical decisions, (d) school size and (e) socioeconomic status.

Rosenholtz (1991) identified high consensus schools as working environments where colleagues exhibited the belief that they were more effective collectively than separately. Actions were characterized as deliberate and purposeful. Teacher leaders in high consensus schools had specific characteristics and were described as "those who reached out to others with encouragement, technical knowledge to solve classroom problems, and enthusiasm for learning new things" (p. 208). In contrast, isolated schools were viewed as places that displayed very little evidence of moving forward. The workplace was bound by routines, norms of self-reliance, and teacher leaders played very different roles. Teacher leaders in isolated schools were skilled in the aspects of politics, the union, and the use of empathy.

In discussing leaders, Rosenholtz (1991) described the differing roles of principals in their schools. According to Rosenholtz, principals increased the reality of shared goals through the involvement of teachers in accumulating information about the goals, creating a network of teacher collaboration for reaching the goals, and establishing a culture of accomplishing the goals collectively. Principals accomplished this through the definition of instructional goals, selection and socialization of new teachers to the

school, determination of student behavior policies, and the development of evaluation criteria. The ways in which principals provided feedback, created opportunities for collaboration, and shared power that resulted in empowering teachers to make decisions that enhanced their work resulted in a workplace in which teachers faced with uncertainty about their practice asked for advice.

In collaborative schools where teachers were led by collaborative principals, teachers were collegially interdependent. They depended upon each other to improve and check their effectiveness in teaching and student learning. Teachers in collaborative schools with collaborative principals were also empowered to improvise. There was shared power evident by the principal working together with teachers to solve school issues. Principals in collaborative schools monitored progress and made decisions regarding the distribution of resources which included the use of teacher leaders. In an isolated school, however, principals expected teachers to manage their classroom problems. A teacher's attempt to solve either school or classroom problems was unwanted and discouraged. Their non-participation in making decisions provided little room for discretion, judgment, and choice, and teachers were left feeling discouraged, defeated, and lacking in creativity. The principals' need for control left no room for the collaboration that has been considered vital for teacher professional growth.

The final element, individual teacher reflection, has been described in the context of individual teachers' technical knowledge of teaching and their commitment as impacted in the workplace. As reported by Rosenholtz (1991), teachers' certainty about a technical culture and their own practice has contributed significantly to student learning

gains. The workplace can be described as a routine technical culture or as nonroutine technical culture. Routine technical cultures, also described as learning-impooverished, do not connect the lack of a standardized instructional practice evident among teachers with poor student performance. Teachers functioning in nonroutine technical cultures, also described as learning-enriched, see and desire new knowledge, techniques, and skills that are needed to meet the demands of diverse learners. Decreasing a teachers' uncertainty about the technical culture (routine versus nonroutine) can be accomplished in through positive feedback, encouragement, and support in continuing with their efforts to reach instructional goals. Uncertainty can also be decreased by providing resources that strengthen technical knowledge to solve problems, involve parents in student learning, and increase student engagement through established management policies. What teachers believe can then become their reality.

Rosenholtz (1991) determined that three workplace conditions made up 76% of teachers' commitment and their fulfillment: (a) teacher autonomy and discretion, (b) opportunities to learn, and (c) psychic rewards described as rewards outweighing frustrations. The conditions that influenced learning opportunities for teachers occurred in four ways: (a) goal setting for improvement in instructional strategies that targeted student basic skill mastery, (b) identification of specific improvement needs through principal evaluation, (c) shared teaching goals, and (d) collaboration. She found that regardless of teacher-student ratio or the extent of the professional learning opportunity, the more learning opportunities for teachers, the higher the performance gains of students.

Rosenholtz (1991) also found teachers' beliefs regarding the time needed and the details of their professional learning paralleled that of their workplace environment. This placed teachers on a continuum of schools where at one end of the continuum it was believed that personal learning of adults sustained learning to meet the needs of diverse learners. In contrast, and at the other end of the continuum, there were teachers and schools where it was believed that professional learning had a beginning and an end. In schools with enriched learning, the results were due to individual teacher learning accomplished in partnership with colleagues. Struggling teachers were met with teacher and principal feedback for improvement, advice, support, and assistance. Teachers were renewed by their capacity to be creative and to be problem solvers. In learning impoverished schools, success was attributed to creative activities, or personal traits or gifts. Struggling teachers were provided with little to no intervention for improvement. Teachers were renewed by the use of material resources or practices that required little effort. Teachers who lacked learning opportunities, task autonomy, and psychic rewards struggled with motivation and commitment. As noted by Rosenholtz ,

. . . most lost faith in their talents and values; they no longer cared enough to devote their energies to doing good works; they became so despairing that they couldn't recognize the consequences of abandoning their students. It was an appealing idea to them under the circumstances to simply let go. (p. 209)

Rosenholtz (1991) stated, "It is far easier to learn to teach, and to learn to teach better, in some schools than in others. It means that students in learning-enriched schools profit more in their mastery of basic skills" (p. 104). This study was conducted to better understand the relationship of the work environment or professional learning community culture of the selected schools and the impact it might have on student achievement.

Research Questions

1. What is the relationship between a school's level of implementation of professional learning communities and students' performance in reading, mathematics, and science on the Florida Comprehensive Assessment Test (FCAT) in 2009?
2. What is the relationship between a school's level of implementation of professional learning communities and students' learning gains in reading and mathematics on FCAT in 2009?
3. What is the relationship between a school's level of implementation of professional learning communities and the learning gains of the lowest 25% of students on FCAT reading and mathematics in 2009?
4. What is the relationship between a school's overall level of implementation of professional learning communities and Adequate Yearly Progress in 2009?

Definitions

The following terms were defined to assist in clarifying concepts and processing utilized in this study.

Adequate Yearly Progress (AYP)--Adequate Yearly Progress is required of the states by the No Child Left Behind Act of 2001 to determine student progress toward meeting the state's academic achievement standards, and expressed as adequate yearly progress for schools, districts, and the state. It measures performance and participation of

subgroups based on race or ethnicity, socioeconomic status, disability, and English proficiency (Florida Department of Education, *2009 Guide to Calculating AYP*, 2009a).

Area Superintendent--An area superintendent reports to the Superintendent, manages the schools within the Learning Community, and provides necessary support services and assistance to principals, teachers, and students to achieve district desired results in an efficient and effective manner. (Orange County Public Schools, Orange County Public Schools Job Description, 2007)

Culturally Embedded Collaborative Work--PLCs collaboratively identify important problems and/or opportunities related to professional practices, investigate solutions and enhancements, choose and test appropriate research-based practices through relevant and rigorous lessons, and openly share results. Communal reflection and dialogue are integral parts of the team's work. Such reflection leads to a coordinated strategy to respond when some students do not learn (Schmudde, 2008).

Culturally Embedded Commitments--High standards for students', teachers', administrators', and parents' performance are declared and monitored. Evidence that all members are steadfast in their belief that all (a) can and will learn at high levels, (b) are willing to do what is necessary to learn at high levels, and (c) are willing to do what is necessary for all to meet high standards. Struggling learners are required to receive extra support until they are successful. PLCs submit products that result from their collaborative work as documentation of student learning (Schmudde, 2008).

Culturally Embedded Lead Learner--Leaders are models of continuous learners, publicly asking themselves and others important questions. As partners in a defined

solution seeking process, these leaders are comfortable with early ambiguity and shared decision making. Appreciating the uniqueness of each learner, PLC leaders offer opportunities that leverage the strengths of each individual and celebrate incremental achievement (Schmudde, 2008).

Culturally Embedded Meeting Context—All PLC activities are focused on student learning aligned with the standards. PLCs meet frequently as part of the regular school schedule. Professional development design models (see *Professional Designs for Professional Learning, NSDC*) are differentiated and chosen according to participant needs and inquiry content. Terminal satisfaction is nonexistent (Schmudde, 2008).

Culturally Embedded Reflective Practitioners--Each PLC member actively implements research-based practices, accesses learning and records results. Effectiveness is judged on student achievement results. Individual members feel responsible for the success or failure of all students served by the team. Individuals work to replicate successful practices in their classrooms. Feedback is sought and welcomed. Participants continually examine their professional practice through personal reflection and pursue professional growth through a variety of appropriate models (Schmudde, 2008).

Culturally Embedded Resource Provider--Leaders provide knowledge, skilled facilitation and adequate time resources. Historical and current data is accurate and readily available. The leader proactively sculpts a school culture that is safe for critical examination and innovation where temporary failures are recognized as part of the learning process (Schmudde, 2008).

Florida Comprehensive Assessment Test (FCAT)--The FCAT is Florida's statewide educational assessment of student achievement. It includes Grades 3 (reading and mathematics), 4 (reading, writing, and mathematics), 5 (reading, mathematics, and science), 6 (reading and mathematics), 7 (reading and mathematics), 8 (reading, writing, and mathematics), 9 (reading and mathematics), 10 (reading, writing, and mathematics), and 11 (science) with item types including multiple-choice, gridded-response, essay, and short and extended response items (Florida Department of Education, 2005).

In Name Only Collaborative Work--Conversations center around "What are we expected to teach?" rather than "How do we know when each student has learned?" Teams sporadically engage in the explanation of new instructional strategies. Occasionally a few members share practices with the team (Schmudde, 2008).

In Name Only Commitments--Politically correct lip-service is given to the commitment all students achieving high standards. However, informal conversations frequently evidence the placement of blame on students, families and situations for inadequate performance (Schmudde, 2008).

In Name Only Lead Learner--Leaders require team members to participate in PLC meetings and related professional development but rarely participate themselves. Leadership roles are open for a favored few. While willing to listen to staff input, the administration ultimately makes broad-based curriculum/instructional decisions (Schmudde, 2008).

In Name Only Meeting Context--Congeniality is mistaken for collaborative work. Meetings lack formal structure for group processing and are often consumed by

operational and procedural issues. Successes are celebrated, failures are hidden (Schmudde, 2008).

In Name Only Reflective Practitioners--Personal goals focus on implementation rather than results. Comfortable instructional routines are justified. Individual team members feel successful and satisfied when the achievement of their students surpass that of their teammates (Schmudde, 2008).

In Name Only Resource Provider--“We just can’t find enough time” is an accepted excuse for infrequent meetings. Knowledge resources are often in the form of packaged programs that have not been customized to local needs (Schmudde, 2008).

Intentionally Structured and Enforced Collaborative Work--PLCs regularly examine and analyze data. Many members approach this work with a sense of compliance rather than commitment. While conversations are centered on student achievement, at times they lack candidness and depth. The resulting instructional responses are often uncoordinated and individualistic (Schmudde, 2008).

Intentionally Structured and Enforced Commitments--Members commit to a high level of achievement for all students (who want to learn). Evidence that members are willing to do whatever is necessary for all learners is limited. Some interventions for struggling learners are in place, but participation is encouraged rather than required. Documentation of student learning is limited to that required for individual teachers (Schmudde, 2008).

Intentionally Structured and Enforced Lead Learner--Leaders clearly support the professional development of the staff but only sporadically participate in PLCs. While

some shared decision-making occurs, structures for the process are not clearly defined and/or consistently used (Schmudde, 2008).

Intentionally Structured and Enforced Meeting Context--A formal structure for group processing is facilitated by a leader who is responsible for reporting results. However, participants tend to view PLC meetings as another obligation to be met rather than a source for professional support and nurturing (Schmudde, 2008).

Intentionally Structured and Enforced Reflective Practitioners--Individuals are willing to accept that their instructional techniques may be part of the problem. Nevertheless, rather than taking personal responsibility for improving their practices, they tend to view professional development as “something they attend” rather than personally desired opportunities for professional growth (Schmudde, 2008).

Intentionally Structured and Enforced Resource Provider--Time for collaboration is scheduled and data are reviewed. However; the sessions often become exercises in “show and tell” rather than authentic inquiry that utilizes research, studies new approaches, and examines the results of the strategies implemented in an open supportive forum (Schmudde, 2008).

Learning Gains--FCAT scores are utilized to determine a year’s learning in a year’s time, calculated using three different methods (improvement in proficiency level, maintaining proficiency level, and developmental scores) comparing each student’s prior year test score to the current one (Florida Department of Education, *2009 Guide to Calculating School Grades*, 2009b).

School Accountability Report Analysis--This analysis is a district generated report obtained from the Florida Department of Education's School Accountability Report from the 2008 FCAT for the purpose of reporting the effectiveness of a single school.

Methodology

Qualitative and quantitative methods were utilized in determining the relationship between the professional learning communities in the present study and the expectations held for the academic achievement of students. The School Accountability Report Analysis was used in studying FCAT results in reading, mathematics and science to determine student proficiency and learning gains. Variables were also investigated to determine if any single variable or combination of variables were related to the percentage of the criteria that were met for Adequate Yearly Progress by schools that voluntarily and purposefully created professional learning communities at their schools. A rubric was utilized by principals to determine faculty perceptions of the level of implementation of the characteristics of professional learning communities.

Results were related to the School Accountability Report Analysis. Results were also related to the percentage of criteria met for Adequate Yearly Progress (AYP) defined in *Meeting Adequate Yearly Progress for the Requirements of No Child Left Behind* by the Florida Department of Education as the following:

Not making adequate yearly progress does not mean that a school is failing. It means that the school has not met a certain standard for at least one group of students. These measures include reading, mathematics, writing, graduation rate and whether or not the school tested enough students in each group. (p. 1)

Groups, also referred to as subgroups, included the racial groups of white, black, Hispanic, Asian; socioeconomic status; English language learners; students with exceptionalities; and the lowest 25%.

Study Population

The total sample population of the study consisted of 24 K-12 public schools actively focused on the creation of professional learning communities. Of the 24 schools representing elementary, middle and high school structures, 14 were part of an area organization functioning as a large professional learning community facilitated by an Area Superintendent. These schools, representing 10 elementary schools, 3 middle schools, and 1 high school, engaged in face to face dialogues as well as online discussions regarding professional learning communities using selections from *Schools That Learn* (Senge, 2000). The remaining 10 schools representing 8 elementary schools, 1 middle school, and 2 high schools, within the same public school district, functioned as independent learning communities at each of their sites. As part of their self-selected learning, personnel from most of the schools, representing elementary, middle, and high, attended a week-long professional learning community summer institute provided by district staff for school teams in 2008. The structure of the institute opened each day with a session on the components of professional learning communities (Dufour & Eaker, 1998) and creating a culture for professional learning (Barth, 2003). Breakout sessions provided choice and differentiation for participants on deeper knowledge and

understanding of professional learning designs (Easton, 2004). The total sample population included 18 elementary schools, four middle schools and two high schools.

Instrumentation

The Professional Learning Community Rubric (Appendix A), designed by an outside consultant (Schmudde, 2008) for use in the district in which the present study was conducted, was utilized to measure the implementation of professional learning communities. The instrument was developed based on the research of DuFour and Eaker (1998), professional learning designs (Easton, 2004), the Florida Professional Development Protocol (Bureau of Educator Recruitment, 2006), and adult learning theory. The Professional Learning Community Rubric consisted of a total of 18 statements describing the focus on shared goals, leaders, teams, and individual members. The instrument enabled a separate description of each of the factors, placing workplace behaviors or constructs on a professional learning community continuum. The lower end of the continuum indicated that the professional learning community existed in name only. At the midpoint, the professional learning community was intentionally structured and enforced. At the high end of the continuum, the professional learning community was determined to be culturally embedded.

The School Accountability Report Analysis was utilized to determine if schools performed above, at, or below expectation predictions statistically projected based on historical FCAT data. In addition, Adequate Yearly Progress (AYP) reports for the 2008-2009 school year were downloaded from the state database to determine percentages of

criteria met, matching the academic period in which the rubrics were administered for the participating schools. The research questions and the sources of data are presented in Table 1.

Table 1
Research Questions and Sources of Data

Research Questions	Data Sources
1. What is the relationship between a school's level of implementation of professional learning communities and students' performance in reading, mathematics, and science on the Florida Comprehensive Assessment Test (FCAT) in 2009?	Professional Learning Communities Rubric School Accountability Report Analysis
2. What is the relationship between a school's level of implementation of professional learning communities and students' learning gains in reading and mathematics on FCAT in 2009?	Professional Learning Communities Rubric School Accountability Report Analysis
3. What is the relationship between a school's level of implementation of professional learning communities and the learning gains of the lowest 25% of students on FCAT reading and mathematics in 2009?	Professional Learning Communities Rubric School Accountability Report Analysis
4. What is the relationship between a school's overall level of implementation of professional learning communities and Adequate Yearly Progress in 2009?	Professional Learning Communities Rubric Florida School Grade Adequate Yearly Progress report from the Florida Department of Education website

Data Collection

The database used in the study included the following variables: (a) free/reduced lunch percent, (b) level of implementation ranging from 1 (in name only) to 3 (culturally

embedded) for focus, leader, team, and individual, (c) overall level of implementation ranging from 1 (in name only) to 3 (culturally embedded), (d) actual score of percent meeting standards, (e) residual score between actual and predicted score (Standards and Learning Gains), and (f) Adequate Yearly Progress percentage of criteria met. All Professional Learning Community Rubrics were collected from schools during the 2008-2009 school year. The School Accountability Report Analyses for 2008 and 2009 were downloaded in the summer of 2009. The Florida School Grade Adequate Yearly Progress 2009 Report was downloaded in November 2009.

Data Analysis

The first analysis performed was of a descriptive nature. Data for 2007-2008 School Accountability Report Analysis were disaggregated using the 2008-2009 School Accountability Report Analysis to determine where the proficiency of participating schools fell in the (a) above expectation, (b) at expectation, and (c) below expectation categories prior to implementation of professional learning communities in the schools. Data for 2008-2009 were then disaggregated using the 2009-2010 School Accountability Report Analysis to determine where participating schools fell in the above, at, and below categories after implementation of professional learning communities. This enabled a determination of any change in the proportion of schools in each of the three categories.

The second analysis was performed to determine how two variables were related. Lomax (2007) stated that the Pearson Product-Moment Correlation Coefficient denotes the direction of a relationship (positive or negative) as well as the strength of the

relationship. For this study, the variables for professional learning communities included (a) the focus of commitments, (b) the leader as a learner, (c) the leader as a resource provider, (d) the context of team meetings, (e) the collaboration of teams, and (f) the reflective practice of individual teachers. The implementation was related to the criterion of: (a) actual score of the percentage of students meeting proficiency in reading, mathematics, and science, (b) the actual score of the percentage of students making learning gains in reading and mathematics, (c) the actual score of the percentage of students in the lowest 25% making learning gains in reading and mathematics, and (d) the percentage of criteria met for achieving Adequate Yearly Progress.

Delimitations of the Study

This research was delimited to 24 of 170 public elementary, middle, and high schools in a large urban district. The selected schools were among one of two groups of schools deliberately focusing on the implementation of professional learning communities. Schools included in the study were those that were seeking support from the district in the implementation of professional learning communities through a district-wide invitation. Schools also included those working with an area superintendent to purposefully implement professional learning communities. While other schools may also have been working toward a similar goal, they did not self-select to be part of the present study.

Data that had been collected as part of existing initiatives beginning in 2008 were used in this study. The instrument utilized to gather data about professional learning

communities was designed for prior use in the district and was largely based on the research of DuFour and Eaker (1998) and Easton (2004). The desired outcome was delimited to examining the relationship between (a) the level of implementation of the characteristics of professional learning communities, (b) expected student performance, and (c) the school's percentage of criteria met for AYP. The data used in the analyses were based on the perceived existence of implementation and did not include observations or evidence of implementation.

Limitations of the Study

This study was conducted to provide an initial examination to determine trends or patterns in the characteristics and implementation levels of professional learning communities. The purpose was to determine if differences existed among the 24 schools intentionally focusing on learning as a professional community. One limitation was related to instrumentation used in the study. The researcher used pre-existing data which had been gathered using the Professional Learning Community Rubric, an instrument designed within the district for district use. Though it was developed based on the work of several researchers, reliability had not been tested.

Significance of Study

This study was conducted to determine the extent to which there was a relationship between schools functioning as professional learning communities and their ability to achieve proficiency in reading, mathematics, science, and Adequate Yearly

Progress (AYP), as required by federal and state mandates. This information should be useful to state department of education accountability decision makers.

AYP frequently is used to determine the degree to which schools meet the needs of all students. Information contributed by this study could contribute to validating the belief that professional learning communities are a vehicle to increase student achievement.

Additionally, the Differentiated Accountability (DA) Model in Florida has required Schools In Need of Improvement (SINI), as determined by AYP, to function as professional learning communities. Florida was one of six states selected by the U.S. Department of Education on July 1, 2008 for the DA Model (Florida Department of Education, Florida's Differentiated Accountability Model Guidance for Implementation 2008-09 School Year, 2008). It aligned and integrated Florida's accountability system with the Federal No Child Left Behind accountability demands. The purpose of the DA model was to provide a support system through a state regional delivery of services, intervention, and monitoring. Schools entered the model based on Adequate Yearly Progress and the school grade, excluding from the model schools with grades of A, B, C, or ungraded that achieve 100% of AYP criteria for two or more consecutive years or have not missed AYP for two consecutive years. For the state of Florida, for 2009-10 based on 2008-09 school grades and AYP designations, 976 of the 3,355 Title I and Non-Title I were not included in the model based on the above criteria. DA categories include: Prevent I, Prevent II, Correct I, Correct II, Intervene, and Schools not in DA, with Intervene schools as the most impacted with the state directing districts to choose one of

four reconstitution options. (Florida Department of Education, Florida's Differentiated Accountability Plan, 2009c). This places schools on a continuum of requirements regarding state/district implementation and monitoring. Monies and resources in districts were allocated and redirected based on these requirements. The findings of this study were intended to provide additional data about the impact of professional learning communities on student and school performance and could be helpful to district decision makers in making decisions regarding the allocation of resources.

At the school level, the findings of this study were intended to assist school leaders and their staffs as they seek to implement or to evaluate their ongoing efforts in building school cultures through professional learning communities for the purpose of improving the achievement of their students.

Summary

This chapter has provided an overview of the study. Included were a statement of the purpose, the conceptual framework for the study and the research questions. Also addressed were the methodology, instrumentation, population, and data collection and analysis procedures used in conducting the study. The limitations and significance of the study were also presented. The review of the literature is presented in Chapter 2. The focus of Chapters 3, 4, and 5 is on data related to the research and was intended to add to the body of knowledge as relevant to professional learning communities and student achievement.

CHAPTER 2 REVIEW OF LITERATURE

Introduction

Professional learning communities have been viewed as one design to assist teachers in their quest to positively impact student achievement. Additional research is needed to assist in determining the relationship, if any, between teacher behavioral indicators or constructs of a professional learning community and expected performance of schools in terms of student achievement. The purpose of this study was to determine the relationship between (a) the teacher behavioral indicators or constructs of selected professional learning communities during implementation and (b) the expected performance of schools including Adequate Yearly Progress within the learning communities in 24 Orange County Public Schools (elementary, middle, and high) in Florida.

Conclusions drawn from researchers such as Fullan (2006) and Reeves (2006) have provided encouragement for educators who have come into the teaching and leadership profession aspiring to make a difference. As stated by Davenport and Anderson (2002) in the description of actions taken in closing the achievement gap in the Brazosport Independent School District located in Texas, “ Our challenge was never clearer: *We had to teach the kind of student that we had not taught before, and we had to believe that we could* (p. 39)”. Though many design patterns emerged in an examination of researchers’ findings addressing student achievement and professional learning communities, commonalities were also identified. These commonalities describing

professional learning communities could be placed in one of the following four categories: focus on shared goals, leader, team, and members. This chapter has been organized to present: (a) an understanding of the implications of a focus on shared goals that create a collective sense of purpose, (b) an understanding of the implications of the role of leaders in creating a culture for professional learning, (c) an understanding of the implications of collaborative teams, and (d) an understanding of the implications of individual members and their personal commitment to student learning. Professional learning communities require the establishment of a sense of urgency through a focus on student learning, a leader who shares decision making and creates a culture that supports the work, a team that is collaborative and focuses on student learning, and individual reflective teachers (DuFour & Eaker, 1998; Hord & Sommers, 2008;). Accomplishing this enables students and teachers to continue learning in an ever changing world, giving them the ability to examine and reframe their thinking as it relates to those changes (Hord & Sommers).

Professional Learning Communities

It was important to provide a description of the complexities associated with professional learning communities before examining the dimensions necessary for creating and sustaining them. Schools and organizations have often been described using colorful metaphors that present pictures of living, breathing entities. Bolman and Deal (2003) declared them to be “living, screaming political arenas that host a complex web of individual and group interests” (p. 186). Senge (2000) cautioned against the use of the

industrial-age notion of control and offered this image, “A living system controls itself. A machine is controlled by its operator. Teachers, administrators, and boards can easily become the operators of the machine called school” (p. 44). In describing these complex and colorful entities, schools have been characterized as having human-like qualities with the ability to achieve and behave in specific ways when operating as a professional learning community.

According to Waters and Cameron (2007), schools need a purposeful community which differs from a professional learning community and occurs outside education. This purposeful community has within it an additional component of collective efficacy described as a shared perception of competence. Fullan (2006) charged that a school’s ability to obtain collective efficacy was achieved by simultaneously developing new knowledge and competency, resources, and motivation and commitment for improvement. Hord (2004) described a professional learning community as “not a program or plan, but it provides a structure for schools to continuously improve by building staff capacity for learning and change” (p. 14). Senge (2000) defined professional learning communities as places that:

can be re-created, made vital, and sustainably renewed not by fiat or command, and not by regulation, but by taking a learning orientation. This means involving everyone in the system in expressing their aspirations, building their awareness, and developing their capabilities together. (p. 5)

Each description characterizes a school as having the collective ability to grow and change. Thompson, Gregg, and Niska (2004) expressed the belief that becoming a professional learning community requires the understanding and practice of Senge’s (2000) five disciplines and systems thinking. Senge described the disciplines of shared

vision, personal mastery, team learning, mental models, and systems thinking as necessary practices through which organizations learn. Hord and Sommers (2008) described systems as five components emerging from the literature and identified attributes as the following: (a) shared beliefs, values, and vision, (b) shared and supportive leadership, (c) collective learning and its application, (d) supportive conditions, and (e) shared personal practice.

Wagner and Kegan (2006), in documenting strategies used to improve instruction and raise achievement for all students, outlined seven practices for a system of instructional improvement. This blueprint identified seven practices for strengthening instruction systemically: (a) urgency for instructional improvement using real data, (b) shared vision of good teaching, (c) meetings about the work, (d) shared vision of student results, (e) effective supervision, (f) professional development, and (g) diagnostic data with accountable collaboration. Wagner (2008) added another description of systemic thinking and characterized it as a theory of action. He suggested the use of essential questions related to determining: (a) the real problem, (b) importance of the problem, (c) strategies to be used in the solution, (d) reasons for strategy selection, (e) evidence needed to indicate success, (f) accountable person(s), and (g) resources required to implement strategy. McFadden (2009) indicated that outperforming school districts recognized by the Broad Prize for Urban Education for their ability to close the achievement gap were able to “consistently demonstrate a learning loop that influences the district’s ability to learn, which ultimately influences student opportunities to learn”

(p. 1). This was accomplished through the development of an organizational learning cycle.

Thus, for the purposes of this study, a professional learning community was described as the way(s) an organization works together as a learning organization with a focus or a shared understanding of the purpose of the organization. Included in this description were (a) the qualities or indicators applicable to leaders, (b) the manner in which teams work and collaborate together, and (c) individual responsibilities of teachers, all working together to ensure student success based on the work of Darling-Hammond (1996), Hord (1997, 2004), McLaughlin and Talbert (1993), Rosenholtz (1991), Senge (1990).

School Focus

Senge's (2000) disciplines are practitioner tools and strategies, based on theory, that have the intention of developing capacity and results. Shared vision and systems thinking are two disciplines that have relevance for focus. A shared vision establishes a focus on a mutual purpose. It is a tool and technique aligning the aspirations of the parent, teachers, principal, and child around their common connection- school. In this regard, Senge stated, "catalyzing people's aspirations doesn't happen by accident; it requires time, care, and strategy" (p. 72). There are three purposes associated with shared vision: Shared vision (a) gives voice to current problems and concerns; (b) generates hope, momentum and mutual trust through conversations sharing hopes and dreams for

children and the community, (c) calls upon individuals “to come together to think and act, with the power they already have, about the things that are important to them” (p. 291).

Through systems thinking, stakeholders understand their interdependence and the effects of change. Hord (2004) described shared values and vision as an “unwavering commitment to student learning that is consistently articulated and referenced in the staff’s work” (p. 7) and identified shared values and vision as characteristic of academically successful professional learning communities which would evolve over time through shared work (Hord & Sommers, 2008). Systems thinking has been useful in framing the learning and enabling decisions to be made regarding management of time and resources as well as topics for discussion. According to McFadden (2009), the mission and vision of districts’ supported structures that engage individuals and teams in the continuous improvement effort.

Reeves (2006) emphasized the importance to leaders and their teams of providing support for focus. Reeves utilized a correlation analysis in a Planning, Implementation, and Monitoring Study. A strong relationship was shown between the improvement of planning, monitoring, and implementing and improved student achievement. This led to Reeves’ insight that though educators cannot change student characteristics, they can influence gains in student achievement. According to Strahan (2003), it was the data-directed dialogue, guided by assessment systems and informal observations, that drove student success and created collective efficacy.

In reviewing the literature, focus, purpose, or shared goals have often been closely connected to some type of progress monitoring. Hord and Sommers (2008) described

monitoring as a continuous cycle of reflection, learning, and assessment. While focus could include an infinite number of ways to communicate desired student outcomes, there are trends in monitoring that have resulted in transforming schools into places of learning with outstanding gains in achievement and equity.

Reeves (2006) analyzed student achievement, teaching practice and leadership planning as it affected 300,000 students in more than 290 schools. He identified trends in common assessments, interventions, and transparency as vehicles to success. Common assessments held students and adults accountable for learning. The use of common assessments drove instructional decisions of teachers and feedback for students and allowed for immediate and targeted intervention. The data were also used to celebrate effectiveness and make teaching practice transparent through peer observation based on teacher results. Reeves believed that educators could influence achievement through the use of monitoring practices such as these. Similarly, Davenport and Anderson (2002) described the Eight Step Process as a cycle of data-driven decisions for improvement. The steps consisted of : (a) test score disaggregation, (b) time line development, (c) instructional focus, (d) assessment, (e) tutorials, (f) enrichment, (g) maintenance, and (h) monitoring. Their model resulted in a minimum of 90% subject mastery of state standards for all students groups at all 18 sites in the district.

Reeves (2006), also challenged existing myths and the purpose of grading. Existing myths included thinking that: (a) teachers in unsuccessful schools are happy doing what they are doing, (b) resistance to change is caused by fear, (c) full buy-in is necessary before change can be made, (d) change must be based on perfect research, and

(e) a plan for change must be perfect before implementation. The purpose of grading must also be the focus of conversation. There must be discussion that results in a consensus of what proficiency looks like, the use of zeroes, averages, accurately capturing learning, and the significance that behavior plays in the assignment of grades. Challenging these long-held beliefs guides the determination of shared goals and focus for learning.

Visscher and Witziers (2004) investigated Dutch secondary departments organized as professional learning communities. They found that some professional learning community practices impacted student learning. These included policy and evaluation variables that described attempts to standardize teaching activities as well as the number of common tests, using results to improve teaching, and monitor learning.

This notion of monitoring does not only apply to student learning, but must also drive the learning of professional learning communities. It should include formally assessing the professional learning community. As Hord and Sommers (2008) advocated, “One of the first steps in building the capacity for learning is a ruthless assessment of reality” (p. 86). The process is achieved through the utilization of an assessment instrument that provides insight on how individuals perceive the functioning of the professional learning community. Responses are aggregated, ensuring rigor and operating on information, not just opinions. This mechanism for monitoring the adult learning around a focus on shared goals provides a professional learning community data to understand and facilitate the appropriate changes. In Strahan’s (2003) description of three successful schools, the transformation began with an established agenda that addressed

student needs and began the conversations on the topic of instruction. According to Hord and Sommers, the process of change begins with the articulation of a shared vision by the leader.

Leadership and Student Achievement

A second theme in increasing student achievement through professional learning communities examined the behaviors or expectations of an effective leader. The Mid-continent Research for Education and Learning (McREL) published a meta-analysis using 69 studies investigating school-level leadership and their effects on student achievement (Waters & Cameron, 2007). Three major findings were reported. The first was a statistically significant correlation between school-level leadership and student achievement. The second finding was a correlation of 21 leadership responsibilities with student achievement. The third finding illustrated the need for looking beyond the leader. It was found that some principals with identified school-level strengths in leadership led in schools that produced below average student achievement. Two possible explanations were posed. The first related to principals who focused on practices that did not impact student achievement. The second concerned the effects of change on stakeholders as a result of improvement efforts of leaders.

In examining principal practice, Reeves (2006) shared a comprehensive process grounded in a leader's ability to deeply understand achievement results. Leaders fell into one of four quadrants of his Leading and Learning matrix which was designed to describe leader understanding of excellence as it relates to student achievement. A Lucky Leader

has high achievement, but minimal understanding of why it occurred, making a repeat performance unlikely. A Losing Leader also does not understand what has occurred but continues to produce low results due to changing everything with the exception of the critical indicators that make a difference. The Learning Leader is on the road to understanding the changes that need to occur, but results have yet to hit the target. The Leader, situated in the fourth quadrant of the matrix, gets the expected results, understands how they were achieved, and continues to find ways to improve. Hord and Sommers (2008) also emphasized the role of the administrator as learner and problem solver. In addition, Gilrane, Roberts, and Russell (2008) noted the necessity of administrators to be learners with their teachers. Strategies utilized by leaders that make a difference are those identified on the matrix for Learning Leaders and Leading Leaders. These strategies have implications regarding a leader's ability to create and maintain a focus that supports an effective learning community.

Also essential in redefining leadership and acknowledging its complexities is the examination of historical, analytical, and relationship models (Reeves, 2006). The historical model cautions that history, as communicated by the leaders themselves or by others, is viewed through the author's lens. A critical insight is that great communication skills are not synonymous with great leaders. The analytical model reminds leaders that everything that counts cannot be counted. Statistical relationships are important, but include only part of what is to be considered. Leaders must search for deeper insights by looking beyond the numbers.

The final model, based on relationships, addresses the delicate balance between maintaining positive relationships and the appropriate engagement in conflict. Bolman and Deal (2003) stated that a leader, through mutuality, generality, openness, and caring, must guide ethical choices by providing the roadmap, gathering support, and managing relationships that both support and oppose. Also essential is that the leader build an infrastructure allowing individuals to work to their potential as well as coordinating individual and group efforts. Initiatives are linked to the organization's goals. Hord (2004) clarified by stating that supportive and shared leadership, identified as power and authority, are characteristics of academically successful professional learning communities. Leaders ensure that the structural factors such as time, place to meet, resources, and the policies and relational factors that encourage trust and respect among members are in place (Hord & Sommers, 2008). This was evidenced in a case study evaluation of professional development conducted by Gilrane et al. (2008). They found that "in every data source analyzed--observations, interviews, focus groups, climate inventories, teacher questionnaires, and narratives--there is evidence for the importance of having support structures in place" (p. 339).

In addition, leaders who supported strong learning communities expressed a belief in the expertise of teachers and held an expectation that they would continually review current research and exemplary practices. Principals supporting professional learning communities also made data accessible and taught discussion and decision-making skills, showing teachers the research and taking the time to build trust (Hord & Hirsh, 2009). Hord and Sommers (2008) suggested several key ideas that build the capacity for honest

and open conversation and a willingness to “talk about real issues, in a trusting place, with other committed professionals” (p. 89), and are listed as the following suggestions: (a) Ask why before how, (b) learn and teach others, (c) action counts more than plans, (d) be kind to yourself, (e) reduce fear, (f) beware of the prophet who carries one book, (g) beware of false analogies, (h) measure what matters, and (i) remember they are watching. The behaviors or expectations of an effective leader engaged in learning can have a great impact on improving student achievement.

Professional Teams

A third essential component of professional learning is team learning. This concept acknowledges that leaders must have the support of followers. Leaders must maximize their strengths and create leadership teams possessing different strengths, resulting in teams with complementary strengths (Reeves, 2006). Buckingham and Clifton (2001) focused on the importance of identifying strengths inherent in individuals. According to these authors, the best managers operated on two assumptions: “Each person’s talents are enduring and unique. Each person’s greatest room for growth is in the areas of his or her greatest strength” (p. 8). They identified 34 prevalent themes of talent, with five dominant knowledge and skills themes for individuals. Talents were determined to often be revealed through spontaneous reactions under extreme stress, yearnings, speed in learning a new skill, and a sense of personal satisfaction. Talents, knowledge, and skills, combined to create strengths. Some strengths describe people, others are categories, and some represent qualities.

Table 2 displays the linkage between the work of Reeves, 2006 in regard to dimensions, Buckingham and Clifton (2001) in terms of strengths, and Hord and Sommers (2008) on the seven Cs which are “elements of effective leadership . . . related to encouraging, enhancing, and sustaining professional learning communities” (p. 32). As one example, Reeves’ dimension of visionary leadership is linked to change, one of Hord and Sommers’ Seven Cs, using strengths identified by Buckingham and Clifton. Similar linkages have been shown for the remaining dimensions of visionary, relational, systems, reflective, collaborative, analytical, and communicative leadership. The combined strengths enable leaders to provide leadership in situations where the Hord and Sommers elements of change, coaching, conflict, courage, collaboration, creativity and communication are required.

Table 2
Leadership Connections

Reeves' Dimensions	Buckingham & Clifton's Strengths	Hord & Sommers' Seven Cs
Visionary Leadership	Achiever, Activator, Command, Focus	Change
Relational Leadership	Competition, Developer, Empathy, Relator, Significance, Woo	Coaching
Systems Leadership	Adaptability, Arranger, Ideation, Learner	Conflict
Reflective Leadership	Belief, Connectedness, Context, Individualization, Input, Responsibility, Self Assurance	Courage
Collaborative Leadership	Deliberative, Fairness, Harmony, Inclusiveness	Collaboration
Analytical Leadership	Analytical, Discipline, Futuristic Intellectual, Maximizer, Restorative, Strategic	Creativity
Communicative Leadership	Communication, Positivity	Communication

Note. Sources of Leadership connections: Dimensions (Reeves, 2006), Strengths (Buckingham & Clifton, 2001), and 7 Cs (Hord & Sommers, 2008).

According to Reeves (2006), in order for leaders to maximize their strengths and to develop a team with complementary strengths, they must be aware of the leadership dimensions. The goal is not for the leader to possess all strengths but that the combined strengths of the leadership team reflect all of the dimensions. The dimension of visionary leadership is concerned with a clear, explicit vision that enables all team members to be on the same page with language and expectation and results in action that are targeted and focused. The dimension of relational leadership stresses the importance of

establishing relationships built on trust and an exhibit of passion for the mission and the team. The systems leader dimension identifies the most critical indicators or issues of the organization, monitoring and adjusting to avoid mishaps. The dimension of reflective leadership assesses work and examines mental models that lead to success or setbacks. In the collaborative leadership dimension, structured decisions are made unilaterally, collaboratively, or at the discretion of individuals. The dimension of the analytical leader stresses the importance of asking questions to understand, including nondiscussables. In the final dimension, communicative leadership, the use of technology and personal communication are combined to express gratitude, recognition, and appreciation. No leader possesses all of the dimensions; rather, successful teams collectively possess them all.

Hord and Sommers (2008) identified similar leadership elements, the Seven Cs, related to effectively supporting professional learning communities. Communication and an awareness of how messages are received is one element. Collaboration and coaching allow individuals and groups to benefit from learning. Change is led by leaders and because it is uncomfortable creates conflict that must be managed. Creativity is necessary to address new challenges created by implementing professional learning communities. The final element, courage, is necessary to “make the case for improving student outcomes, and continued courage to stay on message as to why the school is implementing a PLC” (p. 37).

In addition to a team possessing key leadership skills, the structure of a team impacts its effectiveness. Wagner (2008) described organizations as flat and

characterized by a network of cross-functional teams working together toward a common end goal. High performing teams in successful organizations have displayed the ability to flexibly restructure to meet the needs of the situation (Bolman & Deal, 2003). Collective learning and application of learning, another characteristic cited by Hord (2004), required the school team to collaboratively learn together and then apply new learnings to meet the needs of students through reflection and inquiry. For teachers in Strahan's study (2003), team meetings provided a structure through which the team identified needs, developed strategies for improvement, and connected learning from site based professional development to teacher practice. McFadden (2009), in discussing Broad finalist districts recognized for closing the achievement gap, noted that teacher teams utilized structured collaboration with peers to "review data, plan lessons, share effective instructional strategies, and promote topics of focus" (p. 5).

To support shared personal practice, members needed to learn the skills of visiting, observing, and giving feedback (Hord & Sommers, 2008). This occurred through what Senge (2000) described as team learning. The discipline of team learning as "a discipline of practices designed, over time, to get the people of a team thinking and acting together" (p. 73). Team learning was noted by Thibodeau (2008) in regard to a small community of high school teachers that resulted in improved student outcomes after collaborating with colleagues to integrate literacy strategy and content instruction. Strahan (2003) viewed teachers as bound together by story and building a culture of expectations and values that frame teaching and learning for new members. When uncertainty of how to meet the needs of learners occurs, colleagues look to each other for

suggestions and support. Thibodeau noted, “All of the teachers attributed their progress in changing their instruction at practices to their participation in the collaborative study group” (p. 61).

Individual Reflective Members

The fourth element of professional learning communities being addressed in this research is the role of the individual members of a professional learning community in the reflective use of strategies that increase student achievement. A meta-analysis brought forward high yield strategies that when utilized in the right way at the right time resulted in student learning gains (Marzano, 2001). Strategies included: (a) identifying similarities and differences, (b) summarizing and note taking, (c) reinforcing effort and providing recognition, (d) homework and practice, (e) nonlinguistic representations, (f) cooperative learning, (g) setting objectives and providing feedback, (h) generating and testing hypotheses, and (i) questions, cues, and advance organizers. However, Marzano (2009) stated, “Specifically, educators are making at least three mistakes when using the lists of strategies presented in our books (and other books like them). Left unchecked, these mistakes can impede the development of effective teaching in classrooms across the country” (p. 30). Mistakes included a narrow use of strategies, an assumption of use, and a guarantee of effectiveness. His suggestion was use of the strategies based on what teachers know about their students, their content, and the context of their classrooms. He advised schools and districts to establish a comprehensive common language for instruction that includes content, management, and learning context strategies. According

to Marzano (2009), content strategies should be used with lessons that involve new content, the practice and furthering of content, and tasks that are cognitively complex. Management strategies include routine activities communicating learning goals, student progress, and success and those that create and support the structure of classroom rules and procedures. Strategies also include those that are required for teachers to use in the context of student learning. These strategies assist teachers in engaging students, managing classroom rules and procedures, maintaining effective relationships with students, and communicating high expectations.

Marzano (2009) urged schools and districts to move beyond a list of strategies and to embrace

a comprehensive framework or language of instruction that is the basis for professional dialogue. In terms of providing teachers with feedback, the focus must always be on student learning and the perspective must always be that instructional strategies are a means to an end. (pp. 36-37)

Hord (2004) discussed the importance of teacher reflection and peer support in accomplishing shared practice supportive of individual and community improvement.

Reeves (2006) cited the need to understand the influence of educators and teams and to validate the belief that they can make a difference through implementation, execution, and monitoring.

Personal mastery and mental models are two of Senge's (2000) disciplines that have been applied to the individual. Personal mastery has been described as the articulation of a personal vision by individuals that communicate desired results for what they wish to create in life. Mental models have been used to develop the capacity to create a clear and honest reality through reflection and inquiry. This process paves the

road for individuals to have honest conversations regarding undiscussable subjects limiting a person's ability to change, paying attention "not only to the words, but the spaces between words" (p. 75).

Fullan (2006) stated that "the more you deprivatize teaching in a purposeful way, the more you improve teaching, learning, and student achievement" (p. 56). Collaborative professional learning experiences, as described by Thibodeau (2008), have influenced teacher instruction and colleague interaction and have had "considerable positive effects on the teachers' knowledge and instructional practices related to content literacy, on their students achievement and also on the larger organization of their school" (p.55).

McLaughlin and Talbert (1993) addressed the importance of context in teaching and learning in the following statement:

The nation's education goals embrace rigorous, "world class" standards of performance for all students; they express a systemic approach to reform which fosters coherence in the disparate elements of the education system. These ambitious goals for American education must be achieved on a classroom by classroom basis. Success for all students depends ultimately on what teachers do in the classroom, on teachers' ability and willingness to provide the kinds of educational environments necessary to meet the country's education goals. (p.5)

According to Strahan (2003) collaborative cultures found in professional communities provide caring spaces where teachers "invest great personal energy in their work. They also draw energy from each other and from the success they are achieving. Data-directed dialogue provides focus and support" (p. 144). Wagner (2006) added, relative to creating an urgency for change, that "data should be disaggregated by teacher, not to expose those who may be getting poor results, but rather to identify and learn from those teachers who are getting results far above average with comparable groups of students" (p. 76).

The interaction and relationships created through the four elements of focus, leaders, team learning, and individual reflective practice are at the very core of how schools learn. They dictate how professional learning communities function in individual buildings and provide for the creation of culture. Culture, both a product and a process, has been described by Bolman and Deal (2003) as the learning of how things are done. Bolman and Deal expressed their belief that “more and more teams and organizations realize that culture, soul, and spirit are the wellspring of high performance” (p. 298). Thibodeau stated that the transfer of team learning to individual colleagues within the school was “a first step in influencing the culture of the school and in raising the capacity of the entire organization” (p.62).

Researchers have shown that staff and students benefit from professional learning communities (Gilrane et al 2008, Keck-Centeno, 2008; Thibodeau, 2008; Thompson, Gregg, & Niska, 2004; Vescio, Ross, & Adams, 2008; Visscher & Witziers, 2004; Williams, Atkinson, Cate, & O'Hair, 2008). However, more studies are needed that connect academic outcomes to the elements present in schools organized as professional learning communities (Hord & Sommers, 2008). This can be accomplished by first identifying desired learning outcomes. From this, new knowledge, skills and behaviors for principals and teachers can be specified. Once identified, a design can be created that supports principal and teacher learning. When a culture of improvement is aligned with student learning outcomes, a determination can be made that the professional learning community has served its students.

Student Achievement and Professional Learning Communities

Several researchers have begun the work of connecting student achievement and schools organized as professional learning communities. For the present investigation, selected major primary studies, intermediate studies, and K-12 studies were systematically reviewed. Tables 3-10 present relevant information for each of the studies containing (a) the title of the study, (b) the setting, (c) the research question(s), (d) the process for linking student achievement and professional learning communities, and (e) findings. Analyzing the designs as well as the research framework enabled a systematic examination of the findings and allowed patterns to emerge.

Primary Studies

The Keck-Centeno (2008) and the Gilrane et al. (2008) studies were conducted to examine professional learning at the primary level. Shared characteristics included the identification of high poverty and similarities in data sources. Keck-Centeno conducted a case study in a school identified as an outperformer and then looked at prior activities and accomplishments. Three principals who had served as leaders during the period between 1998 and 2007 were interviewed. Teachers were also interviewed that had been at the school during the entire time period, some of whom had worked with the prior various principals and some who were new teachers. Archival documents were collected that supported the interviews. All of this information was then used to determine if the characteristics of a professional learning community as described using Hord's (2008) framework were evident over the designated 10-year time period. Findings supported the

connection between student achievement and the school organized as a professional learning community. The analysis of the Keck-Centeno study is presented in Table 3.

Table 3
Analysis of Keck-Centeno's Study (2008)

Study Elements	Descriptors
Title	Path to School Improvement: A Case Study of an Urban Elementary School
Setting	High poverty, urban elementary school of approximately 1000 students (75% Latino, 15% African American, 10% Asian/ Pacific-Islander/ white/ Filipino/ Native American) that maintained an upward trend of growth from 1995-2007; 50% English Language Learners; 80% free and reduced lunch.
Research Question	What organizational and instructional factors led to the improvement in academic indicators at Jewell Elementary School?
Process for Linking Student Achievement and Professional Learning Communities	<p>Sources of data:</p> <ol style="list-style-type: none"> 1. Academic Performance Index- composite score measuring annual student achievement growth of schools on the state Content Standards Test and the nationally normed California Achievement Test. 2. Interviews with principals and teachers 3. Archival documents <p>Framework: the five characteristics of professional learning communities identified by Hord.</p>
Findings	<p>Increasing teacher collaboration, implementing a professional learning community, and building collective efficacy enabled the improvement of teaching practices and student achievement.</p> <p>JES began with a baseline composite score in 1998 in the mid-500s. In 2007 it achieved over 750, with the goal set by the state for all schools at 800. JES outscored schools with similar student demographics every year.</p>

The analysis of a second primary case study conducted by Gilrane et al. (2008), is presented in Table 4. It was conducted to evaluate the effectiveness of professional development at a high-poverty urban elementary school. As part of a Reading Excellence

Act grant, Grades K-3 teachers concentrated their professional learning on developing effective literacy instruction tools. Data collected and analyzed through observations, interviews, focus groups, climate surveys, questionnaires, and teacher narratives revealed four conditions supporting teacher reflection and change. Identified conditions supported the connection between student achievement and schools organized as professional learning communities.

Table 4
Analysis of Gilrane, Roberts, and Russell's Study (2008)

Study Elements	Descriptors
Title	Building a Community in Which Everyone Teaches, Learns and Reads: A Case Study
Setting	16 Primary K-3 teachers in a K-5 rural high poverty school of 517 students in Southeastern United States. This professional development evaluation was part of a 2-year Reading Excellence Act grant.
Research Question	What are the patterns of phenomena that appear to support teacher growth and reflection in this project?
Process for Linking Student Achievement and Professional Learning Communities	Three sources of data were collected: <ol style="list-style-type: none"> 1. Observations 2. Interviews with classroom teachers, support, and administrators 3. Artifacts: Anonymous school climate surveys, questionnaires, focus groups, transcripts
Findings	Improved student learning was a requirement of the grant. It was determined, utilizing normed and criterion-referenced achievement data, that student learning improved. Pre and post comparisons at each grade level revealed significant numbers of students increased stanine scores by one or more. From a teacher's perspective, analysis of data indicated the following conditions as supportive of their growth, change, and reflection: <ol style="list-style-type: none"> 1. Empowered to identify professional development needs 2. Resources provided to support collaboration 3. Supported by administrators 4. Collaborative with peers in using data to celebrate.

A third primary study by Strahan (2008) was initiated to examine the collaborative culture at three high poverty schools in North Carolina. These schools were also part of the reform of the North Carolina Lighthouse Project that had been identified by researchers as high performing on a statewide achievement test that served students who were low performers. A case study using focus group interviews and observations of teachers teaching a lesson and participating in meetings with colleagues was constructed for each school. Archival records were also collected. A categorical analysis revealed themes for each school, and randomly selected participants at each school were interviewed. As a result, it was noted that change began with the determination of instructional practices based on student needs. Collective collaboration was based on data from formal and informal assessments, professional development aligned with data that identified areas of instruction necessary for improvement of student learning, and shared practice reflecting successes in the classroom. The result was a culturally embedded system for teaching and learning. Table 5 presents the analysis of Strahan's study.

Table 5
Analysis of Strahan's Study (2008)

Study Elements	Descriptors
Study	Promoting a Collaborative Professional Culture in Three Elementary Schools That Have Beaten the Odds
Setting	Three case studies of K-5 schools (79 total teachers in study) serving a total of 1,410 students in a high poverty area in North Carolina; more than 2/3 free and reduced lunch; 75% minority and 20% English Language Learners in North Carolina.
Research Question	What are the dynamics of school culture that shaped reform at each of these three schools?
Process for Linking Student Achievement and Professional Learning Communities	<p>Sources of Data:</p> <ol style="list-style-type: none"> 1. Demographic/achievement data (includes state achievement test) 2. Interviews with classroom teachers and administrators 3. Archival data
Findings	Improved student learning increased from less than 50% proficiency in 1997 to more than 75% in all three schools. Change began with a focus on student needs. Through dialogue and reflection, based on data from formal and informal assessments, teacher and student needs were identified and collaboratively met. The collaborative and consistently positive culture “expressed the moral purpose and ethical obligation that guided the work of teachers and administrators in these schools” (p. 142).

Intermediate Studies

The work of McLaughlin and Talbert (1993), summarized in Table 6, indicated that there were important ways in which secondary schools differed from one another. These were dependent upon the boundaries and degree of inclusiveness extended to one another and the strength of relationships and discourse about instruction. Also important were the culture in which priorities were determined and the norms that shaped

relationships with colleagues and students and defined good teaching. According to McLaughlin and Talbert, boundaries play a key role in differences in secondary communities. They are important to subject departments or cross disciplinary teams in creating a context within which students can succeed as a result of the team’s capacity to improve instruction. Intermediate studies provide deeper understanding in regard to the role of collaborative teams.

Table 6
Analysis of McLaughlin and Talbert Report (1993)

Study Elements	Descriptors
Study	Report for the center for Research in the Context of Secondary School Teaching
Setting	Longitudinal research combining public and independent school case studies from 16 high schools in Michigan and California utilizing national survey data from 900 teachers throughout 7 districts.
Research Question	How do context conditions affect high school teaching?
Process for Linking Student Achievement and Professional Learning Communities	<p>Sources of Data:</p> <ol style="list-style-type: none"> 1. Development of core data base made up of longitudinal data from 16 sites including: qualitative and quantitative data utilizing interviews, site records, and school and classroom observations, survey data at three time points, and qualitative and quantitative data for 48 students 2. Inclusion of special, focused research projects founded on the core data base or supported analysis with national survey data.
Findings	”It is within the context of a professional community, be it a department, a school, a network, or a professional organization- that teachers can consider the meaning of the nation’s education goals in terms of their classroom, their students, and their content area” p. 18.

Visscher and Witziers (2004) examined teacher perspectives in regard to mathematics departments in Dutch secondary schools that had been organized into

professional learning communities. The organization was found to be related to student achievement (Table 7). This particular study isolated factors contributing to achievement and resulted in an increase in student scores. It also supported the connection between professional learning communities and achievement.

Table 7
Analysis of Visscher and Witzier's Study (2004)

Study Elements	Descriptors
Study	Subject Departments as Professional Learning Communities
Setting	93 mathematics departments from Mavo schools (junior high) and Havo schools (senior high) previously participated in an assessment study were contacted to participate in this research. Thirty-nine were willing to participate.
Research Question	Do Dutch mathematics departments function as professional learning communities? Is there a relationship between practices in those departments characteristic of professional communities and student mathematics achievement?
Process for Linking Student Achievement and Professional Learning Communities	Baseline Assessment First Stage Secondary Education included a collection of data on secondary math education and student background data from 39 participating schools. Data from teacher surveys (66% return rate) were analyzed. Multilevel analysis, regression, and covariance were performed to determine relationships.
Findings	There was a small spread in opinions among teachers on tasks and functions within the department. Teachers had autonomy within the framework determined by the department. Managers had a small role in the teaching area. Gender and ethnicity were the most important predictors of mathematics achievement. There was a significant positive relationship between departmental policy and the degree to which the school leader was actively involved in the area of teaching and student achievement. 80% of the total variance was localized at the student level and 20% at the school level. Mathematics departments were characterized as efficient rather than as professional learning communities focused on developing teachers and improving learning.

Thibodeau (2008), in a second intermediate study, investigated student achievement from the perspective of secondary teachers. He focused on eight high school teachers who volunteered to participate in a collaborative study group to determine the benefits for teachers as well as students. In this study, the researcher was able to connect increased student outcomes with teachers that received job-embedded support (Table 8).

Table 8
Analysis of Thibodeau's Study (2008)

Study Elements	Descriptors
Study	A Content Literacy Collaborative Study Group: High School Teachers Take Charge of Their Professional Learning
Setting	Eight high school teachers volunteered to participate in a study group as a way to receive ongoing job-embedded support.
Research Question	Can interdisciplinary collaborative groups benefit teachers as well as their students?
Process for Linking Student Achievement and Professional Learning Communities	A total of 98 students (grades 9-12) in participating classes were given a baseline survey and content-based assessments developed collaboratively. Teachers used classroom texts modeled after state criterion referenced tests of nonfiction reading given annually to 10 th graders. Assessments were administered in the fall with spring follow-up assessments.
Findings	Student scores on the content-based open-ended questions increased by an average of 16.2%. Students reported an increased independent use of the target strategies.

K-12 Studies

In addition to primary and intermediate specific studies, professional learning communities were also investigated across schools levels. The K20 Center for Educational and Community Renewal at the University of Oklahoma (Williams et al. 2008) utilized a systemic change model. After being awarded a Bill and Melinda Gates Foundation state leadership development grant, technology integration was utilized as the vehicle to build leadership capacity through professional learning communities and job-embedded professional development. The result was a network of learning communities across Oklahoma impacting over 40,000 students. It also supported the connection

between professional learning communities and achievement. The analysis of this study is presented in Table 9.

Table 9
Analysis of K-20 Study (Williams, Atkinson, Cate, & O'Hare, 2008)

Study Elements	Descriptors
Study	Mutual Support Between Learning Community Development and Technology Integration: Impact on School Practices and Student Achievement
Setting	Phase I: 800 head principals and superintendents in Oklahoma attended a year-long (75 hours) professional development leadership program focused on inquiry, discourse, equity, authenticity, leadership, and service as well as technology integration strategies. Those completing served as cluster coaches for groups of 20. Phase II: 97 grant recipient schools across Oklahoma (Phase I participants were eligible to apply for a competitive grant of \$40-50,000 for technology, \$4,000 for release time for teachers, and 1 year of professional development support from the K20 Center)
Research Question	What is the impact of mutual support between learning community development and technology integration on school practices and student achievement?
Process for Linking Student Achievement and Professional Learning Communities	Sources of data: <ol style="list-style-type: none"> 1. Increases in professional learning community indicators such as shared vision, collective learning, and peer observations. 2. Progress towards Oklahoma's accountability measure, the Academic Performance Index, a formula for determining adequate yearly progress.
Findings	K20 partner schools had a 74% greater increase in the Academic Performance Index than the state's average increase.

In addition to the major studies which have been described, the work of Vescio et al. (2008) was analyzed. This analysis is presented in Table 10.

Table 10
Analysis of Vescio, Ross, and Adams' Study (2008)

Study Elements	Descriptors
Study	Review of Research on the Impact of Professional Learning Communities on Teaching Practice and Student Learning 2007
Setting	<ol style="list-style-type: none"> 1. Berry- Case study on rural elementary school. 2. Phillips- Case study on a middle school. 3. Strahan- Three elementary schools 4. Hollins- Case study on a struggling African American elementary 5. Bolam- Primary and intermediate schools
Research Question	<p>In what ways does teaching practice change as a result of participation in a PLC? And, what aspects of the PLCs support these changes?</p> <p>Does the literature support the assumption that student learning increases when teachers participate in a PLC? And, what aspects of the PLCs support increased student learning?</p>
Process for Linking Student Achievement and Professional Learning Communities	<ol style="list-style-type: none"> 1. Berry- Progress over 4 years on grade level testing, improving from 50% to more than 80% performing at or above grade level. 2. Phillips- Progress over 3 years on statewide testing, improving from 50% to over 90% passing subject area tests in reading, writing, math, science, and social studies. 3. Strahan- Progress over three years on state achievement tests, improving from 50% to more than 75% proficiency. 4. Hollins- Progress in assessment, improving from 45% to 73% scoring above the 25th percentile. 5. Bolam- Compared PLC characteristics as reported in school surveys with student outcome data from a national pupil assessment database.
Findings	<p>“Although few in number, the collective results of these studies offer an unequivocal answer to the question about whether the literature supports the assumption that student learning increases when teachers participate in PLCs. The answer is a resounding and encouraging yes.”(p. 87)</p>

Vescio et al. conducted a review of the research on the impact of professional learning communities on teaching practice and student learning. While the studies reviewed differed in many ways, the process for connecting the organizations of schools as learning communities and increases in student achievement were quite similar. One similarity found was that the majority of the studies had been conducted in retrospect. Outstanding performing schools had been identified based on state achievement tests. Investigations had then been conducted to determine the connections which had existed with professional learning communities.

A study by Darling-Hammond, Wei, Andree, Richardson, and Orphanos (2009) revealed a systematic set of practices designed to guide educators in building capacity in schools and districts organized as learning communities that meet the challenges of teaching and learning. The study consisted of: (a) survey of existing research on professional learning, (b) national survey data examining professional development opportunities and supports for teachers, (c) alignment of research supported practice with policy, and (d) variation in opportunities for professional development across schools and communities. The purpose was to provide a research base from which to draw upon to support decisions regarding professional learning, instructional improvement, and increased student learning. Findings included:

1. Sustained and intensive professional development for teachers is related to student achievement gains.
2. Collaborative approaches to professional learning can promote school change that extends beyond individual classrooms.
3. Effective professional development is intensive, ongoing, and connected to practice; focuses on teaching and learning of specific academic content; is connected to other school initiatives; and builds strong working relationships among teachers.

4. While teachers typically need substantial professional development in a given area (close to 50 hours) to improve their skills and their students' learning, most professional development opportunities in the U.S. are much shorter.
5. Significant variation in both support and opportunity for professional learning exists among schools and states.
6. U.S. teachers report little professional collaboration in designing curriculum and sharing practices, and the collaboration that occurs tends to be weak and not focused on strengthening teaching and learning.
7. Other nations that outperform the U.S. on international assessments invest heavily in professional learning and build time for ongoing, sustained teacher development and collaboration into teachers' work hours.
8. U.S. teachers have limited influence in crucial areas of school decision-making. (p. 6)

Each of these findings was supported by researchers who had discovered similar insights in studies conducted on professional learning communities (Gilrane et al. 2008; Keck-Centeno, 2008; McLaughlin & Talbert, 1993; Rosenholtz, 1991; Strahan, 2003; Thibodeau, 2008; Thompson et al., 2004; Vescio, Ross, & Adams, 2008; Visscher & Witziers, 2004; Williams et al., 2008). Analyzing the research utilizing the patterns of focus, leadership, teams, and individual members assisted in performing an in-depth examination of the connections between the organization of schools as professional learning communities and student achievement. For each study, evidence was sought as to (a) focus, (b) leadership roles, (c) the ways in which teams collaborated and met, and (d) reflective practices of individual teachers. The summary results of the analysis are presented in Table 11. As stated by McLaughlin and Talbert (1993),

The path to change in the classroom core lies within and through teachers' professional communities; learning communities which generate knowledge, craft new norms of practice, and sustain participants in their efforts to reflect, examine, experiment, and change. (p.18)

Table 11
Comparison of Primary, Intermediate and K-12 Studies Reviewed

Elements	Primary Studies			Intermediate Studies		K-12 Studies
Study	Keck-Centeno (2008)	Gilrane et al. (2008)	Strahan (2003)	Visscher & Witziers (2004)	Thibodeau (2008)	Williams et al. (2008)
Theoretical Framework	Hord (1997a)	Wenger	Fullan (1991)	Hord, (1997b)	None	Hord (1997a)
Focus	Shared beliefs, values, and vision were evident.	None	Shared identification of instruction	Shared policy and evaluation of teaching and learning were evident.	Goal was evident.	None
Leadership	Shared and supportive leadership were evident as well as supportive conditions.	Leaders provided structures to support teachers.	Structured time for team meetings, mentoring, conversations	School leadership was evident.	Facilitator resources were evident.	Building leadership support and continuous support was evident.
Team	Collective learning and application were evident.	Structures were in place providing time for collaborative planning.	Culturally embedded system for collaboration and team learning	Consultation and cooperation were not evident. Shared decision-making and department leadership was evident.	Collaborative study group was evident.	Learning teams were evident.
Individuals	Shared personal practice was evident.	None	Teachers initiate conversations about instruction	Not applicable.	Reflective journals were evident.	Ongoing reflection and shared practice were evident.

In previous studies, parallel research foundations had been utilized, but indicators were not systemically examined or quantified as to the level of implementation. As noted by Gilrane et al. (2008), “We have learned that teacher development is at least as complex--and as ill-fitted to scripting--as children’s learning” (p. 347). Though each study reviewed here addressed a common purpose of linking professional learning communities to student achievement, the extent to which individual behavioral indicators impacted student achievement could not be determined.

Summary

This chapter has provided an analysis of current research and thinking on professional learning communities. Based on the trends and patterns of the literature, Chapter 3 provides behavioral indicators of professional learning communities as they relate to student achievement. Chapter 4 and 5 will add to the body of research describing the relationships between schools implementing the processes of working as a professional learning community and student achievement.

CHAPTER 3 METHODOLOGY

Introduction

Professional learning communities have been viewed as one design to assist teachers in their quest to positively impact student achievement. Additional research is needed to assist in determining the relationship, if any, between teacher behavioral indicators of a professional learning community and expected performance of schools in terms of student achievement.

The methodology used in conducting the present study is described in this chapter. This chapter has been organized to provide a brief statement of the purpose of the study and to describe the population, the sample and the methods and procedures used to conduct the study. Discussed are the sources of data and the instrumentation used in the data collection process. Also detailed are the research questions and the statistical procedures employed in responding to each of the research questions.

Purpose of the Study

This study was conducted to analyze the extent to which professional learning communities were implemented in schools and to determine their ability to achieve at expected levels of proficiency and meet a predetermined percentage of criteria for achieving Adequate Yearly Progress as determined by the Florida State Department of Education. This included an examination at the teacher behavioral indicator level.

Research Questions and Hypotheses

1. What is the relationship between a school's level of implementation of professional learning communities and students' performance in reading, mathematics, and science on the Florida Comprehensive Assessment Test (FCAT) in 2009?

H_{01a}: There is no difference between the level of implementation of professional learning communities and performance in proficiency on FCAT reading.

H_{01b}: There is no difference between the level of implementation of professional learning communities and performance in proficiency on FCAT mathematics.

H_{01c}: There is no difference between the level of implementation in professional learning communities and performance in proficiency on FCAT science.

2. What is the relationship between a school's level of implementation of professional learning communities and students' learning gains in reading and mathematics on FCAT in 2009?

H_{02a}: There is no difference between the level of implementation of professional learning communities and learning gains on FCAT reading.

H_{02b}: There is no difference between the level of implementation in professional learning communities and learning gains on FCAT mathematics.

3. What is the relationship between a school's level of implementation of professional learning communities and the learning gains of the lowest 25% of students on FCAT reading and mathematics in 2009?

H_{03a}: There is no difference between the level of implementation of professional learning communities and learning gains of the lowest 25% on FCAT reading.

H_{03b}: There is no difference between the level of implementation of professional learning communities and learning gains of the lowest 25% on FCAT mathematics.

4. What is the relationship between a school's overall level of implementation of professional learning communities and Adequate Yearly Progress in 2009?

H₀₄: There is no difference between the overall level of implementation in professional learning communities and Adequate Yearly Progress on FCAT.

Population and Sample

The total population of Orange County Public Schools (OCPS), a large urban district in central Florida, for the 2008-2009 school year consisted of over 13,000 teachers in 2008-09. OCPS included 122 elementary schools, 33 middle schools, and 17 high schools. The district was divided into five learning communities and each was supervised by an area superintendent. For the purpose of this study, the sample consisted of 24 schools with diverse subgroup and socioeconomic demographics. Selected schools were all schools, with the exception of a primary center, that had the Professional

Learning Community Rubric data and were purposefully focused on operating as professional learning communities and willing to self-assess either part or all of their administrative and instructional staff to determine the reality of the implementation.

Table 11 presents descriptive statistics for the population and sample of OCPS schools by learning community, school level, and school grade.

Table 12
Population and Sample of OCPS Schools: 2008-2009

Descriptor	Total School Population	Sample
Learning Community		
North	31	4
East	29	0
Southeast	29	14
Southwest	26	3
West	29	1
Central	29	2
Level		
Elementary	122	18
Middle	33	4
High	17	2
Florida Department of Education Assigned School Grade		
A	113	18
B	27	2
C	21	3
D	9	1

Within each selected school, all or part of the faculty/staff, as determined by the respective school principals, were included in the data collected using the Professional Learning Community Rubric. Therefore, there was also a population and sample group for each selected school. Table 13 presents additional demographics specifically

describing the sample schools. Data reflected in the table regarding subgroups only included those with a reported subgroup as determined with state testing guidelines.

Table 13
Demographic Data for Participating Schools (2008-2009)

Sample Schools	Respondents/ Total Staff	Principal Status	% Students Free/Reduced	Reported AYP Subgroups
1 Elementary	7/40	Returning	53	W, H, E, ELL
2 Elementary	40/52	Returning	69	W, B, H, E, ELL, S
3 Elementary	29/40	Returning	63	W, B, H, E, ELL, S
4 Elementary	20/42	Returning	70	W, B, H, E, ELL, S
5 Elementary	33/49	Returning	56	W, B, H, E, ELL, S
6 Elementary	53/53	Returning	46	W, H, E, ELL
7 Elementary	12/59	Returning	89	H, E, ELL
8 Elementary	19/72	Returning	81	B, H, E, ELL
9 Elementary	11/54	Returning	47	W, B, H, E, ELL
10 Elementary	8/36	Returning	78	H, E, ELL
11 Elementary	15/30	Returning	61	W, B, H, E, ELL, S
12 Elementary	46/46	New	86	B, E, ELL
13 Elementary	27/27	Returning	95	B, E
14 Elementary	7/48	Returning	34	W, H, E, ELL
15 Elementary	12/52	Returning	86	W, H, E, ELL
16 Elementary	15/48	New	85	W, H, E, ELL, S
17 Elementary	23/57	Returning	49	W, H, E, ELL
18 Elementary	10/75	Returning	77	H, E, ELL
19 Middle	52/63	New	39	W, H, E, ELL
20 Middle	11/70	Returning	51	W, B, H, E, ELL, S
21 Middle	27/55	Returning	66	W, B, H, E, ELL
22 Middle	42/76	Returning	80	W, B, H, E, ELL, S
23 High	9/203	Returning	59	W, B, H, E, ELL, S
24 High	18/109	Returning	69	B, E, ELL, S

Note. W = white, B = black, H = Hispanic, E = Economically Disadvantaged, ELL = English Language Learner, S = Students with Disabilities

Instrumentation

The Professional Development System Evaluation Protocol, a process developed by the Florida Department of Education as an outcome of Florida statute, was used to evaluate all 67 Florida school districts on the quality of district professional development systems (Bureau of Educator Recruitment, 2006). As a result of the October 2007 Orange County Public Schools' state protocol audit (Florida Department of Education, 2007), there was marginal to good evidence of professional learning communities across the district. Differences were noticeable between high schools and middle schools. The rating scale had a midpoint of 2.5, with ratings of 3.5 and higher considered to be exemplary and 2.0 or below as those that needed improvement. In 2005, the district scored a 1.8. In 2007, the score improved to a 2.9. The findings revealed a need for a consistent definition or understanding of a learning community. An external consultant was secured to design an instrument owned and utilized by Orange County Public Schools that would measure the level of implementation in creating professional learning communities. In response, a Professional Learning Community Rubric (Appendix A) was created based on the research of DuFour and Eaker (1998), professional learning designs (Easton, 2004), the Florida Professional Development Protocol, and adult learning theory. This instrument was used to gather data for the present study.

Instrument Reliability and Validity

Existing data were accessed to determine the level of professional learning community implementation by the sample schools. The Professional Learning Community Rubric was designed to describe behaviors or constructs of the collective school regarding a focus on shared goals, the role of the leader, the actions of teams, and the practice of individual teachers. These descriptions were based on the research, practice, and recommendations of several sources. The work of DuFour and Eaker (1998) was used to frame behaviors or constructs through the lens of practical application. Easton (2004) and the Florida Protocol was used to frame behaviors through best practice and existing research. Validity was established through the use of research in the development of the rubric.

Data Collection

Data collection was initiated only after the study had received approval of the University of Central Florida's Institutional Review Board (Appendix B) and Orange County Public Schools (Appendix C). Several sources of data were utilized in the data collection process.

The Professional Learning Community Rubric consisted of a total of 18 statements describing the focus, leaders, teams, and individual members. Each item represented a scale with responses ranging from professional learning communities that were: (a) in name only, (b) intentionally structured and enforced, and (c) those that are culturally embedded. Leaders assessed their entire faculty, departments, or leadership

teams using the rubric to determine the level of implementation of professional learning communities. Principals distributed the rubric to all or part of their staff who were asked to respond using the rubric based on their purpose and perception of the current level of trust with their staff/leadership team. Participating configurations included whole staff, leadership teams, and grade level department chairs. Participating staff were directed to indicate the level of implementation described by the statement as directed in the protocol. Rubrics were completed during the fall and spring of the 2008-2009 school year. Once collected, participants' responses were either sent to the district office to be compiled or were compiled at the school site with results being forwarded to the district office.

Average scores were created to represent level of implementation of each category of the professional learning community: Focus, Lead Learner, Resource Provider, Meeting Context, Collaborative Work, and Reflective Practitioner. A school's total number of points in the category was summed and divided by the number of respondents in the school to obtain an average score. This resulted in categories that were equally weighted. Categories were assigned to designate implementation level. These values were determined for each of the following behavioral or construct indicators: focus, lead learner, resource provider, meeting context, collaborative teams, reflective practitioners. Data were entered into a spreadsheet and imported into SPSS. The advantage of using existing data was that the context for the process itself was to measure the collective thoughts and perceptions of individuals committed to the process of learning together.

The second source of data was the School Accountability Report Analysis (SOAR). Each sample school report was downloaded from the OCPS website and printed in the fall of 2008 to access 2007-2008 data and again in the fall of 2009 to access 2008-2009 data. An outcome of the SOAR report is a determination of school performance in relation to those with similar demographics. Schools were identified as (a) those that performed below what would be expected, (b) at expectation, or (c) performed above what would be expected when compared to like schools within the district. Data representing the following categories of FCAT achievement were entered into a spreadsheet and imported into SPSS:

1. Percent proficient in reading, mathematics, and science
2. Predicted percent proficient in reading, mathematics, and science
3. Difference in percent proficient and predicted percent proficient in reading, mathematics, and science
4. Designation of Above Expectation, At Expectation, or Below Expectation for percent proficient in reading, mathematics, and science
5. Percent learning gains in reading, mathematics, and science
6. District average percent learning gains in reading, mathematics, and science
7. Difference in percent learning gains and district average percent learning gains in reading, mathematics, and science
8. Designation of Above Expectation, At Expectation, or Below Expectation for percent learning gains in reading, mathematics, and science
9. Percent learning gains of the lowest 25% in reading, mathematics, and science
10. District average percent learning gains of the lowest 25% in reading, mathematics, and science
11. Difference in percent learning gains of the lowest 25% and district average percent learning gains in reading, mathematics, and science
12. Designation of Above Expectation, At Expectation, or Below Expectation for percent learning gains of the lowest 25% in reading, mathematics, and science
13. Free/Reduced lunch percentage

The third source of data collected was the Adequate Yearly Progress (AYP) report. Each sample school was downloaded from the Florida Department of Education website and printed in the fall of 2008 to access 2007-2008 results and again in the fall of

2009 for 2008-2009 results. Data representing the following categories were entered into a spreadsheet and imported into SPSS: (a) percent of criteria met for AYP, (b) subgroups represented, and (c) subgroups not meeting expectations for AYP.

Data Analysis

In answering Research Question 1 as to the relationship between a school's level of implementation of professional learning communities and students' performance in reading, mathematics, and science on the Florida Comprehensive Assessment Test (FCAT) in 2009, descriptive statistics and other quantitative measures were used. Percent proficient was the specific variable of interest measuring academic performance. Study schools were placed on a continuum of expectations which included Above Expectation, At Expectation, and Below Expectation using the SOAR residual data for the percentage proficiency in reading, mathematics, and science for the 2007-2008 school year in order to establish a base year. The sample schools were then analyzed to determine any shifts in performance using the 2008-2009 data.

A correlation analysis utilizing the Pearson product-moment correlation coefficient was performed to analyze each of these three relationships- reading, mathematics, and science. Percentage proficient was one continuous variable.

An average score was determined for each school to represent the level of implementation for each of the following categories of the professional learning community: (a) Focus, (b) Lead Learner, (c) Resource Provider, (d) Meeting Context, (e) Collaborative Work, and (f) Reflective Practitioner. Based on their responses,

respondents were placed into one of three levels of implementation for each of Culturally Embedded, Intentionally Structure, and In Name Only. Points were totaled for each category and divided by the number of respondents in the school to obtain a mean score by category for each school. A mean score of 3 for a category implied that teachers in the school implemented the principles at the “Culturally Embedded” level. A mean score of 1 for a category implied that teachers in the school implemented the principles at the “In Name Only” level. A mean score of 2 reflected diversity in implementation level. Mean scores for schools were determined without regard to the differences in numbers of respondents within a school. Finally, a score for all of the categories combined was determined by summing all of the categorical mean scores and determining a grand mean for each of the schools. All categories were equally weighted in this process.

Research Question 2 addressed the relationship between level of implementation of professional learning communities and FCAT learning gains in reading and mathematics. In analyzing the data, procedures similar to those used in analyzing the data for Research Question 1 were employed with one exception. In regard to the analysis of the academic performance variable, schools were placed on a continuum of Above Expectation, At Expectation, and Below Expectation using the residual data from SOAR. This permitted the display of percentage of learning gains in reading and mathematics for the 2007-2008 school year. The data for the sample schools were then analyzed to determine any shifts in percentage of learning gains for 2008-2009.

A correlation analysis was performed identical to that performed in analyzing data related to Research Question 1, with the exception of the academic performance variable.

The percentage of students in the school who made learning gains on FCAT reading and mathematics was the continuous dependent variable representing academic performance. The continuous independent variable representing professional learning community implementation was the same as that established for Research Question 1. The Pearson product-moment correlation coefficient was calculated for each combination of Professional Learning Community category and reading or math FCAT learning gain percentage.

In responding to Research Question 3 as to the relationship between a school's level of implementation of professional learning communities and learning gains among the lowest 25%, similar procedures as those employed in the first two research questions were followed. Using the residual data from SOAR, all schools in the population were placed on the continuum of Above Expectation, At Expectation, and Below Expectation using the percentage of learning gains in reading, mathematics, and science for the lowest 25% for the 2007-2008 school year. The sample schools were analyzed to determine any shifts in percentage of learning gains for the lowest 25% using 2008-2009 data. The correlation analysis was identical to Research Question 2 but utilized only the learning gain percentages of the lowest quartile.

In analyzing the data for Research Question 4 as to the relationship between a school's overall level of implementation of professional learning communities and Adequate Yearly Progress (AYP), descriptive statistics and other quantitative measures were again employed. Descriptive data for the sample schools were analyzed to determine any patterns. As described in Research Question 1, a continuous variable was

created addressing the overall PLC implementation. This independent variable was compared to a dependent variable representing AYP performance, in the form of the total percentage of AYP criteria met. The comparison was that of a Pearson product-moment correlation. The following variables were utilized in the analysis: (a) percent proficient in reading, mathematics, and science; (b) percent learning gains in reading, mathematics, and science; and (c) percent learning gains of the lowest 25% in reading, mathematics, and science. Once relationships were determined, analysis also included disaggregating data by sample school using the categorical subgroups of ethnicity (white, black, Hispanic), economically disadvantaged, English Language Learners, and students with disabilities.

Summary

This chapter has provided a description of the methods and procedures used to conduct the study. The population, sample, research questions and sources of data were described. Data collection and analysis procedures were detailed. Chapter 4 contains a summary of the analysis of the data organized around each of the research questions used to guide the study. Chapter 5 presents a summary and discussion of the findings, implications, and recommendations for future research.

CHAPTER 4 ANALYSIS OF DATA

Introduction

Schools organized as professional learning communities were evident within the state, across the nation, and around the world (Bureau of Educator Recruitment, 2006; Easton, 2004; Gilrane et al., 2008; Hord & Hirsch, 2009; Keck-Centeno, 2008; McFadden, 2009; McLaughlin & Talbert, 1993; Rosenholtz, 1991; Strahan, 2003; Thibodeau, 2008; Thompson et al 2004; Vescio et al, 2008; Visscher & Witziers, 2004; Williams et al, 2008). Researchers, educational consultants, and practitioners maintained that there were explicit ways in which schools or districts can organize themselves that result in increased achievement (Darling-Hammond, 1996; DuFour & Eaker, 1998; Hord & Sommers, 2008; Marzano, 2001; Senge, 2000) , some focusing particularly on closing the achievement gap (Davenport, 2008; Fullan, 2006; Reeves, 2006; Wagner, 2008; Wagner & Kegan, 2006). Although conclusions drawn from previous writings guide educators towards key elements of professional learning communities, knowledge is lacking of the behaviors or constructs, either individually or collectively, that increase student achievement. The purpose of this study was to examine the relationship between the behaviors evident in schools purposefully organized as professional learning communities and increased student achievement.

Population and Sample

The population of this study was 172 public elementary schools (elementary, middle, and high) in Orange County Public Schools, Florida, during the 2008-2009 school year. There were 24 public schools (18 elementary, 4 middle, and 2 high) included in the sample. Demographic data for sample schools are displayed in Table 14.

Table 14
Demographics of Sample Schools (N = 24)

Demographic Characteristic	<i>M</i>	<i>SD</i>	Minimum	Maximum	Range
Number of respondents per site	22.75	14.59	7	53	46
Free and reduced lunch percentage	66.21	16.98	34	95	61
Number of subgroups per site	4.54	1.25	2	6	4

Schools represented were considered diverse based on the number of respondents completing the Professional Learning Community Rubric (Appendix A), the percentage of students on free or reduced lunch, and the number of subgroups (white, black, Hispanic, English language learners, economically disadvantaged, and students with disabilities) represented at each school.

The 24 schools had a range of 46 respondents from 7 to 53 with a mean of 22.75 and a standard deviation of 14.59. Elementary schools ($M = 21.50$, $SD = 13.88$) in the study also had a range of 46 respondents (7 to 53 individuals). Middle schools ($M =$

33.00, $SD = 17.91$) in the study had a range of 41 respondents (11 to 52 individuals). The two participating high schools ($M = 13.50$, $SD = 6.36$) had a range of 9 respondents (9 to 18 individuals).

Diversity was also noted in the percentage of students per school who qualified for free or reduced lunch. The 24 schools had a range of 61% of its students on free or reduced lunch (34% to 95%). The mean free or reduced lunch population percentage was 66.21 and the standard deviation was 16.98. Elementary schools ($M = 68.06$, $SD = 17.73$) had a range of 61%, (34% to 95%). Middle schools ($M = 59$, $SD = 17.83$) in the study had a range of 41% (39% to 80%). The two participating high schools ($M = 64$, $SD = 7.07$) had a range of 10% (59% to 69%).

Student subgroups also indicated diversity in regards to ethnicity (white, black, Hispanic), economically disadvantaged, English Language Learners, and students with disabilities attending each school. The 24 schools had a range of four subgroups, from populations with only two subgroups present to those having all six subgroups. The mean number of subgroups was 4.54 and the standard deviation was 1.25. Elementary schools ($M = 4.33$, $SD = 1.28$) had a range of four subgroups (two to all six subgroups). Middle schools ($M = 4.00$, $SD = 0.96$) in the study had a range of two subgroups (four to all six subgroups). The two participating high schools ($M = 5$, $SD = 1.41$) had a range of 2 subgroups (four to all six subgroups).

Research Question 1

What is the relationship between a school's level of implementation of professional learning communities and students' performance in reading, mathematics, and science on the Florida Comprehensive Assessment Test in 2009?

Professional Learning Communities Rubrics were examined for the 24 schools included in the study for the 2008-2009 school year to determine the implementation of professional learning communities. Responses on the Professional Learning Community Rubric were weighted and summed and divided by the number of respondents in the school to obtain an average score, resulting in categories that were equally weighted. There were five possibilities of implementation: 1) consensus of a staff determining implementation as In Name Only, 2) range of responses between In Name Only and Intentionally Structured, 3) consensus of a staff determining implementation as Intentionally Structured, 4) range of responses between Intentionally Structured and Culturally Embedded, and 5) consensus of a staff determining implementation as Culturally Embedded. Table 15 identifies the overall implantation of professional learning communities by the categories of Culturally Embedded (3.0), Intentionally Structured (2.0), and In Name Only (1.0). Accordingly, four schools had an implementation level between In Name Only and Intentionally Structured, two schools were Intentionally Structured, and 16 schools scored between Intentionally Structure and Culturally Embedded.

Table 16 indicates the level of implementation by construct of professional learning communities according to data collected from respondents. Results were

weighted and had a possibility of an average falling within the same five categories.

Across all schools, the means of the constructs of focus, lead learner, resource provider, meeting context, collaborative teams, and reflective practice place the average implementation level between intentionally structured professional learning communities and culturally embedded professional learning communities.

Table 15
Overall Implementation Mean for Sample Schools (N = 24)

Intentionally Structured In Name Only- 1.0 - 1.9		Intentionally Structured 2.0		Intentionally Structured- Culturally Embedded 2.1 - 3.0	
School (n)	Overall Mean	School (n)	Overall Mean	School (n)	Overall Mean
16 Elementary	1.7	7 Elementary	2	6 Elementary	2.1
2 Elementary	1.8	15 Elementary	2	19 Elementary	2.1
8 Elementary	1.8	23 Middle	2	5 Elementary	2.2
12 Middle	1.9			11 Middle	2.2
				13 High	2.2
				14 Elementary	2.2
				1 Elementary	2.3
				3 Elementary	2.4
				10 Elementary	2.4
				17 Elementary	2.4
				22 Middle	2.4
				4 Elementary	2.5
				21 Elementary	2.5
				9 Elementary	2.6
				20 Elementary	2.7
				24 High	2.7
				18 Elementary	2.8

Table 16
Overall Professional Learning Community Implementation by Construct

Construct	<i>M</i>	<i>SD</i>	Minimum	Maximum	Range
Focus	2.35	.35	1.82	2.91	1.09
Lead Learner	2.27	.42	1.45	2.91	1.46
Resource Provider	2.35	.39	1.67	3.00	1.33
Meeting Context	2.15	.34	1.08	2.87	1.78
Collaborative Work	2.13	.33	1.48	2.87	1.39
Reflective Practitioner	2.27	.32	1.50	2.78	1.28

The School Accountability Report Analysis (SOAR) was used in Figures 1-3 to display school differences in actual performance and predicted performance when comparing like schools. Figure 1 refers to actual proficiency in reading. Figure 2 refers to actual proficiency in mathematics, and Figure 3 displays actual proficiency for science. In reading, two elementary schools moved backward in performance, one moved from at expectation to below expectation and one moved from above expectation to at expectation. Two schools, one elementary and one middle school, moved forward in performance with actual proficiency indicating results that were above expectation. In mathematics, three schools (two elementary and one high school) moved backward in performance from at expectation to below expectation. Two schools, both middle schools, moved from above expectation to at expectation. Two elementary schools moved forward from performing at expectation to above expectation. In science, two schools (one elementary and one high school) moved backward in performance from at expectation to below expectation. However, six schools (all elementary) moved forward in science. Four moved from below expectation to at expectation and two moved from at expectation to above expectation.

Overall, the number of schools performing below expectation in 2007-08 increased from zero to one in reading and from one to four in mathematics but decreased from four to two in science in 2008-09. The number of schools performing at expectation in 2007-08 decreased from 23 to 21 in reading and 21 to 16 in mathematics, and remained constant for science in 2008-09. The number of schools performing above

expectation in 2007-08 increased from one to two in reading, two to four in mathematics, and two to four in science in 2008-09.

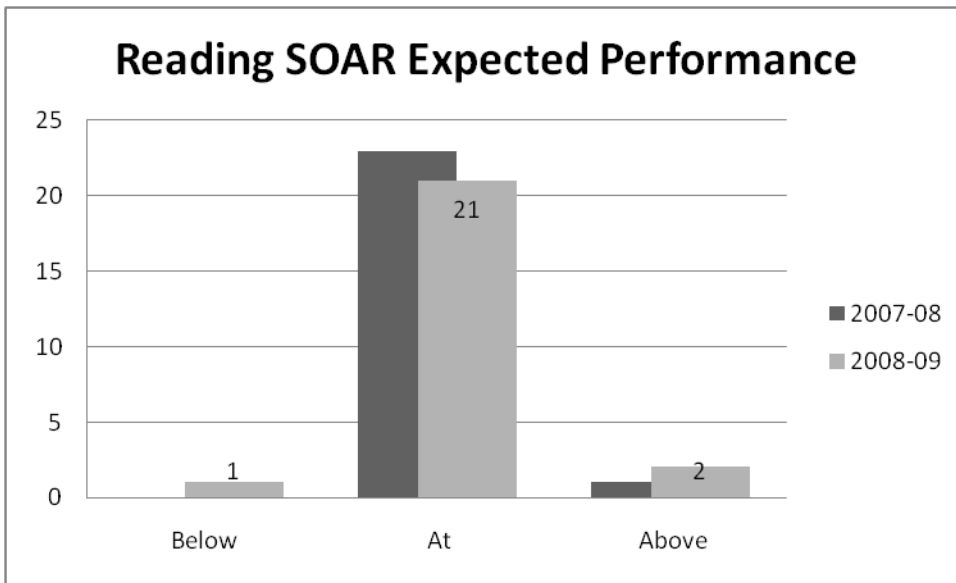


Figure 1. Expected performance in reading

Note: Figures 1-3 depict the expected performance, as determined on School Accountability Report Analysis (SOAR) reports comparing like schools, in overall proficiency in reading, mathematics, and science. Schools could perform above expectation, at expectation, or below expectation. These figures illustrate the movement of schools from 2007-2008 to 2008-2009 into the three categories.

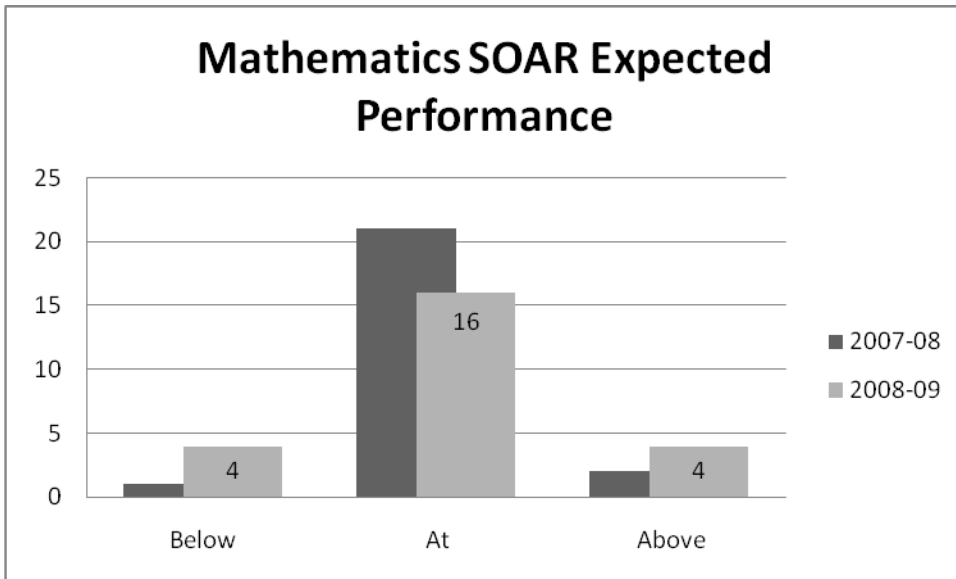


Figure 2. Expected performance in mathematics

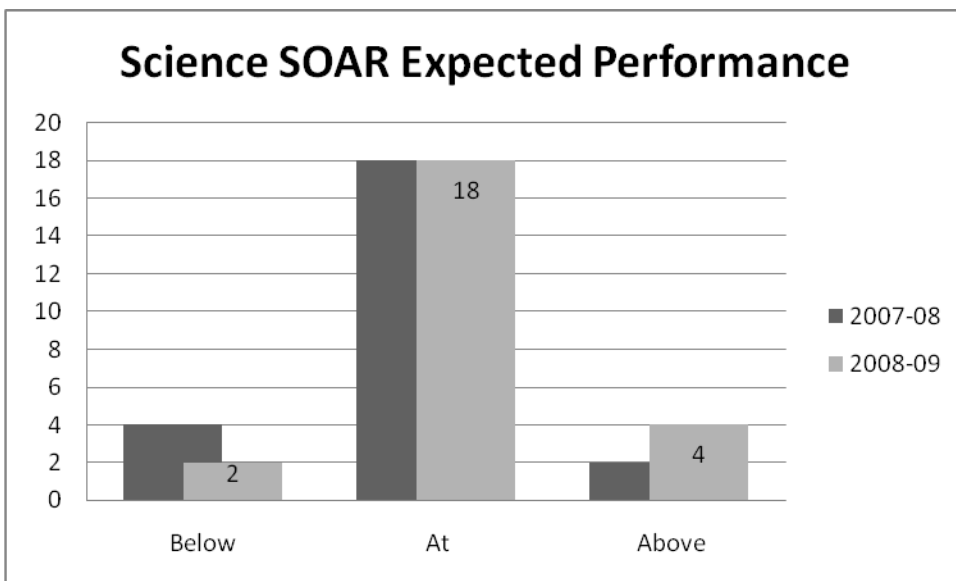


Figure 3. Expected performance in science

In Table 17, the Pearson correlations among the six professional learning community scores and percentage proficient in reading, mathematics, and science FCAT subtests were obtained. An additional set of correlations was run between the overall PLC score and each of the FCAT subtests. Among the three FCAT subtests, reading had the highest correlations, while mathematics and science contained highly uncorrelated data. Of the six PLC components and overall score, Focus ($r = .41$) and Reflective Practitioner ($r = .43$) contained the strongest correlations. The correlation between Reflective Practitioner and reading was the only statistically significant correlation in the group at the $\alpha = .05$ level. The correlation between Focus and reading was nearly significant at the $\alpha = .06$. Focus was also the most strongly correlated PLC score with the FCAT mathematics variable ($r = .30$), while Reflective Practitioner was the strongest correlation among the FCAT science analyses ($r = .23$). It is important to note that within the reading analysis, two outliers were identified through the creation of box plots. They were identified as a result of their abnormally low reading percentage proficient scores and were removed. In recognition of the relationship, it must be noted that the findings in this study were preliminary and in a new area with a small sample and size limitations. When multiple tests are applied, there is a chance that 1 in 20 will show a statistically significant relationship.

After determining a relationship between reading proficiency and reflective practice, a further examination of data revealed several patterns. Proficiency data was disaggregated by six subgroups with three of the six representing ethnic groups. Six schools (three elementary Hispanic only, two elementary black only, and one high school

black only) had only one ethnic group. Eight schools (seven elementary and one middle school) had two ethnic groups. Ten schools (six elementary, three middle, one high school) had all three ethnic groups.

While the range of the population of students on free or reduced was 34% to 95% across schools, all 24 sample schools did have a subgroup of students who qualified for free or reduced lunch creating an Economically Disadvantaged subgroup. Of the 24 sample schools, five did not achieve overall reading proficiency. Disaggregating the reading proficiency data by subgroups reveals an opportunity for deeper reflection (Table 18).

Table 17
Correlations Among Professional Learning Community Implementation and Percentage Proficient

Construct	Reading ^a		Mathematics ^b		Science ^b	
	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>
Focus	.41	.06	.30	.16	.14	.53
Lead Learner	.18	.43	-.03	.90	-.03	.90
Resource Provider	.37	.09	0	.99	-.08	.70
Meeting	.17	.45	-.03	.90	.08	.70
Collaborative Work	.40	.07	.15	.48	.05	.83
Reflective Practitioner	.43	.05*	.18	.39	.23	.28
Overall	.37	.09	.11	.63	.07	.76

Note. ^a*n* = 22. ^b*n* = 24.

**p* < .05.

Table 18
Disaggregated Data for Overall Reading Proficiency (N = 24)

Group Characteristics	Sample Schools	Achieved Proficiency	Did Not Achieve Proficiency	School Level Not Achieving Proficiency
No white subgroup	7	5	2	*Elementary, *High
No black subgroup	10	10	0	
No Hispanic subgroup	3	1	2	*Elementary, *High
No Students With Disabilities	13	12	1	*Elementary
Economically Disadvantaged	24	17	5	*Elementary (1), Middle (2), *High
ELL	23	22	1	*Elementary

*The same two schools (one elementary and one high school) represented the schools not achieving proficiency when disaggregated by subgroup.

Of the 24 schools, approximately one-third, or seven schools (six elementary and one high school) did not have a white subgroup. Of the seven schools without a white subgroup, one elementary and one high school did not achieve reading proficiency. Ten schools (nine elementary and one middle school) did not have a black subgroup. Of the ten schools without a black subgroup, all ten achieved reading proficiency. Three schools (two elementary and one high school) did not have a Hispanic subgroup. Of the three schools without a Hispanic subgroup, one elementary achieved reading proficiency. A total of 13 schools (12 elementary and one middle school) did not have a Students With Disabilities subgroup. Of the 13 schools without a Students With Disabilities subgroup, one elementary did not achieve reading proficiency. Five schools (one elementary, two middle schools and both high schools) did not achieve reading proficiency in the

Economically Disadvantaged subgroup. One school (elementary) did not have an English Language Learner subgroup. It did not achieve reading proficiency. Overall, the same two schools (one elementary and one high school) represented the schools not achieving proficiency when disaggregated by subgroup. When comparing elementary, middle, and high school, middle schools did not stand out in group characteristics except for Economically Disadvantaged in which two of the four middle schools did not achieve proficiency in reading. The existence or absence of subgroups achieving reading proficiency and the noted relationship between reading proficiency and reflective practice is discussed in further detail in Chapter 5.

Research Question 2

What is the relationship between a school's level of implementation of professional learning communities and students' learning gains in reading and mathematics on the Florida Comprehensive Assessment Test in 2009?

Professional Learning Communities Rubrics were examined for the 24 schools included in the study for the 2008-2009 school year to determine the implementation of professional learning communities. In addition, the School Accountability Report Analysis indicated individual school performance based on predictions from the district.

Figures 4 and 5 reveal the actual learning gains compared to the expected performance before and after the implementation of utilizing the PLC rubric as related to learning gains in reading and mathematics.

In reading learning gains, eight of the ten schools made forward progress and two regressed. Four schools (three elementary and one high school) moved from below

expectation to at expectation and four schools (three elementary and one middle) moved from at expectation to above expectation. One elementary moved from at expectation to below expectation and one elementary moved from above expectation to at expectation.

In mathematics learning gains, three schools moved forward and seven went backward. Two elementary schools moved from below expectation to at expectation. One elementary school moved from at expectation to above expectation. Three elementary schools moved from at expectation to below expectation. Four elementary schools moved from above expectation to at expectation. All middle and high schools remained constant.

The number of schools performing below expectation in 2007-08 increased from two to three in mathematics but decreased from six to three in reading in 2008-09. The number of schools performing at expectation in 2007-08 remained constant in reading and increased from 16 to 18 in mathematics in 2008-09. The number of schools performing above expectation in 2007-08 increased from two to five in reading and decreased from six to three in mathematics in 2008-09.

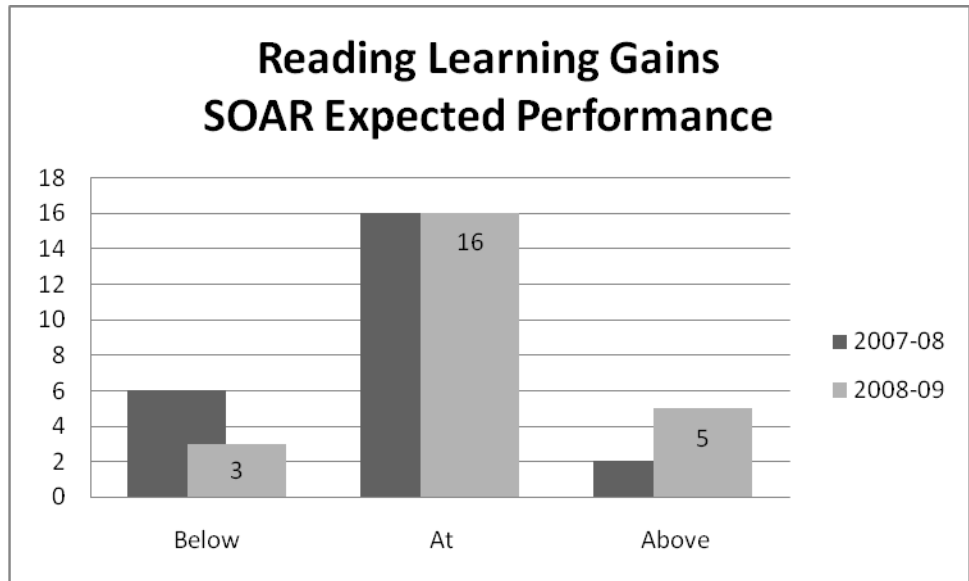


Figure 4. Expected learning gains in reading

Note. Figures 4 and 5 depict the expected learning gains, as determined on SOAR reports comparing like schools, in reading and mathematics. Schools could perform above expectation, at expectation, or below expectation. These figures illustrate the movement of schools from 2007-2008 to 2008-2009 into the three categories.

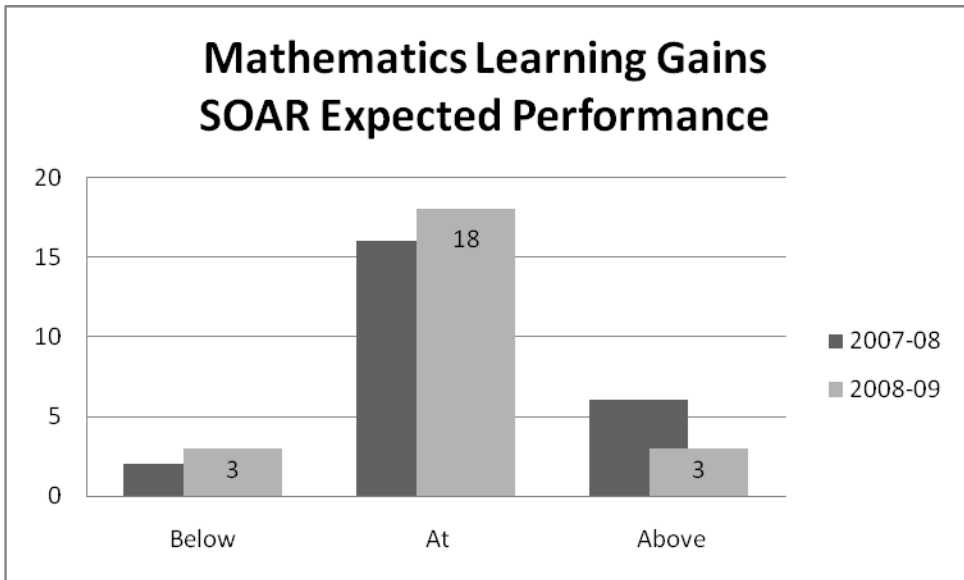


Figure 5. Expected learning gains in mathematics

Table 19 presents the Pearson correlations between the six professional learning community scores and percentage making learning gains in reading and mathematics FCAT subtests. An additional set of correlations was run between the overall PLC score and each of the FCAT subtests. Of the two FCAT subtests, reading had the strongest correlation, although none of the correlations were statistically significant. Specifically, the strongest correlation ($r = .34$) was indicated for both the Focus and Collaborative Work categories. The strongest mathematics correlation was in the Lead Learner category ($r = .21$). It is important to note that within the reading analysis, two exceptionally low observations were graphically identified as outliers and were removed; one exceptionally low mathematics observation was identified and removed as an outlier as well.

Table 19
Correlations Among Professional Learning Community Implementation Constructs and Percentage Reaching Learning Goals

Construct	Reading		Mathematics	
	<i>r</i>	<i>P</i>	<i>r</i>	<i>p</i>
Focus	.34	.13	.08	.71
Lead Learner	.17	.45	.21	.33
Resource Provider	.30	.17	.17	.45
Meeting	.14	.55	-.18	.41
Collaborative Work	.34	.12	.04	.87
Reflective Practitioner	.32	.15	.06	.78
Overall	.31	.17	.08	.71

Note. ^a $n = 22$. ^b $n = 23$.

Research Question 3

What is the relationship between a school's level of implementation of professional learning communities and the learning gains of the lowest 25 percent of students on FCAT reading and mathematics on the Florida Comprehensive Assessment Test in 2009?

Professional Learning Communities Rubrics were examined for the 24 schools included in the study for the 2008-2009 school year to determine the implementation of professional learning communities. In addition, the School Accountability Report Analysis indicated individual school performance based on predictions from the district.

Figures 6 and 7 indicate the actual learning gains of the lowest quartile as compared to the expected performance before and after the implementation of utilizing the PLC Rubric as related to learning gains in the lowest quartile in reading and mathematics. In reading gains of the lowest quartile, six schools (five elementary and one high school) moved forward and four (three elementary and one middle school) moved backward. Two elementary schools moved from below expectation to at expectation and four schools (three elementary and one high school) moved from at expectation to above expectation. One elementary school moved from above to below expectation, one elementary moved from at expectation to below expectation, and two schools (one elementary and one middle school) moved from above expectation to at expectation.

In mathematics learning gains of the lowest quartile, seven schools (three elementary, three middle, and one high school) moved forward and four elementary schools moved backward. One elementary and two middle schools moved from below expectation to at expectation and two elementary, one middle, and one high school

moved from at expectation to above expectation. One elementary moved from at expectation to below expectation and three schools (two elementary and one middle school) moved from above expectation to at expectation.

The number of schools performing below expectation in 2007-08 remained the same in reading and decreased from four to two in mathematics in 2008-09. The number of schools performing at expectation in 2007-08 decreased from 19 to 18 in reading and increased from 17 to 18 in mathematics in 2008-09. The number of schools performing above expectation in 2007-08 increased from three to four in both reading and mathematics in 2008-09.

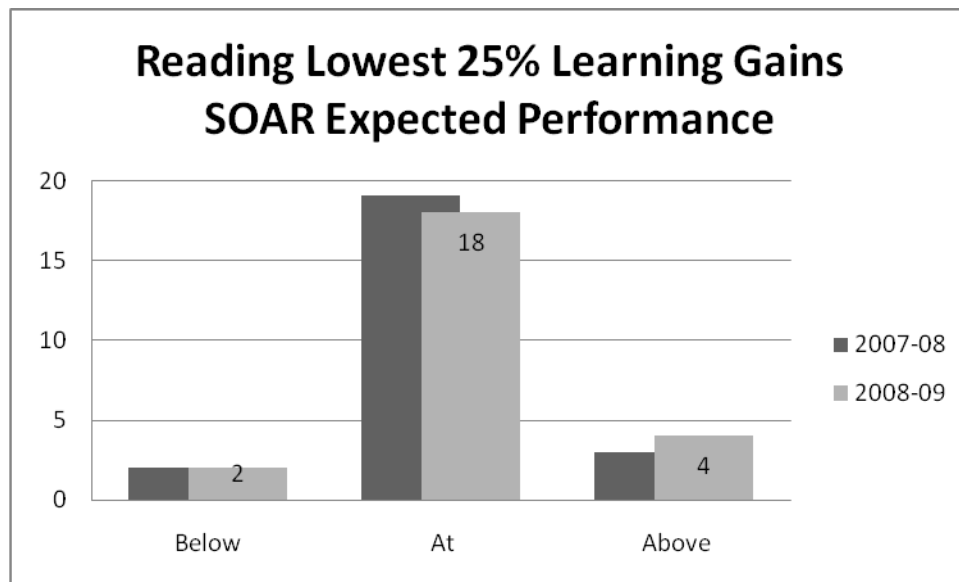


Figure 6. Expected learning gains of the lowest 25% in reading

Note. Figures 6 and 7 depict the expected learning gains of the lowest 25%, as determined on SOAR reports comparing like schools, in reading and mathematics. Schools could perform above expectation, at expectation, or below expectation. These figures illustrate the movement of schools from 2007-2008 to 2008-2009 into the three categories.

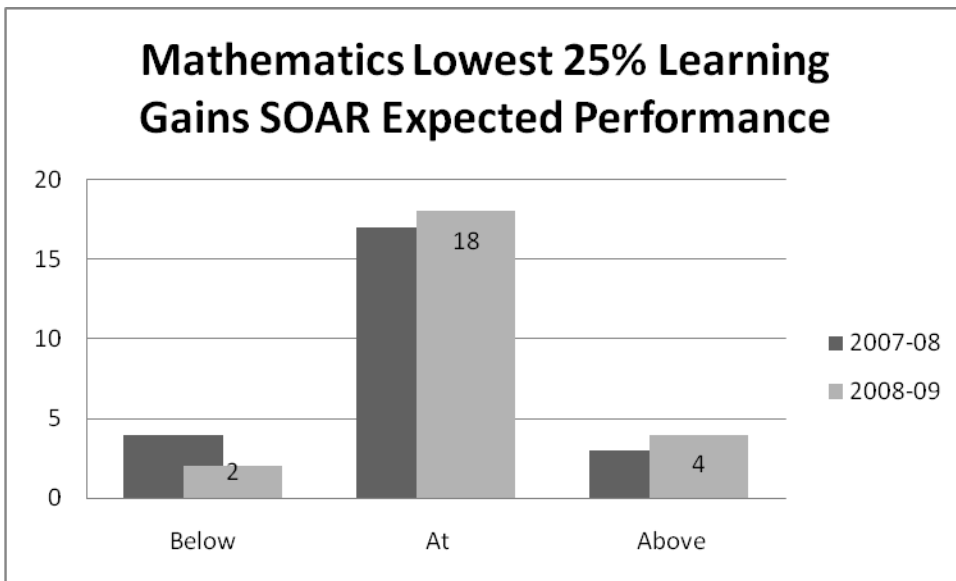


Figure 7. Expected learning gains of the lowest 25% in mathematics

Table 20 depicts the Pearson correlations between the six professional learning community scores and percentage of students in the lowest quartile making learning gains in reading and mathematics FCAT subtests. An additional set of correlations was run between the overall PLC score and each of the FCAT subtests. Between the two FCAT subtests, although none of the correlations were statistically significant, in general both subtests indicated similarly weak correlations among each category. The strongest reading correlation ($r = -.18$) was with the reflective practitioner category, while the strongest mathematics correlation ($r = -.34$) was with the meeting category. These negative correlations indicate an inverse relationship between PLC score and percentage of the lowest quartile at each school making learning gains. As PLC score increased,

showing greater use of the technique, learning gains of the lowest quartile percentage proficient declined.

Table 20
Correlations Among Professional Learning Community Implementation Constructs and Percentage Achieving Lowest Quartile Learning Gains (N = 24)

Construct	Reading		Mathematics	
	<i>r</i>	<i>p</i>	<i>R</i>	<i>P</i>
Focus	.11	.60	-.02	.94
Lead Learner	.11	.63	-.06	.80
Resource Provider	.06	.78	.03	.89
Meeting	-.15	.49	-.34	.11
Collaborative Work	.05	.84	-.02	.93
Reflective Practitioner	-.18	.40	-.08	.74
Total Average	.01	.98	-.09	.68

Research Question 4

What is the relationship between a school’s overall level of implementation of professional learning communities and Adequate Yearly Progress in 2009? Was there any difference in how schools were able to obtain AYP? Was the implementation of professional learning communities related to achievement?

Professional Learning Communities Rubrics were examined for the 24 schools included in the study for the 2008-2009 school year to determine the implementation of professional learning communities. Table 21 depicts the Pearson correlations between the six professional learning community scores and percentage of AYP criteria met in each school. An additional correlation was run between the overall PLC score and percentage of AYP standards met. No correlations were statistically significant and were overall very

weak; however, the strongest correlation was between Focus and AYP standards ($r = .17$).

Table 21
Correlations Among Professional Learning Community Implementation Constructs and Percentage AYP Standards Attained (N = 24)

Construct	<i>R</i>	<i>p</i>
Focus	.17	.44
Lead Learner	-.08	.73
Resource Provider	-.02	.92
Meeting	-.13	.55
Collaborative Work	.10	.64
Reflective Practitioner	.09	.69
Overall Average	.02	.93

Summary

This chapter provided an analysis of data for this study examining the factors involved in implementing a professional learning community and student achievement. The indicator of reflective practitioner was found to be related to the overall reading proficiency in sample schools implementing professional learning communities. Chapter 5 interprets and contains a discussion of the elements of these findings. It also includes conclusions and recommendations for future research.

CHAPTER 5 SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Introduction

The research study was conducted to answer four research questions regarding the relationship between professional learning communities and student achievement evident in 24 public K-12 schools during the implementation of professional learning communities. Findings were intended to add to the body of knowledge, highlighting practices to consider in raising student achievement. The study generated opportunities for future research and can serve as a guide for practitioners in the inquiry of critical beliefs, policy, and decision making regarding reform. This chapter contains a discussion of the findings of this study and recommendations for policy, practice and future research.

Purpose

The purpose of this study was to examine the relationship between behavioral indicators (constructs) as perceived by teachers and administrators during the implementation of professional learning communities and student achievement from 2007-2009. The study includes data reflecting (a) implementation behaviors or constructs critical for creating professional learning communities and (b) Florida Comprehensive Achievement Test (FCAT) proficiency scores in reading, mathematics, and science. Relationships were examined based on the levels of implementation of professional learning communities as determined by identified behaviors or constructs. These

constructs, categorized as focus, lead learner, resource provider, meeting context, collaborative teams, and reflective practitioner, were individually related to (a) overall reading, mathematics, and science proficiency, (b) learning gains in reading and mathematics, and (c) learning gains of the lowest quartile in reading and mathematics. Also examined was the collective overall implementation of the constructs and Adequate Yearly Progress (AYP).

Summary and Discussion of Findings

In contextualizing the results of the present study, several limitations must be revisited. The Professional Learning Community Rubric, the tool utilized to collect implementation data, had no baseline data. Therefore, there was no knowledge as to the extent to which the implementation of practices in a professional learning community was progressing, staying constant, or deteriorating. In addition, schools included in the sample were those who volunteered and, therefore, did not reflect all demographics represented in the district. Finally, data were based on perceptions obtained using the survey instrument. No other measure was utilized to verify or oppose the alignment of school perceptions and reality. Also, the return rate for the two high schools was low. As noted in Table 13, there were 9 respondents representing 203 faculty members in one high school and 18 respondents representing 109 faculty members in the second high school. Though conclusions could be drawn related to the relationship of the presence of professional learning community constructs and student achievement, there was no attempt to determine a causal relationship between the two.

Research Question 1

What is the relationship between a school's level of implementation of professional learning communities and students' performance in reading, mathematics, and science on the Florida Comprehensive Assessment Test (FCAT) in 2009?

The hypothesis for this question was that there was no difference between the level of implementation of professional learning communities and performance in proficiency on FCAT reading, mathematics, or science. This question was answered using a sample of 24 schools (elementary, middle, and high) in which teachers and administrators purposefully aligned their practice with a framework for behaving as professional learning communities for the 2008-09 school year and utilized the Professional Learning Communities Rubric and protocol for collecting data on implementation behaviors. Generally, in reading, mathematics, and science overall proficiency, more schools performed above expectation in 2009 as determined by SOAR than in 2008. However, it should be noted that in mathematics proficiency, of the five schools that moved backward, two were middle schools and one was a high school. In science, of the two schools that moved backward, one was a high school.

A Pearson correlation test was performed to determine the relationship between the behavioral indicators or constructs of professional learning communities and overall proficiency in reading, mathematics, and science. The results indicated that the correlation between reflective practice and overall reading proficiency was statistically significant. Focus and overall reading proficiency, though not significant at the $p < .05$ level, were notable.

Reflective practice, when culturally embedded, was described on the Professional Learning Community Rubric, based on the research of DuFour and Eaker (1998), Easton (2004), and the Florida Professional Development Protocol (Bureau of Educator Recruitment, 2006), as the following (Schmudde, 2008):

Each PLC member actively implements research-based practices, assesses learning and records results. Effectiveness is judged on student achievement results. Individual members feel responsible for the success or failure of all students served by the team. Individuals work to replicate successful practices in their own classroom. Feedback is sought and welcomed. Participants continually examine their professional practice through personal reflection and pursue professional growth through a variety of appropriate models. (Appendix A)

Focus, when culturally embedded, was described on the Professional Learning Community Rubric as the following (Schmudde, 2008):

High standards for students', teachers' and parent's performance are declared and monitored. Evidence that all members are steadfast in their belief that all can and will learn at high levels; and they are willing to do what is necessary for all to meet high standards is pervasive. Struggling learners are required to receive extra support until they are successful. PLCs submit products that result from their collaborative work as documentation of student learning. (Appendix A)

These findings indicated that school implementation of the practices of professional learning communities in the elements of reflective practice and focus, to some extent, were related to higher overall proficiency in reading.

Research Question 2

What is the relationship between a school's level of implementation of professional learning communities and students' learning gains in reading and mathematics on the Florida Comprehensive Assessment Test (FCAT) in 2009?

The hypothesis for this question was that there was no difference between the level of implementation of professional learning communities and learning gains on

FCAT reading and mathematics. More schools performed above expectation in reading learning gains. Of the eight schools moving forward, one was a middle school and one was a high school. There were no middle or high schools that moved forward or backward in mathematics learning gains. All remained constant. No relationships were found to be statistically significant. A consideration for this finding was the utilization of the structures of professional learning communities when drilling down to measurements of learning for individual students. A possibility is that a deeper level of implementation is required to achieve learning gains for all students. For all schools in the study, constructs for implementation fell somewhere between intentionally structured professional learning communities and culturally embedded professional learning communities. Culturally embedded descriptions for reflective practice and focus were cited. Reflective practice, when intentionally structured, was described on the Professional Learning Community Rubric, based on the research of DuFour and Eaker (1998), Easton (2004), and the Florida Professional Development Protocol (Bureau of Educator Recruitment, 2006), as the following (Schmudde, 2008):

Individuals are willing to accept that their instructional techniques may be part of the problem. Nevertheless, rather than taking personal responsibility for improving their practices, they tend to view professional development as ‘something they attend’ rather than personally desired opportunities for professional growth.

Intentionally structured focus (Schmudde, 2008) was described as:

Members commit to a high level of achievement for all students (who want to learn). Evidence that members are willing to do whatever is necessary for all learners is limited. Some interventions for struggling learners are in place, but participation is encouraged rather than required. Documentation of student learning is limited to that required for individual teachers.

Research Question 3

What is the relationship between a school's level of implementation of professional learning communities and learning gains of the lowest 25% in reading and mathematics on the Florida Comprehensive Assessment Test (FCAT) in 2009?

The hypothesis for this question was that there was no difference between the level of implementation of professional learning communities and learning gains of the lowest 25% on FCAT reading and mathematics. More schools performed above expectation in reading and mathematics learning gains of the lowest 25%. In reading, of the eight schools that moved forward, one was a middle school and one was a high school. One middle school moved backward. In mathematics, Of the seven schools that moved forward in mathematics, three of the four middle schools and one of the high schools moved forward. The fourth middle school moved backward. However, no relationships were found to be statistically significant.

A similar possibility for results cited in Research Question 2 could apply to this question as well, particularly in regard to the structures and processes of professional learning communities. Teachers serving the lowest quartile may not have had the same opportunities to employ the practices of professional learning communities as they did when instructing for overall proficiency in, for example, a grade level or department. Small subsets of teachers providing extra support to low performing students may not have had as clear or accurate a focus, the necessary or appropriate resources of time and materials, opportunities to collaborate with other teachers serving like students, or the capacity to reflect on their instruction. It is possible that specialized or isolated teachers focused on a specific purpose of instruction, may have been less likely to perceive

themselves to be in an environment or culture that functions as a professional learning community.

Research Question 4

What is the relationship between a school's overall level of implementation of professional learning communities and Adequate Yearly Progress in 2009?

The hypothesis for this question was that there was no difference between the level of implementation of professional learning communities and Adequate Yearly Progress on FCAT. No significant relationships were found. Once again, there were unique challenges presented for achieving Adequate Yearly Progress. The fact that the practices and structure of professional learning communities were not embedded throughout the culture, may have had an impact on the extent of influence on each existing layer and configuration for instruction.

Conclusion

The complexity of teaching and learning, and the relationship and interdependence of the two, creates a challenge in narrowly identifying teacher and administrator behaviors that increase student achievement. Equally as challenging is measuring the culture of a school that directly relates to increased student achievement. Acknowledging this, the findings of this study suggest that there are behaviors or constructs present in professional learning communities that positively relate to improving student proficiency: Reflective practice and to some extent, focus.

This places leaders in a position to create and support cultures which facilitate increased student achievement utilizing the constructs. Further guidance for leaders was provided by Taylor (2010) in a study of 62 leaders who improved student achievement. Several leader actions were identified, many paralleling descriptions of the behaviors or constructs identified in the Professional Learning Community Rubric. According to Taylor, leaders focused the school culture on student learning. They led learning through sharing their continued personal professional growth and expected the same of others. In addition, they reorganized time, space, and people to make the best decisions for student learning. Leaders developed strategies for communicating a consistent message, clarifying, and obtaining input. Collaboration was expected and supported, and data were utilized to facilitate teacher reflection of practice in the context of student learning. In order to maximize the improvement in student achievement through the practice of creating and implementing professional learning communities, attention was devoted to these constructs.

These conclusions have important implications for policy and practice. Professional learning communities provide great potential for supporting teachers and administrators in improving learning. However, professional learning communities are more than a group of teachers getting together for a discussion or a checklist of behaviors. Those considering implementation or those who have implemented professional learning communities would be wise to reflect or conduct action research on the constructs or actions that take place that are related to measures of learning. The practice of reflection and focus, as observed in this study, may be the leading indicators

of behaviors or constructs that signal change towards improved teaching and learning. This shift needs structures that support accountability for results. A sense of urgency, resulting from a targeted and communicated focus paired with teacher embedded practice of taking the time to examine instruction and its impact on learning, could result in attitudes and skills that could be transferred to collaborative settings as well as student relationships.

Recommendations for Policy

The findings of the researcher in this study have important implications for policy makers. Through the determination of a relationship between reflective practice and overall reading proficiency, individual teacher reflection was a behavior that was judged to be related to increased student achievement. Rosenholtz (1991) suggested, “Teachers usually find in their students what they look for. Consequently, their opinions often reveal more about themselves than their students” (p. 115). Reflection shapes opinion and expectation. Teacher reflection is embedded in the National Staff Development Standards for protocol (Darling-Hammond et al., 2009). It is critical that administrators and teachers follow the guidance of the standards that support the professional growth of educators through the utilization of reflective practice.

Recommendations for Practice

Recognizing the limitations of this study, a relationship between teacher practice and increased student achievement was identified. The primary finding of this study

concerned the relationship between teachers individually displaying the behavior or construct of reflection on their practice with improved overall reading proficiency.

Recognizing this relationship, there is practical significance in the use of reflection and its impact on student achievement. While the relationship was found with reading proficiency, the practice of reflection applied in other content areas would provide teachers and leaders with insight as to when and how instruction impacts learning. Leaders, by providing the structures for reflection through professional learning community designs such as action research as well as actions that contextualize the reflection, could then create a sense of urgency for change through a focus operating within a culture that supports adult learning for the purpose of student learning .

Reflective practice also bears practical significance for the achievement gap among groups of students when compared by subgroups . In this study, within the relationship of reading proficiency and reflective practice, several conclusions can be drawn regarding poverty and both ethnicity and students with disabilities. All 24 schools had subgroups for economically disadvantaged learners. Only seven of those schools did not achieve proficiency. There were 10 schools without a black subgroup, all of whom achieved proficiency, even though over half had a free and reduced lunch rate of 77-89%. black students achieved proficiency in only half of the schools in which their subgroups were represented. Their free and reduced lunch rate ranged from 47-81%. Practical significance is the recognition that for the black subgroups, the needs may extend beyond those only associated with poverty. Teacher reflection and leader action would be critical in providing instruction that raises student achievement for this subgroup.

A similar situation occurred for the students with disabilities subgroup, although proficiency was not achieved for this group in any of the schools in the study. Even when the free and reduced rate was as low as 51% in a white only school, the needs for this subgroup were not met to achieve a result of proficiency in reading. The practical significance regarding students with disabilities was that teacher reflection and leader action would be critical in providing the instruction that raises student achievement for this subgroup.

Questions that Linger

Reflecting on the research and the data presented in this study, several questions surfaced regarding professional learning communities and student achievement:

1. Why was a relationship with overall reading proficiency observed and not mathematics or science?
2. Why was a relationship with overall reading proficiency observed but not with reading learning gains or reading learning gains of the lowest 25%?
3. In examining the disaggregated data within the related variables of overall reading proficiency and reflective practice, why did all 10 schools without a black subgroup achieve proficiency, even though over half had a free and reduced lunch rate of 77-89%?
4. In examining the disaggregated data within the related variables of overall reading proficiency and reflective practice, why did 12 of the 13 schools

without students with disabilities subgroups achieve proficiency, even though over half had a free and reduced lunch rate of 81-95%?

5. In examining the disaggregated data within the related variables of overall reading proficiency and reflective practice, what are the possibilities for meeting the needs of subgroups through the utilization of reflective practice in the context of a professional learning community?
6. Given the low participation of middle and high schools, what are the unique challenges for creating professional learning communities in middle and high schools?

Recommendations for Practice and Future Research

Though the relationship between teacher reflective practice and reading proficiency was the only statistically significant relationship, other findings in the study resulted in the following questions that could be pursued in future research:

1. Further research could be conducted examining the focus, resources provided, the role of leaders as instructional leaders, the meeting context, and collaborative practices of teachers and administrators as related specifically to the content areas, examining unique differences in structures and practice.
2. Further research examining the constructs of reflection, collaboration, and resources for reading intervention instruction as compared to overall reading instruction could be conducted. The inclusion of structures and aspects of culture specific to high schools would be critical in this study.

3. Further research could be conducted to examine the constructs of professional learning communities, particularly teacher reflective practice, reframing for equity. This could include an examination of African American students, without the added lens of poverty or second language acquisition or learning disabilities, to determine gaps in instruction from a cultural perspective.
4. Examining the constructs of professional learning communities, particularly teacher reflective practice and reframing for differentiation, could be an area for further investigation for students with disabilities
5. Further research examining the constructs of professional learning communities, particularly teacher reflective practice, and the practice of action research in meeting the needs of all students to achieve adequate yearly progress should be conducted.
6. Further research examining the culture and structures unique to high schools and how they present unique challenges to creating professional learning communities would provide insight for leaders struggling to create a system that ensures success for all students.

This study leads to many questions for future research. In conclusion, the relationship between teacher reflection and achievement have been perhaps best expressed by McLaughlin (1993) who stated, “The path to change in the classroom core lies within and through teachers’ professional communities: learning communities which generate knowledge, craft new norms of practice, and sustain participants in their efforts to reflect, examine, experiment, and change” (p. 18).

APPENDIX A
PROFESSIONAL LEARNING COMMUNITY RUBRIC

DRAFT Professional Learning Community Rubric

“Learning communities are small groups of faculty who meet regularly to study more effective learning and teaching practices. Professional Learning Communities identify new programs or topics to investigate, gather research and studies on new approaches, and share their findings, or implement and study the effectiveness of new practices and share these results with other faculty in the school.”
 (Florida’s Professional Development Protocol Reviewer’s Guide)

	Culturally Embedded PLC	Intentionally Structured and Enforced PLC	PLC in Name Only
FOCUS	High standards for students’, teachers’, administrators’ and parent’s performance are declared and monitored. Evidence that all members are steadfast in their belief that all can and will learn at high levels, and they are willing to do what is necessary for all to meet high standards is pervasive. Struggling learners are required to receive extra support until they are successful. PLCs submit products that result from their collaborative work as documentation student learning.	Members commit to a high level of achievement for all students (who want to learn). Evidence that members are willing to do whatever is necessary for all learners is limited. Some interventions for struggling learners are in place, but participation is encouraged rather than required. Documentation of student learning is limited to that required for individual teachers.	Politically correct lip-service is given to the commitment all students achieving high standards. However, informal conversations frequently evidence the placement of blame on students, families and situations for inadequate performance.
LEADERS	Leaders are models of continuous learners, publicly asking themselves and others important questions. As partners in a defined solution seeking process, these leaders are comfortable with early ambiguity and shared decision making. Appreciating the uniqueness of each learner, PLC leaders offer opportunities that leverage the strengths of each individual and celebrate incremental achievements. Leaders provide knowledge, skilled facilitation and adequate time resources. Historical and current data is accurate and readily available. The leader proactively sculpts a school culture that is safe for critical examination and innovation where temporary failures are recognized as part of the learning process.	Leaders clearly support the professional development of the staff, but only sporadically participate in PLCs. While some shared decision-making occurs, structures for the process are not clearly defined and/or consistently used. Time for collaboration is scheduled and data is reviewed; however, the sessions often become exercises in “show and tell” rather than authentic inquiry that utilizes research, studies new approaches and examines the results of the strategies implemented in an open supportive forum.	Leaders require team members to participate in PLC meetings and related professional development, but rarely participate themselves. Leadership roles are open for a favored few. While willing to listen to staff input, the administration ultimately makes broad-based curriculum/instructional decisions. “We just can’t find enough time” is an accepted excuse for infrequent meetings. Knowledge resources are often in the form of packaged programs that have not been customized to local needs.
TEAMS	All PLC activities are focused on student learning aligned with the standards. PLCs meet frequently as part of the regular school schedule. Professional development design models* are differentiated and chosen according to participant needs and inquiry content. Terminal satisfaction is nonexistent. PLCs collaboratively identify important problems and/or opportunities related to professional practices, investigate solutions and enhancements, choose and test appropriate research-based practices through relevant and rigorous lessons, and openly share results. Communal reflection and dialogue is an integral part of the team’s work. Such reflection leads to a coordinated strategy to respond when some students do not learn.	A formal structure for group processing is facilitated by a leader who is responsible for reporting results. However, participants tend to view PLC meetings as another obligation to be met, rather than a source for professional support and nurturing. PLCs regularly examine and analyze data. Many members approach this task with a sense of compliance rather than commitment. While conversations are centered on student achievement, at times they lack candor and depth. The resulting instructional responses are often uncoordinated and individualistic.	Congeniality is mistaken for collaborative work. Meetings lack formal structure for group processing and are often consumed by operational and procedural issues. Successes are celebrated; failures are hidden. Conversations center around “What are we expected to teach?” rather than “How do we know when each student has learned?” Teams sporadically engage in the exploration of new instructional strategies. Occasionally a few members share practices with their team.
MEMBERS	Each PLC member actively implements research-based practices, assesses learning and records results. Effectiveness is judged on student achievement results. Individual members feel responsible for the success or failure of all students served by the team. Individuals work to replicate successful practices in their own classroom. Feedback is sought and welcomed. Participants continually examine their professional practice through personal reflection and pursue professional growth through a variety of appropriate models.	Individuals are willing to accept that their instructional techniques may be part of the problem. Nevertheless, rather than taking personal responsibility for improving their practices, they tend to view professional development as “something they attend” rather than personally desired opportunities for professional growth.	Personal goals focus on implementation rather than results. Comfortable instructional routines are justified. Individual team members feel successful and satisfied when the achievement of their students surpasses that of their teammates.

* See *Powerful Designs for Professional Learning*, NSDC

APPENDIX B
UCF INSTITUTIONAL REVIEW BOARD DOCUMENTATION



University of Central Florida Institutional Review Board
Office of Research & Commercialization
12201 Research Parkway, Suite 501
Orlando, Florida 32826-3246
Telephone: 407-823-2901, 407-882-2012 or 407-882-2276
www.research.ucf.edu/compliance/irb.html

NOT HUMAN RESEARCH DETERMINATION

From : **UCF Institutional Review Board #1**
FWA00000351, IRB00001138
To : **Amanda Ellis**
Date : **December 01, 2009**

Dear Researcher:

On 12/1/2009, the IRB determined that the following proposed activity is not human research as defined by DHHS regulations at 45 CFR 46 or FDA regulations at 21 CFR 50/56:

Type of Review:	Not Human Research Determination
Project Title:	A Study of the Relationship Between Professional Learning Community Implementation and Adequate Yearly Progress of Urban Schools
Investigator:	Amanda Ellis
IRB ID:	SBE-09-06561
Funding Agency:	
Grant Title:	
Research ID:	N/A

University of Central Florida IRB review and approval is not required. This determination applies only to the activities described in the IRB submission and does not apply should any changes be made. If changes are to be made and there are questions about whether these activities are research involving human subjects, please contact the IRB office to discuss the proposed changes.

On behalf of the IRB Chair, Joseph Bielitzki, DVM, this letter is signed by:

Signature applied by Joanne Muratori on 12/01/2009 12:10:10 PM EST

IRB Coordinator

APPENDIX C
ORANGE COUNTY PUBLIC SCHOOL RESEARCH APPROVAL

Submit this form and a copy of your proposal to:
Accountability, Research, and Assessment
 P.O. Box 271
 Orlando, FL 32802-0271

Orange County Public Schools
RESEARCH REQUEST FORM

Your research proposal should include:

- Project Title
- Purpose and Research Problem
- Instruments
- Procedures and Proposed Data Analysis

Requester's Name Amanda Ellis Date 9/15/09

Address 761 Glenridge Way Phone 407-622-1852

Institutional Affiliation University of Central Florida

Project Director or Advisor Dr. Rosemarye Taylor Phone _____

Address UCF

Degree Sought: (check one) Associate Doctorate Bachelor's Not Applicable Master's Specialist

Project Title: A Study of the Relationship Between Professional Learning Community Implementation and Adequate Yearly Progress of Urban Schools

ESTIMATED INVOLVEMENT			
PERSONNEL/CENTERS	NUMBER	AMOUNT OF TIME (DAYS, HOURS, ETC.)	SPECIFY/DESCRIBE GRADES, SCHOOLS, SPECIAL NEEDS, ETC.
Students			
Teachers			
Administrators			
Schools/Centers			
Others (specify)			

Specify possible benefits to students/school system: Closer analysis of the relationship between school implementation of professional learning communities and student achievement.

ASSURANCE

Using the proposed procedures and instrument, I hereby agree to conduct research in accordance with the policies of the Orange County Public Schools. Deviations from the approved procedures shall be cleared through the Senior Director of Accountability, Research, and Assessment. Reports and materials shall be supplied as specified.

Requester's Signature Amanda Ellis

Approval Granted: Yes No Date: 9-16-09

Signature of the Senior Director for Accountability, Research, and Assessment Lee Bolseri

NOTE TO REQUESTER: When seeking approval at the school level, a copy of this form, signed by the Senior Director, Accountability, Research, and Assessment, should be shown to the school principal who has the option to refuse participation depending upon any school circumstance or condition. The original Research Request Form is preferable to a faxed document.

Reference School Board Policy GCS, p. 249 OCPS1044ARA (Revised 6/07)

LIST OF REFERENCES

- Barth, R. S. (2003). *Lessons learned*. Thousand Oaks: Corwin Press.
- Bolman, L. G., & Deal, T. E. (2003). *Reframing organizations artistry, choice, and leadership*. San Francisco: Jossey-Bass.
- Buckingham, M., & Clifton, D. (2001). *Now, discover your strengths*. New York: Free Press.
- Bureau of Educator Recruitment, D. a. (2006, August). *Protocol System Second Cycle 2006-07*. Retrieved August 3, 2009, from Teach in Florida: www.fldoe.org/profdev/pdf/pdsprotocol.pdf
- Darling-Hammond, L. (1996, March). *The quiet revolution rethinking teacher development*. Retrieved September 1, 2009, from Educational Leadership, 53(6), 4: Middle Search Plus database
- Darling-Hammond, L., Wei, R., Andree, A., Richardson, N., & Orphanos, S. (2009, February). *Professional learning in the learning profession: A status report on teacher development in the United States and abroad*. Retrieved April 28, 2009, from National Staff Development Council: www.nsd.org/stateproflearningcfm
- Davenport, P., & Anderson, G. (2002). *Closing the Achievement Gap*. Houston: APQC.
- DuFour, R., & Eaker, R. (1998). *Professional learning communities at work*. Bloomington: Solution Tree.
- Easton, L. B. (2004). *Powerful designs for professional learning*. Oxford: National Staff Development Council.
- Florida Department of Education (n.d.). *Meeting Adequate Yearly Progress (AYP) for the Requirements of No Child Left Behind (NCLB)*. Retrieved July 13, 2009, from Florida Department of Education: http://www.fldoe.org/NCLB/adequate_yearly_progress.asp?style=print
- Florida Department of Education, (2005). *FCAT Handbook*. Retrieved July 26, 2009, from Florida Department of Education: <http://fcate.fldoe.org/hankbk/fcathandbook.asp>
- Florida Department of Education, (2007). *Florida Department of Education Professional Development System Evaluation Protocol Orange County Review, 10/22/2007-10/26/2007*. Florida Department of Education.

- Florida Department of Education, (2008, July 29). *Florida's Differentiated Accountability Model Guidance for Implementation 2008-09 School Year*. Retrieved January 25, 2010, from Florida Department of Education: www.fldoe.org/news/2008/2008_07_29/diffaccountimplem.pdf
- Florida Department of Education, (2009a, June). *2009 Guide to calculating AYP*. Retrieved July 26, 2009, from Florida Department of Education: <http://schoolgrades.fldoe.org/pdf/0809/2009AYPTAP.pdf>
- Florida Department of Education, (2009b, June). *2009 Guide to calculating school grades*. Retrieved July 26, 2009, from Florida Department of Education: <http://schoolgrades.fldoe.org/pdf/0809/2009SchoolGradesTAP.pdf>
- Florida Department of Education, (2009c, June 18). *Florida's Differentiated Accountability Plan*. Retrieved January 25, 2010, from Florida Department of Education: www.fldoe.org/board/meeting/2009_07_14/daplan.pdf
- Fullan, M. (2006). *Turnaround leadership*. San Francisco: Jossey-Bass.
- Gilrane, C., Roberts, M., & Russell, L. (2008, July/August). *Building a Community in which everyone teachers, learns, and reads: A case study*. Retrieved April 4, 2009, from Journal of Educational Research: ERIC database
- Green, S., & Salkind, N. (2008). *Using SPSS for Windows and Macintosh*. New Jersey: Pearson Education, Inc.
- Hord, S. (1997a). *Professional learning communities: Communities of continuous inquiry and improvement*. Austin: Southwest Educational Development Laboratory.
- Hord, S. (1997b). *Professional learning communities: What are they and why are they important? Issues . . . Issues . . . about Change, 6(1)*. Retrieved September 1, 2009, from SEDL: <http://www.sedl.org/change/issues/issues61.html>
- Hord, S., & Hirsh, S. (2009). Principal's role in supporting learning communities. *Educational Leadership*, 66(5), 22-23.
- Hord, S. M. (2004). *Learning together leading together*. New York: Teachers College Press.
- Hord, S. M., & Sommers, W. A. (2008). *Leading professional learning communities*. Thousand Oaks: Corwin Press.

- Keck-Centeno, J. S. (2008). *Path to school improvement: A case study of an urban elementary school*. Retrieved March 1, 2009, from Doctoral dissertation, University of California, Irvine (UMI No. 3296293): ERIC database
- Lomax, R. G. (2007). *Introduction to statistical concepts*. Mahwah: Lawrence Erlbaum Associates.
- Marzano, R. (2001). *Classroom instruction that works*. Alexandria: Association for Supervision and Curriculum Development.
- Marzano, R. J. (2009, September). Setting the record straight on "high-yield" strategies. *Phi Delta Kappan* , 99(1), 30-37.
- McFadden, L. (2009, April). *District learning tied to student learning*. Retrieved November 6, 2009, from Phi Delta Kappa International: http://www.pdkintl.org/kappan/k_v0904mcf.htm
- McLaughlin, M. W., & Talbert, J. E. (1993). *Contexts that matter for teaching and learning*. Stanford: Stanford University: Center for Research on the Context of Secondary School Teaching.
- National Commission on Excellence in Education (1983, April). *A Nation at risk: The imperative for educational reform*. Retrieved June 27, 2009, from U. S. Department of Education: <http://www.ed.gov/pubs/NatAtRisk/index.html>
- Office of English Language Acquisition, L. E. (2002). *No Child Left Behind Act of 2001 Title I: Improving the academic achievement of the disadvantaged*. Washington: National Clearinghouse for English Language Acquisition & Language Instruction Educational Programs.
- Orange County Public Schools (2007, July 1). *Orange County Public Schools Job Description*. Retrieved October 26, 2009, from Orange County Public Schools: <http://www.ocps.net/es/hr/compensation/jobdesc/JobsAdministrative/AreaSuperintendent%208-1-07.pdf>
- Reeves, D. B. (2006). *Learning leader*. Alexandria, VA: Association for Supervision and Curriculum Development.
- Rosenholtz, S. (1991). *Teachers' workplace*. New York: Teachers College Press.
- Schmudde, M. A. (2008). *Professional Learning Community Implementation Rubric*. Orlando, FL: Orange County Public Schools.

- Senge, P. (1990). *Fifth discipline*. New York: Currency Doubleday.
- Senge, P. (2000). *Schools that learn*. New York: Doubleday Dell Publishing Group.
- Strahan, D. (2003, November). *Promoting a collaborative professional culture in three elementary schools that have beaten the odds*. Retrieved April 4, 2009, from Elementary School Journal, ERIC database
- Taylor, R.T. (2010, April, in press). *Leadership to improve student achievement: Focus the culture on learning*. American Association of School Administrators Journal of Scholarship and Practice.
- Thibodeau, G. M. (2008, September). *A content literacy collaborative study group: High school teachers take charge of their professional learning*. 52(1), 54-64: Retrieved April 4, 2009, from Journal of Adolescent and Adult Literacy, ERIC database
- Thompson, S. C., Gregg, L., & Niska, J. M. (2004). *Professional learning communities, leadership, and student learning*. 28(1), 35-54: Retrieved April 3, 2009, from Research in Middle Level Education Online, ERIC database
- U.S. Department of Education, U. S. (2008, December). *Progress of our schools and the U. S. Department of Education*. Retrieved July 26, 2009, from ED.gov: www.ed.gov/print/nclb/accountability/results/trends/progress.html
- Vescio, V., Ross, D., & Adams, A. (2008). *A review of research on the impact of professional learning communities on teaching practice and student learning*. 24(2008), 80-91: Retrieved April 4, 2009, from Science Direct, ERIC database
- Visscher, A. J., & Witziers, B. (2004, December). *Subject departments as professional communities?* 30(6), 785-800: Retrieved April 4, 2009, from British Educational Research Journal, 30: ERIC database
- Wagner, T. (2008). *Global achievement gap*. New York: Basic Books.
- Wagner, T., & Kegan, R. (2006). *Change leadership*. San Francisco: Jossey-Bass.
- Waters, T., & Cameron, G. (2007). *Balanced leadership framework connecting vision with action*. Denver: McREL.

Williams, L., Atkinson, L., Cate, J., & O'Hair, M. (2008, October 1). *Mutual support between learning community development and technology integration: Impact on school practices and student achievement*. Retrieved April 4, 2009, from Theory Into Practice: EBSCOHost EJS Content Distribution.