The professional learning community and its effect on African American students' achievement

Anthony Eugene Copeland
College of William & Mary - School of Education

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THE PROFESSIONAL LEARNING COMMUNITY
AND ITS' EFFECT ON AFRICAN AMERICAN
STUDENTS' ACHIEVEMENT

A Dissertation
Presented to
The Faculty of the School of Education
The College of William and Mary

In Partial Fulfillment
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Doctor of Education

By
Anthony Eugene Copeland
December 2009
THE PROFESSIONAL LEARNING COMMUNITY AND ITS' EFFECT ON AFRICAN AMERICAN STUDENTS' ACHIEVEMENT

by

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DEDICATION

This dissertation is dedication to my Mother, Lucille Copeland, who I miss daily.
# TABLE OF CONTENTS

Chapter 1: The Research Problem ......................................................... 2  
  Introduction ...................................................................................... 2  
  The Academic Achievement Gap .................................................... 3  
  The Professional Learning Community (PLC) ................................. 4  
  Characteristics of the PLC ............................................................... 4  
  PLCs and the Achievement Gap ..................................................... 6  
  Purpose of the Study ........................................................................ 7  
  Research Questions .......................................................................... 7  
  Significance of the Study ................................................................. 8  
  Definition of Terms ......................................................................... 9  

Chapter 2: Review of the Literature .................................................... 11  
  Introduction ...................................................................................... 11  
  The Disparity in Educational Opportunity .................................... 12  
  The Disparity in Achievement ...................................................... 16  
  Factors Promoting the Achievement Gap ...................................... 18  
    Socioeconomic (SES) ................................................................. 21  
    During-School Factors ............................................................... 22  
    Teacher Expectations ............................................................... 22  
    Teacher Experience ................................................................. 23  
    Teacher Quality .......................................................................... 23  
    Teacher Pedagogy ....................................................................... 24  
    School Funding .......................................................................... 25  


<table>
<thead>
<tr>
<th>Topic</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under-representation of African-Americans Students in Gifted Programs</td>
<td>26</td>
</tr>
<tr>
<td>Over-representation of African American Students in Special Education</td>
<td>27</td>
</tr>
<tr>
<td>Rigorous Curriculum</td>
<td>28</td>
</tr>
<tr>
<td>Lesser Factors</td>
<td>28</td>
</tr>
<tr>
<td>An Alternative Perspective on the Achievement Gap</td>
<td>29</td>
</tr>
<tr>
<td>Summary</td>
<td>31</td>
</tr>
<tr>
<td>Learning Organization</td>
<td>32</td>
</tr>
<tr>
<td>Professional Learning Communities</td>
<td>36</td>
</tr>
<tr>
<td>Shared Mission, Vision, and Values</td>
<td>38</td>
</tr>
<tr>
<td>Collective Inquiry</td>
<td>39</td>
</tr>
<tr>
<td>Collaborative Teams</td>
<td>39</td>
</tr>
<tr>
<td>Action Orientation and Experimentation</td>
<td>40</td>
</tr>
<tr>
<td>Continuous Improvement</td>
<td>40</td>
</tr>
<tr>
<td>Results Orientation</td>
<td>41</td>
</tr>
<tr>
<td>Learning Organizations and PLCs</td>
<td>41</td>
</tr>
<tr>
<td>PLCs Effect on Student Achievement</td>
<td>42</td>
</tr>
<tr>
<td>Summary</td>
<td>45</td>
</tr>
<tr>
<td>Chapter 3: Methodology</td>
<td>47</td>
</tr>
<tr>
<td>Introduction</td>
<td>47</td>
</tr>
<tr>
<td>Statement of the Problem</td>
<td>47</td>
</tr>
<tr>
<td>Research Questions</td>
<td>48</td>
</tr>
</tbody>
</table>
Setting and Participants ........................................... 49
Data Collection ..................................................... 50
Instrumentation ..................................................... 51
Alignment of PLC Characteristics and Survey Instruments' Main
Descriptors ......................................................... 54
Student Achievement ............................................... 55
Research Design .................................................... 57
Data Analysis ....................................................... 59
Limitations ......................................................... 61
Chapter 4: Analysis of Results .................................... 63
Introduction ......................................................... 63
Participants ......................................................... 63
Factor Analysis ..................................................... 64
Participating Schools' PLCness ................................... 70
Students' Performance in Math and Reading ................... 70
Free and Reduced Lunch (FRED) ............................. 71
Analysis of Research Questions .................................. 72
Research Question 1a: For all students, to what extent is the
presence of PLC practices related to achievement in Math? .... 72
Research Question 1b: For all students, to what extent does SES
influence this relationship? ........................................ 73
Research Question 1c: For all students, to what extent does SES
and attendance influence this relationship? ....................... 74
Research Question 2a: For all students, to what extent is the presence of PLC practices related to achievement in Reading? ... 76
Research Question 2b: For all students, to what extent does SES influence this relationship? .................................................. 76
Research Question 2c: For all students, to what extent does SES and attendance influence this relationship? ............................. 77
Research Question 3: To what extent is the presence of PLC practices related to the achievement of African-American students in Math? ................................................................. 78
Research Question 4: To what extent is the presence of PLC practices related to the achievement of African-American students in Reading? ................................................................. 79
Research Question 5: To what extent is the presence of PLC practices related to the achievement of White students in Math? 80
Research Question 6: To what extent is the presence of PLC practices related to the achievement of White students in Reading? ................................................................. 81
Research Question 7: To what extent do the set of PLC measures explain the variance in achievement of African-American students when controlling for SES in Math and Reading? ................................................................. 82
Research Question 8: To what extent do the set of PLC measures explain the variance in achievement of African-American students when controlling for SES in Math and Reading? 83

Summary 84

Chapter 5: Conclusions 85

Introductions 85

Summary and Discussion of Findings 86

Participants 86

Student Performance in Math and Reading 87

Free and Reduced Lunch and Attendance 88

PLC and the PLC Subscales Scores 89

PLC and Student Achievement 90

Shared Vision/Decision Making and Student Achievement 91

Collective Learning and Student Achievement 93

Action Orientation and Student Achievement 94

PLC and Variance in Student Achievement 95

PLC and Closing the Achievement Gap 95

Implications for Practice 96

Recommendations for Future Research 98

Summary 100

Appendix A: School Professional Staff as Learning Community Survey 101
Appendix B: Letter to Schools Requesting Participation .................. 104
Appendix C: Letter to Participating Schools .................................. 106
Appendix D: Letter to Participants .............................................. 108
References .................................................................................. 110
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<table>
<thead>
<tr>
<th>Table</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Learning Organizations, PLCs, and Survey</td>
<td>42</td>
</tr>
<tr>
<td>2</td>
<td>Alignment of PLC Characteristics and Survey Instrument Main Descriptors</td>
<td>55</td>
</tr>
<tr>
<td>3</td>
<td>Data Analysis</td>
<td>59</td>
</tr>
<tr>
<td>4</td>
<td>Study Participants</td>
<td>64</td>
</tr>
<tr>
<td>5</td>
<td>Factor Loading Table of Survey Items</td>
<td>69</td>
</tr>
<tr>
<td>6</td>
<td>Participating Schools' PLC and PLC Subscale Data</td>
<td>70</td>
</tr>
<tr>
<td>7</td>
<td>Grades 3-5 Math and Reading Scale Scores</td>
<td>71</td>
</tr>
<tr>
<td>8</td>
<td>Free and Reduced Lunch (FRED) and Attendance</td>
<td>72</td>
</tr>
<tr>
<td>9</td>
<td>Pearson Correlation – PLC and PLC Subscales Correlated with All Students' Math/Reading Achievement</td>
<td>73</td>
</tr>
<tr>
<td>10</td>
<td>Partial Pearson Correlation Controlling for SES of PLC Practices Related to All Students' Math/Reading Achievement</td>
<td>74</td>
</tr>
<tr>
<td>11</td>
<td>Multiple Regression Analysis of Math Achievement by All Students, with PLC Score, SES, and Attendance as Predictors</td>
<td>75</td>
</tr>
<tr>
<td>12</td>
<td>Multiple Regression Analysis on Reading Achievement by All Students, with PLC Scores, SES, and Attendance as Predictors</td>
<td>78</td>
</tr>
<tr>
<td>13</td>
<td>Pearson Correlation of PLC Practices Related to African-American Math and Reading Achievement</td>
<td>79</td>
</tr>
</tbody>
</table>
14  Pearson Correlation of PLC Practices Related to White Math/Reading Achievement ................................................................. 81

15  Partial Correlation of PLC Practices Related to African-American Math/Reading Controlling for SES .................................................. 83
THE PROFESSIONAL LEARNING COMMUNITY AND ITS' EFFECT ON AFRICAN-AMERICAN STUDENTS' ACADEMIC ACHIEVEMENT

ABSTRACT

The purpose of this correlational study was to quantify the degree to which teachers believe their school adheres to professional learning community (PLC) practices and determine to what extent PLC practices are related to student achievement. The study also attempted to determine to what extent PLCs were related to African American students' achievement and closing the achievement gap.

Schools were the unit of analysis and participants were elementary school teachers from 25 schools in a large diverse school district located in the mid-Atlantic region. They were administered Hord's School Professional Staff as Learning Community survey to compute their school's "PLCness" (e.g. the degree to which the school engages in PLC practices). Students' average scale scores from the 2008-2009 Virginia Standards of Learning examination for grades 3-5 in Math and Reading were the measure of student achievement. Other variables included in the models were socio-economic status (SES) and attendance.

In this study, PLC practices were moderately correlated with all students' Reading achievement on the Standards of Learning examination. Shared Vision/Decision Making was moderately correlated with all students' and African-American students' Math and Reading achievement on the Standards of Learning examination. PLC accounted for 21% of the variance in all students'
Reading achievement. PLC, SES, and attendance accounted for 54% of all students' variance in Math achievement in 59% of the variance in Reading achievement. SES was the only variable that made an independent contribution to explaining variance.

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THE PROFESSIONAL LEARNING COMMUNITY AND ITS' EFFECT ON AFRICAN AMERICAN STUDENTS' ACHIEVEMENT
CHAPTER I

THE PROBLEM

Introduction

In 1966, the Equality of Educational Opportunity Report (1966), better known as the Coleman Report, concluded that Black children trailed their White peers at the start of school and never caught up. The study also found that Black students' homes were a greater influence on Black children's academic performance than the schools they attend. The Equality of Educational Opportunity Report (1966) identified this disparity, and it was later named the achievement gap. Over the next four decades, the achievement gap has been one of the more studied phenomena in education. While there was general consensus about its causes, existence, and persistence, there was disagreement about its magnitude. Berliner and Biddle (1995) suggested that the underachievement of American schools had been over stated.

In response to the achievement gap, educators have adopted and abandoned a number of practices in an effort to improve the academic achievement of all students. One widely implemented approach to improving student achievement is the Professional Learning Community (PLC). PLCs are teachers with a common purpose working together to improve their teaching to improve student learning (DuFour & Eaker, 1998). While schools had been organizing as PLCs for over two decades, indicators that they tended to promote improved student achievement were small (Vescio, Ross, & Adams, 2008).
The Academic Achievement Gap

The academic achievement gap was arguably one of the most significant issues in public education (Olszewski-Kubilius, Lee, Ngoi, & Ngoi, 2004). It consisted of multiple gaps that are present between and within groups. This focused on the black-white achievement gap as reported in 1966 and continuing today. It is the differences in national and state achievement test scores between African-American and White students at all grades (Ramirez & Carter, 2005). Gaps existed whether considering students from urban, suburban, or rural school systems or low or high income families. On almost every indicator of academic achievement, on average African-American students did not perform as well as their White peers (Olszewski-Kubilius, et al., 2004).

African-American and White learners entered school at different levels of readiness (Borman, Stirngfield, & Rachuba, 2000). As a result, we found that their academic achievement on average was disparate, and it increased as they advanced through school. While there was a growing understanding of the causes of the achievement gap and a wealth of data on the phenomena, practices to eliminate the gap yielded inconsistent results.

With the implementation of No Child Left Behind (2001), schools were required to report the performance of subgroups, including African-American students, on standardized tests. Educators needed proven practices that worked in a variety of settings to ensure that all students learned. They could not afford to expect a change in student achievement unless they changed their approach to teaching and student learning. Being held accountable for all students'
learning led many educators to work together in a more purposeful way. One model of teachers working together to improve their teaching to improve student learning is the professional learning community.

The Professional Learning Community

One of the more recent efforts to improve teaching to improve student learning was the professional learning community (PLC). A PLC is a school organization in which all stakeholders are involved in joint planning, action, and assessment of student growth and school improvement. The characteristics of a PLC are shared mission, vision, and values; collective inquiry; collaborative teams; action orientation and experimentation; continuous improvement; and results orientation. PLCs are educators with a common goal working together in a continual process of inquiry and experimentation to improve student learning.

PLCs operate under the assumption that the key to improved student learning is continuous job-embedded learning for teachers (DuFour & Eaker, 1999).

PLCs were derived from the work of Peter Senge (1990) on learning organization. Senge (1990) described them as teams that help, learn from, and depend on each other. The disciplines of a learning organization were personal mastery, mental models, shared vision, team learning, and systems thinking (Senge, 1990). Members of the organization had to change their thinking about their job and their ability to affect change for the principles to be effective. These disciplines were adapted to the school environment and became the tenets of PLCs.
Characteristics of the PLC

The characteristics of a PLC were derived from the disciplines of learning organizations (Senge, 1990). Just as doctors collaborate on patients to identify and treat their ailments, teachers could be more effective in promoting improved student learning by working together. The PLC consisted of five characteristics: shared mission, vision, and values, collaborative teams, collective inquiry, action orientation and experimentation, results orientation and continuous improvement (DuFour & Eaker, 1998). These characteristics comprised the core practices of PLCs and distinguish them from ordinary schools.

In the PLC mission, vision, and values were the core beliefs of the members about themselves and their schools. They defined what they wanted their school to be and provided the foundation for changing it (DuFour & Eaker, 1998; Hughes & Kritsonis, 2006).

Collective inquiry was the sharing of ideas among members to promote collaboration (Hughes & Kritsonis, 2006). Collective inquiry promoted improvement, growth, and renewal in a PLC (DuFour & Eaker, 1998; Hughes & Kritsonis, 2006). Collaborative teams promoted the growth of knowledge for the organization. Team members learned from one another and built the learning community's knowledge capacity.

Action orientation and experimentation and continuous improvement were separate characteristics of the PLC, but they worked together to support each other. Action orientation and experimentation represented the willingness of the members of the PLC to not only hypothesize but also try new things to promote
student learning. Continuous improvement represented the everyday work environment of the PLC. In it teachers never settled for the status quo. Action orientation and experimentation was the motivation for continuous improvement. Continuous improvement was the justification for action orientation and experimentation (DuFour and Eaker, 1998; Hughes & Kritsonis, 2006).

For many educators, the PLC was a means for teachers to successfully meet the challenges of changing their teaching to meet the needs of their students and promote their learning (Thompson, Gregg, & Niska, 2004). It was no wonder that with teachers being held accountable for students’ continual improvement, PLCs were implemented in all types of schools.

PLCs and the Achievement Gap

The Coleman Report and A Nation at Risk (1983) were two of the more prominent education related studies of the 20th century that offer findings and recommendations on the dilemma that was hindering the academic achievement of African-American children. While previous efforts focused on improving schools or teacher pedagogy, PLCs represented a new direction for improving student achievement. PLCs were teacher-led teams with a common mission, vision, and values whose sole focus and purpose was to improve student learning. Improving student learning would lead to increased academic achievement for all students and a closing of the achievement gap (Hughes & Kritsonis, 2006).
Purpose of the Study

The purpose of the study was to quantify schools adherence to PLC practices and determine whether there was a relationship between those practices and all, African-American and White students' achievement on the Virginia Standard of Learning exams in Math and Reading. In addition, this study examined whether schools that adhered to PLC practices improved African-American and White students' achievement and narrowed the achievement gap.

Research Questions

Among a sample of elementary schools with established PLCs:

1. For all students:
   a. To what extent is the presence of PLC practices related to achievement in Math?
   b. To what extent does SES influence this relationship?
   c. To what extent do SES and attendance influence this relationship?

2. For all students:
   a. To what extent is the presence of PLC practices related to the achievement of all students in Reading?
   b. To what extent does SES influence this relationship?
   c. To what extent do SES and attendance influence this relationship?

3. To what extent is the set of PLC practices related to the achievement of African-American students in Math?
4. To what extent is the set of PLC practices related to the achievement of African-American students in Reading?

5. To what extent is the presence of PLC practices related to the achievement of White students in Math?

6. To what extent is the presence of PLC practices related to the achievement of White students in Reading?

7. To what extent do the set of PLC measures explain the variance in achievement of African-American students in Math when controlling for SES?

8. To what extent do the set of PLC measures explain the variance in achievement of African-American students in Reading when controlling for SES?

Significance of the Study

While current educational literature featured articles that praised the virtues of PLCs as a way to organize schools to improve teaching and improve student learning, the majority of the articles and studies were not empirically based (Vescio, et al., 2008). In addition to the small body of substantial research on PLCs, there was a growing concern that some schools that called themselves PLCs did not follow its tenets or demonstrate its characteristics. As a result, their failure to achieve improved student results promoted a belief that PLCs were not an effective practice to improve teaching to improve student learning.

This study adds to the small but growing body of research on schools that claimed to be PLCs. The intent was to quantify a school's adherence to PLC
practices and correlate the value with its' students' performance to determine to what extent PLCs increased all students' achievement.

**Definition of Terms**

For the purpose of this study, the following terms were defined as follows:

**Achievement Gap**: a number of indicators of the persistent pattern of difference in African-American and White students' scores. The Standards of Learning exam was the indicator of the achievement gap in this study.

**Action Orientation and Experimentation**: a characteristic of a PLC; action orientation represents the qualities of developing hypothesis about teaching and learning, experimenting, and analyzing the outcomes to improve student learning.

**Collaborative Teams**: a characteristic of a PLC; collaborative teams are the manifestation of procedures, communications, and relationships to increase teacher learning in order to improve student achievement.

**Collective Inquiry**: a characteristic of a PLC; collective inquiry represents the persistent search for answers to questions related to effective teaching and student learning.

**Community**: a group linked by common interests.

**Continuous Improvement**: a characteristic of a PLC; continuous improvement represents a continual discomfort with the status quo. Continuous improvement occurs when collaborative teams are formed and actively engaged in communications about the school's mission and purpose.

**PLCness**: the average numerical value derived from the School Professional
Staff as Learning Community survey that represents the teachers' belief about the school as a PLC.

**Professional Learning Community**: a place in which the teachers and administrators in a school continuously seek and share learning and act on that learning.

**Professional**: someone with expertise in a specialized field; an individual who has not only received advanced training to enter the field, but also is expected to remain current in its developing knowledge base.

**Results Orientation**: a characteristic of a PLC; results orientation is the recognition that constant assessments are key to a results oriented culture.

**Shared Mission, Vision, and Values**: a characteristic of a PLC; shared mission, vision, and values represent the group's mutual belief in children and their ability to learn, their view of parent roles, teachers and administrator, and school priorities concerning the use of time and space.

**Standards of Learning**: The Standards of Learning for Virginia Public Schools are the Commonwealth's expectations for students' learning and achievement in grades K-12 in Reading, Math, science, history/social science, technology, the fine arts, foreign language, and health and physical education. The standards represent a broad consensus of parents, teachers, administrators, academics, and business and community leaders' beliefs about teaching and student learning in schools.
CHAPTER II
REVIEW OF THE LITERATURE

Introduction

On practically every academic achievement test, on average African-American students did not perform at the same levels as their White peers. This was referred to as the black-white achievement gap, hereafter referred to as the achievement gap. The achievement gap was comprised of three distinct differences in performance on standardized assessments between African-American and White students. The first gap was the difference in the academic achievement of lower SES African-Americans students in comparison to White middle and upper SES students on standardized assessments. The second gap was the difference in the academic achievement of African-American and White students from families with similar incomes on standardized assessments. The third gap was the difference in the academic achievement of African-American and White students from urban and suburban schools on standardized assessments. Despite a myriad of efforts, proposals, and initiatives the gap remained (Olszewski-Kubilius, et. al., 2004; Rothstein, 2004).

Among educators, there was broad consensus that schools must abandon the industrial model of education and learn to function as learning organizations (Biddle, 2002). In education, the PLC was educator’s version of a learning organization. PLCs were teachers working collaboratively to improve student learning. PLCs recognized that the school’s mission and vision were ideals;
nevertheless, they continually strove to achieve them (Giles & Hargreaves, 2006).

This chapter was a summary of the achievement gap and factors that perpetuate it and PLCs and their characteristics. The chapter also established the link between PLC claims and improved academic achievement for all students.

The Disparity in Educational Opportunity

The end of World War II marked a change in the educational prospects for African-Americans, but it also highlighted the disparity in educational opportunity between African-Americans and Whites. The increase in the number of African-Americans attending college after the war sparked comparisons of educational opportunity and achievement between the races. The achievement gap would become a major focus for those who viewed the educational system as the nation's equalizer (Harris & Herrington, 2006).

In 1945, African-Americans veterans returned from the war and used their G. I. Bill to go to college and increase their standard of living (Harris & Herrington, 2006). Many African-Americans who finished college were the first in their family to do so. The increase in educated African-Americans also coincided with the beginning of the Civil Rights Movement in America. In effect the Civil Rights Movement used the growing number of educated African-Americans to expose and demonstrate for changes in education system.

By 1954 the U. S. Supreme Court decision in Brown v. Board of Education of Topeka that separate but equal was not equal moved the education system
towards desegregation (Harris & Herrington, 2006). While some African-American students were able to attend better schools, some school districts acted to encourage African-Americans to stay in segregated schools. These districts allocated additional funds to improve predominantly African American schools, so their students would have no need to integrate schools. The federal government also contributed to improving segregated schools by establishing Federal Title I and Head Start programs. While these funds helped raise the number and quality of resources for some predominantly African-American schools, the chasm of disparity in educational opportunity was not sealed. Predominantly White schools retained the best resources and were still funded at significantly higher rates than the predominantly African-American schools (Harris & Herrington, 2006).

In 1966, the federal government commissioned the Equality of Educational Opportunity Report (1966) – known as The Coleman Report. The commission’s charter was to document the availability of educational opportunities for minorities in comparison to opportunities for Whites. The Coleman Report exposed the disparity in resources, performance, and opportunity between Black and White students. The Coleman Report found that the educational disadvantage between African-American and White students was large, and it increased for African-Americans as they progressed through school. In terms of resources, the report found that predominantly African-American schools had fewer textbooks and library books than predominantly White schools. With respect to performance, the report claimed that the average minority student
achieved less than his White peers. In terms of opportunity, the report found that suburban and rural Black students were more severely affected by the lack of educational opportunities than their White peers. The Coleman Report established our recognition of the disparity in a number of areas between the races, but it did little to move localities or schools towards change.

While The Coleman Report documented the disparity in opportunities and resources afforded African-American students, surprisingly through the 1970s and late 1980s the achievement gap narrowed. While the report documented a number of disparities between the resources and opportunities afforded African-American and White students, African-American students still managed to achieve academically and narrow the gap. Some researchers attributed this narrowing of the achievement gap to the liberalism of the 1970s as schools lowered their standards; nevertheless, these conditions served as a primer for the release of a report that would ignite more change in schools (Harris & Herrington, 2006).

In August 1981, the Secretary of Education commissioned the National Commission on Excellence in Education. The commission’s charter was to present a report on the quality of education in America to the Secretary and to the American people by April 1983. The report was called A Nation at Risk (1983), and it proved a scathing condemnation of American schools. The report found high school curricula was diffuse and lacked a central purpose; spending for textbooks declined 50% over a 17 year period; half of the newly hired Math and Reading teachers were not qualified to teach their subjects. With respect
to minority achievement, the report recommended the federal government in cooperation with state and local governments meet the needs of key groups of students such as minority students.

Spurred by these findings, educators entered a period of increased focus and effort towards improving all students’ achievement. Increased student standards and stricter course requirements for graduation characterized the latter part of the 1980s. By the mid to late 1990s, states developed and implemented accountability reforms to hold teachers and principals answerable for their students’ progress. This marked the beginning of the accountability movement in public education (Harris & Herrington, 2006).

The achievement gap continued to decline through the late 1980s, and the majority of its indicators showed the smallest gap in 1988 (Harris & Herrington, 2006). From 1988 through the early 1990s, the gap slowly increased. Through the remainder of the 1990s, the achievement gap was stagnant in Math and Reading. By 2000, African-American and White student National Assessment of Educational scores in Math and Reading had increased, but the gap between the races persisted (Vanneman, Hamilton, Baldwin-Anderson, & Rahman, 2009). By 2001, The No Child Left Behind (NCLB) Act was introduced and passed into law. NCLB represents a national initiative for school accountability for students’ achievement. NCLB added new measures of student performance outcomes, and mandated consequences for low performing schools. Under the act, states were required to implement state curricula for student learning, develop and define proficiency on mandatory state assessments, and measure students’
progress on its curriculum-aligned assessments. While NCLB highlighted minority students' performance and made educators accountable for all students' academic success, it also reallocated Title I funds that were a major revenue source for poor and predominantly minority schools. The overall effect of the NCLB Act on the achievement gap remained debatable. While there had been modest gains in closing the achievement gap, overall the gap persisted. For example, in 2007 the gap between African American and White students on the National Assessment of Educational Progress was 29 points in Math and 26 points in Reading. These gaps were as small as they had been in 1978 and 1980 in Math and Reading, respectively (Vanneman, et al., 2009).

The disparity in educational opportunity represented the evolution of our efforts to provide the same quality of education for all students. While The Coleman Report and A Nation at Risk (1983) sparked awareness of the need to improve education for students, we saw a decrease in the achievement gap. As we entered a new century, the gap remained an on-going challenge for educators.

The Disparity in Achievement

The constant in the achievement gap was its persistence. For over 40 years, we documented its existence. The gap in achievement persisted whether comparing African-American and White students from the same or different socioeconomic status groups or comparing urban and suburban African-American and White students. While we saw reductions in the achievement gap, the disparity persisted.
Researchers found that the achievement gap began before African-American students begin school (Cooper & Schleser, 2006; Evans, 2005). African-American students consistently scored lower than Whites on Math and reading tests, and the gap in both subject's test scores increased as African-American and White students matriculated through school (Hunter & Bartee, 2003; Sherman and Grogan, 2003; Bainbridge & Lasley, 2002).

When African-American students started school, they were a full year behind their White peers in Reading, and they had approximately 5,000 fewer words in their vocabulary (Evans, 2005). By the end of high school, 1 in 100 African-American 17 year olds read and gained information from specialized text in comparison to 1 in 12 White students (Haycock, 2001).

Throughout their primary and secondary grades, African-American students scored significantly lower than White students on Math achievement tests (Cooper & Schleser, 2006). By the time these students graduated from high school, they had the Math skills of an average White eighth grade student (Cooper & Schleser, 2006). Researchers also found that more African-American students stayed in the preoperational stage of development as compared to their White peers (Cooper & Schleser, 2006).

Since the 1990s, the Math achievement gap between White and African-American students has increased (Haycock, 2001). Three in 10 African-American 17 year olds mastered the use of fractions, percents, and averages compared to 7 in 10 White students (Haycock, 2001). Smaller percentages of African-
American students earned high grades in high school and had lower class ranks compared to their White peers (Olszewski-Kubilius, et al., 2004).

Researchers also found that there was an achievement gap when comparing African-American and White students based on locality and income. On the SAT-M and SAT-V exams researchers found the achievement gap was wider in urban schools than in suburban schools (Nettles, et. al., 2003). They also found that the achievement gap shrank slightly when comparing students who attended the same school. With respect to SES, they found that the gap between African-American and White students from upper SES families was wider than that of students from middle and lower SES families (Nettles, et. al., 2003; Signham, 2003). Finally, researchers noted that African-American students from upper SES homes outperformed their peers from lower SES homes (Nettles, et. al., 2003; Signham, 2003).

In summary, the achievement gap was prevalent at all levels of primary and secondary education and in all academic areas and communities. African-American students started school less prepared to learn than their White peers, and they never made up the difference. While researchers had identified the factors that promoted and perpetuated this lack of achievement, knowing the factors also provided researchers with tangible evidence to focus their efforts on closing the achievement gap.

Factors Promoting the Achievement Gap

The factors that promoted the achievement gap were as perplexing as the disparity in achievement. While researchers had identified a myriad of factors
that promoted the achievement gap, the overall effect of each factor made closing the gap a complex matter. Researchers found that the factors that promoted the achievement gap had their origins in the home, school, and community, and in this study were categorized as before during or after school factors. (Clotfelter, et al., 2004; Olszewski-Kubilius, et al., 2007; Van Laar & Sidanius, 2001; Ford, 2006).

Before-school factors include variables associated with families such as parental involvement, parental expectations, number of parents in the home, intellectually stimulating environment, parents modeling self regulation, and perseverance (Clotfelter, et al., 2004; Olszewski-Kubilius, et al., 2007; Val Laar and Sidanius, 2001). They were associated with parental acts and childhood experiences that, when used in a positive manner, promoted academic success and, when absent or used in a negative manner, hindered academic success. For example, parents involved in their children's school activities had a positive effect on African-American students' performance in school and contributed to closing the achievement gap.

During-school factors included variables associated with the school and include teacher quality, teacher experience, teacher expectations, teacher preparedness, teacher pedagogy, school safety, school facilities, curriculum, large class size, under representation of African-Americans in advanced classes, over representation of African-Americans in special education. Researchers identified the importance of the teacher and the school environment in students' academic success. This was amplified for African-American students. The
presence of positive high-quality teachers who were experienced and had high expectations for students had a significant positive effect on student academic success and closing the achievement gap (Clotfelter, Ladd, & Vigdor, 2004; Olszewski-Kubilius, et al., 2007; Val Laar & Sidanius, 2001).

After school factors included variables associated with the social environment and included language and cultural differences, less safe/safer neighborhoods, and presence or absence of an intellectually stimulating environment (Clotfelter, et al., 2004; Olszewski-Kubilius, et al., 2007; Val Laar & Sidanius, 2001). As with earlier factors, the presence of positive examples promoted academic success for African-American students, and the presence of negative examples hindered academic success for African-American students. Language and cultural differences had a unique effect on academic achievement. In homes where more formal grammar was used and the home's culture valued education, African-American children had more academic success. Conversely, in homes where less formal grammar was used and the home's culture diminished the value of education, African-American children tended to have more academic failure.

The factors that promoted the achievement gap had a combined effect on African-American students. While no single factor determined the academic success or failure of an African-American child, researchers found that some factors had more effect than others. For example, there was general consensus that socioeconomic status (SES) was related to African-American students' academic success (Tajalli & Ophemi, 2004). Researchers estimated that
socioeconomic status accounted for as much as one-third of the achievement gap.

Socioeconomic Status (SES)

SES is a measure of a person or family's relative economic and social worth. For all students, SES was highly correlated with student achievement. Researchers found that students from upper SES families tended to perform better academically than students from lower SES families.

Students from lower SES families had challenges that were not normally prevalent among students from upper SES families. Students from lower SES families had poorer vision, poorer oral hygiene, higher incidences of lead poisoning and asthma, poorer nutrition, fewer medical visits as students, and more exposure to smoke (Rothstein, 2004). Students from lower SES families usually could not afford products and services (i.e. books, computer, internet access, educational toys, etc.) to enhance their academic success (Signham, 2003; Tajalli & Opheim, 2004). The absence of these opportunities and resources adversely affected students' academic performance. With 25% of African-American families living in poverty, SES continued to be a significance obstacle to African-American students' academic success.

While each before, during, and after-school factor had some lesser effect on the academic success of African-American students, there was general consensus that schools have little to no effect on factors outside of school. Since the focus of this study was on how school-related processes effect student
achievement, the following sections will focus on during-school factors that had the greatest effect on African-American students' academic success.

**During-School Factors**

Of the during-school factors that effected academic achievement, the teacher had the largest effect on African-American students' achievement (Tajalli & Opheim, 2004). This included teacher quality, teacher experience, teacher expectations, teacher preparedness, and teacher pedagogy. Teachers who possessed and practiced this combination of skills — high quality, expectation, preparedness, and pedagogy — had the ability to promote academic success for African-American students. In the next four sections teacher expectations, teacher experience, teacher quality, and teacher pedagogy are explored individually.

**Teacher Expectations**

Teacher expectations had three times greater effect on African-American students than on Whites (Signham, 2003). They represented how well or poorly the teacher believed students would perform and how the teacher prepared for and taught students. Researchers found that 81% of African-American females and 62% of African-American males wanted to please their teacher more than they did their parents (Signham, 2003). Unfortunately, teachers did not always have the types of expectations of their students, and particularly African-American students that challenged them to succeed. Researchers also found that teachers often found White students to be more capable academically than their African-American peers. Thus they tended to expect more from them, and
they were more supportive of their efforts to be academically successful (Talbert-Johnson, 2004). Researchers also found that when students were taught at high levels they achieved at high levels (Ford, 2006). National data showed that teachers in high poverty schools expected so little of their students that they were given As for assignments that would have earned Cs or Ds elsewhere (Ford, 2006).

**Teacher Experience**

For the African-American student the presence or absence of an experienced teacher meant the difference between success and failure. Researchers found a positive relationship between teacher experience and student performance. In 85% of the studies conducted on this variable, more teacher experience promoted more academic success (Tajalli & Opheim, 2004). For the African-American student, generally teachers with 1 – 3 years of experience were less effective than their more experienced peers. Students whose teachers had less than 5 years experience lost gains they made in Math and Reading (Rothstein, 2004). The significance of teacher experience was even more compelling when one considers that African-American students were more likely to have an inexperienced teacher because of the high turnover of teachers in inner city schools that were predominantly populated by African-Americans (Clotfelter, et al., 2004).

**Teacher Quality**

The presence or absence of a high quality teacher was another factor that promoted the success or failure of an African-American student. Teacher quality
referred to teacher’s content and pedagogical knowledge (Ford, 2006). A highly-qualified teacher was fully certified by the sponsoring state as a teacher and had the content and pedagogical knowledge to promote students’ academic success (Talbert-Johnson, 2004). Unfortunately, students in high poverty or inner city schools were more apt to have teachers who were not highly qualified. In inner city schools populated primarily by African-American students, teachers tended to have higher turnover and absentee rates. This increased the likelihood that an African-American student would have a teacher who was not fully qualified.

Researchers found that about half of the teachers in schools with 90 percent or greater minority populations met their states’ minimum requirements to teach Math (Ford, 2006; Talbert-Johnson, 2004). As a result, students were often taught by alternatively or provisionally licensed faculty who did not have the content or pedagogical knowledge necessary to promote student success (Talbert-Johnson, 2004).

*Teacher Pedagogy*

Teacher pedagogy referred to the model of teaching the teacher used to present the lesson. When teacher pedagogy did not match the learning style of the student, the student was often not successful. Talbert-Johnson (2004) found that cultural differences such as verbal language (including dialect and accent), nonverbal language (including interpersonal and social space, touching, body language, vocal qualities), and co-verbal behaviors (including gestures, facial expressions, and eye contact) had an effect on student learning (Talbert-Johnson, 2004).
The National Council of Teachers of Math acknowledged that cultural experiences and social background had been ignored in Math education; furthermore differences among students were not taken into account in the teaching and learning of Math (Ford, 2006; Hughes & Kritsonis, 2006). Researchers found that where Math teachers of African-American students had as much access to technology as those of White students, the technology was not used effectively (Ford, 2006; Hughes & Kritsonis, 2006). For example, the teachers tended to use technology for drill, practice, or games while teachers of White students used technology for simulations, demonstrations, and application of concepts (Ford, 2006; Hughes & Kritsonis, 2006). Math teachers of African-American students also tended to use more worksheets in Math and tended not to allow students to use calculators in class (Ford, 2006; Hughes & Kritsonis, 2006). In summary, African-American students received instruction that was contrary to their culture, learning style, and learning preferences (Ford, 2006; Hughes & Kritsonis, 2006).

School Funding

The disparity in school funding, as a result of poverty and a limited tax base, perpetuated the achievement gap in a myriad of ways (Glen, 2006). First, limited funding for schools made it difficult for inner city schools to attract highly-qualified teachers because they were not able to offer salaries that were competitive with middle and upper class suburban schools. As a result, the students were exposed to a higher number of unqualified teachers or substitutes who were not well prepared to teach.
Second, the disparity of school funding perpetuated the achievement gap because students were forced to try to learn in buildings that did not provide the best possible learning environment. In inner city schools and less affluent communities, problems with heating ventilation and air conditioning systems were a continual dilemma with no economical solution. As a result, the buildings were often too cold in the winter and too warm in the summer, and students were forced to try to concentrate while distracted by the temperature in the classroom (Glen, 2006).

Third, disparity in school funding perpetuated the achievement gap by not affording students from poor districts access to equipment that might increase their likelihood of learning (Glen, 2006). Kozol (1991) highlighted examples of inner city schools where word processing was taught without computers, students did not have recess because there were no playgrounds, and there were no lab tables in Science classes. Conversely, students from middle and upper class communities enjoyed campuses with multiple fields for recess, athletic programs, and the latest technology to promote student learning (Glen, 2006).

Under-representation of African-American Students in Gifted Programs

African-American students were under-represented in gifted programs. It had been documented that teachers were less likely to nominate them for gifted programs, and if teachers did nominate them then they were less likely to be selected. The reasons for the under-representation of African-American students in gifted programs were some of the same reasons that perpetuated the
achievement gap. They included low teacher expectations, teacher prejudice, and racially biased assessments. The under-representation of African-American students in gifted programs also extended to parents. African-American parents who received poor prenatal care and hindered the proper development of their children or who did not expose their children to rich learning opportunities to prepare them for school also contributed to the under-representation of African-American students in gifted programs (Olszewski-Kubilius, et al., 2004).

Over-representation of African-American Students in Special Education

Over 2.2 million students received special education services in the United States, and African-American students comprised a larger percentage of the special education population in schools than any other group. African-American students were 3 times as likely as White students to be labeled mentally retarded, 2 times as likely to be labeled emotionally disturbed, and 1.3 times as likely to be labeled learning disabled (MacMillan & Reschly, 1998). The reasons for the over-representation of African-American students in special education were as varied as the reasons for the achievement gap. They included: (a) difficulty creating instructional programs that met African-American students unique learning strengths and shortcoming, (b) ineffective procedures for referring and classifying special needs students, (c) insufficient knowledge among teachers that a problem existed and how to resolve it, (d) teacher perceptions and attitudes towards special needs students, (e) disconnect in most schools between the race, culture, and class of teachers and their students, and (f) disparity in family and school’s interpretation of the student’s behavior. This
over-representation of African-American students in special education represented lower teacher expectations and missed opportunities for advanced classes and rigorous curricula and a perpetuated of the achievement gap.

*Rigorous Curriculum*

A rigorous curriculum for all students that not only prepared students for standardized tests but also gave them the confidence to take more advanced courses was absent in some schools with predominantly African-American students (Harris & Herrington, 2006; Singham, 2003). While we know that students who took more rigorous courses learned more and performed better on standardized tests, a number of African-American students were not exposed to a rigorous curriculum (Singham, 2003). Researchers found that students who took three or more college preparatory courses did better on standardized tests than those who took primarily vocational education courses; furthermore, exposing all students to a more rigorous curriculum improved their overall performance (Harris & Herrington, 2006; Ford, 2006). African-American students who were either not exposed to or avoid rigorous courses and opted for less challenging or vocational education courses perpetuated the achievement gap. They did not have the academic experiences or develop the academic intellect to do well on standardized tests.

*Lesser Factors*

Other factors that perpetuated the achievement gap for African-American students included not feeling safe in school (Ford, 2006). Studies showed that when African-American students did well in school, they were sometimes
subjected to negative peer pressure and referred to as acting White (Ford, 2006). For some academically gifted African-American students this pressure was sufficient to cause them to under-perform in class. Their failure to perform at their potential perpetuated the achievement gap.

Researchers also found that African-American students from urban schools were more apt to be in classes with a higher student-teacher ratio than their White peers in suburban settings (Ford, 2006; Hughes & Kritsonis, 2006). While classes with smaller student teacher ratios allowed the teacher to have more interactions with each student, confirm they were learning, and answer questions, the opposite was true in larger classes. Teachers, pressed to present essential course material, had less time to interact with each student; furthermore, opportunities to ask questions and confirm that each student was learning were limited. This lack of interaction with the teacher in classes with larger student teacher ratios perpetuated the achievement gap for the African-American student.

An Alternative Perspective on the Achievement Gap

The achievement gap was part of the larger politically charged issue of the quality of public schools. While liberals typically acknowledged there were issues with public schools, their focus and support was for improving schools for all students. Many conservatives had a negative view of public schools. According to Berliner and Biddle (1995), their issues — students’ decreased performance on standardized tests, decreased graduation rates, American students’ performance compared to students from other countries, and the perpetual achievement gap —
served as reasons to promote alternatives to public schools. Vouchers for charter schools, private schools, and parochial schools were the more prominent examples of public school alternatives (Berliner & Biddle, 1995).

There were elements of the larger issue of the quality of public schools that should be considered when evaluating the achievement gap. Berliner and Biddle (1995) reviewed various reports and documents on the state of education and student achievement. In general, Berliner and Biddle (1995) identified what they referred to as myths about public education and its effectiveness based on commonly cited reports and data. They cited the Coleman Report's findings that schools had little effect on a child’s achievement as flawed because it did not consider the appropriate school factors. The Coleman Report investigated five student characteristics they felt were related to student achievement. The characteristics were: 1. students' home background, 2. student body characteristics, 3. teacher characteristics, 4. facilities, and 5. curriculum. Biddle and Berliner (1995) argued the study assessed a narrow spectrum of indicators to arrive at its’ conclusions. They also argued that the report should have been a longitudinal study as opposed to a cross sectional study. By taking a snapshot approach to reviewing student achievement, the study could not assess gains in student learning. Finally, Biddle and Berliner (1995) wrote that the Coleman Report used poor data analysis methods. They claimed the report presented distorted results because other variables were not controlled for in their analyses.

Biddle and Berliner (1995) also reviewed A Nation at Risk. They claimed that the report presented little data to justify its findings and recommendations of
the calamitous status of schools. Biddle and Berliner (1995), using the same data, found that student academic performance actually increased during the period cited; furthermore, they claimed that the standardized test used to assert that student performance decreased yielded results for a fraction of the students enrolled in school. Specifically, they cited the Scholastic Achievement Test as being a flawed indicator of student achievement since it penalized students for incorrect answers, and it was never intended as gauge of overall student achievement.

While Biddle and Berliner's (1995) findings seemed to contradict popularly held notions about student achievement in general and the achievement gap, they served to bolster at least two claims. First, the finding that schools did play an important role in student achievement supported this study's claim of that schools and teacher made a difference in student learning and achievement. Second, the findings that student achievement increased in the 1980s paralleled similar findings that the achievement gap decreased during the same period.

Summary

The achievement gap was a multifaceted societal dilemma that had its origins in American history and was perpetuated by factors that sustained themselves through their interrelatedness. The disparity in opportunity fostered the disparity in achievement for African-American students and perpetuates the achievement gap. Over the past sixty years as educational opportunities were gradually equally offered, they fostered the recognition that African-American students did not achieve academically on par with their White peers. As
researchers tried to understand why the gap in academic performance persisted, their efforts helped identify a host of factors that combined to suppress the intellectual development of African-American students. While these factors were from the home, community and school educators have chosen to focus their primary efforts in the school – the domain in which they can have the most effect on student learning and academic success. The challenge for educators was to identify a practice that would allow them to overcome the factors in the school that perpetuated the achievement gap and simultaneously promote academic success for all students. Today, a number of educators have chosen learning communities as a means to close the gap (Hughes & Kritsonis, 2006).

Learning Organizations

Over the past 40 years, education reform has shifted dramatically. In the 1960s, the focus was the classroom teacher. Competency and performance based teacher education efforts were the emphasis. In the 1970s, the focus was students. Minimum competency tests and higher graduation requirements were lauded as the keys to success for students. In the 1980s, the focus was effective schools research studies. The release of A Nation at Risk (1983) proved a seminal moment in education reform in the 1980s as the principal became the center of all school reform efforts. In the 1990s, restructuring schools was the focus. This consisted of fundamental changes in how teachers and administrators interacted to promote student achievement. In the 21st century, educators adopted learning organizations as their model for school reform (Hughes & Kritsonis, 2006).
Since the publication of Senge's The Fifth Discipline (1990), several influential writers have recommended that schools become learning organizations. They believed that as learning organizations schools could develop structures and processes that would allow them to grow the professional capacity to learn. Schools could draw on the collective power of a shared vision and collective intellect while making continuous improvement to student learning (Giles & Hargreaves, 2006).

Senge (1990) described a learning organization as a group where its members continually grow their ability to achieve the results they desire, where new ideas were nurtured, where group ambition were set free, and where people repeatedly learned how to learn from each other. A characteristic of a learning organization was a willingness to learn from its external environment (DuFour & Eaker, 1998). Senge's (1990) vision of learning organizations was defined by five disciplines which were considered personal disciplines. They were personal mastery, mental models, shared vision, team learning, and systems thinking. Each discipline related to how we thought, interacted, and learned with one another. Members of the organization had to have a fundamental shift of mind for these disciplines to work successfully.

Personal mastery represented personal growth and learning. Persons with high levels of personal mastery were able to increase their skills at creating the results they seek in life (Senge, 1990). Personal mastery meant approaching your life as a inventive work. Personal mastery went beyond competency and skills. In order for an organization to learn, each member had to continually learn.
It was the deepening of our personal visions, concentrating our energy, developing patience, and seeing what's real objectively. Personal mastery meant observing and attempting to understand current realities (Hughes & Kritsonis, 2006). Personal mastery was a process and a lifelong discipline. Those with a high level of personal mastery recognized their ignorance and the areas in which they needed to grow.

The discipline of shared vision involved aligning the views of the members of the organization to establish one view for all (Senge, 1990). Shared vision promoted creativity and experimentation. It fostered a long-term commitment among the members of the organization. It could also create infectious enthusiasm for the vision. Leader established visions were not sustained. Members of an organization without a shared vision found it difficult to describe their purpose. Leaders who mastered this discipline knew that dictating a vision to the organization, no matter how well intended, was counterproductive.

The discipline of team learning began with discussion. Members of the organization learned to delay assumptions in order to learn and think together. Senge (1990) described team learning as webs of teams who helped one another, relied on one another, learned together, and learned from one another continually. Team learning developed the skills of groups of people to seek the larger perspective (Senge, 1990). When teams were learning, they produced exceptional results, and the individuals learned more quickly than they could have learned if they worked alone. According to Senge (1990), team learning
was essential in modern organizations because the team was the basic learning unit.

Senge (1990) described mental models as assumptions, generalizations, or images that affected how we acted. He used the example of two people seeing the same scene to describe mental models. When asked to describe the scene, they provided different descriptions. Mental models tended to prevent people from changing because they viewed events through their own images. To combat this tendency, the discipline of mental models started with internal reflection (Senge, 1990). It focused on the openness required to expose shortcomings in our present view of the world (Senge, 1990).

Systems thinking was the fifth discipline. It focused on the whole instead of the parts of the discipline. Senge (1990) described systems thinking as the discipline that integrates the disciplines. Vision without systems thinking yielded a lack of in-depth understanding of the factors that had to be mastered to move the organization. Without system thinking, the vision had no foundation upon which to grow (Senge, 1990).

In a learning organization, shared vision fostered commitment to the organization (Senge, 1990). Mental models allowed members to share their world view to promote honesty and trust among members. Team learning allowed members to grow together and develop a larger view of the world. Personal mastery gave members the motivation to continually learn how their actions affected others inside and outside the organization. Lastly, systems
thinking tied all of the disciplines together so that members could develop a new perspective of themselves and the world.

*Professional Learning Communities*

Since the release of Senge's (1990) *the Fifth Discipline*, several researchers recommended schools become learning organizations (Giles & Hargreaves, 2006). They believed that schools, as learning organizations, could develop the structures and processes necessary to leverage their professional capacity to learn and respond more effectively to students' needs and improve student learning (Giles & Hargreaves, 2006; Vescio, et al., 2008). With this in mind many educators formed learning organizations in their schools.

Educational learning communities were based on three principles: (1) good teaching prepared students for high levels of achievement; (2) teachers were learners; (3) schools should be reorganized as learning communities to promote success for all students (Dougherty, 2005). Researchers recognized that sustained student achievement could only be achieved when teachers were heavily engaged in learning, but this was a specific type of learning (Leonard, 2002). For teachers it was the localized and practice-oriented learning that originated when they engaged in meaningful dialogue about teaching that led to improved student learning (Leonard, 2002). Generating information and sharing ideas were the cornerstones of teacher collaborative practice that had the greatest potential for affecting what happened in teacher practice and student learning (Leonard, 2002).
The PLC, as applied to schools, referred to a school organization in which all stakeholders were involved in joint planning, action, and assessment for student learning and school improvement (Huffman & Jacobson, 2003). In a PLC, the professional staff studied and worked together to focus their efforts on improving student learning. Teachers engaged in reflective dialogue that promoted detailed and continual conversations about curriculum, instruction, and student development. Teachers no longer worked in isolation and teaching was deprivatized (Vescio, et al., 2008).

A PLC consisted of three big ideas. They were: (1) Ensure students learn, (2) Create a culture of collaboration, (3) Focus on results (Hughes & Kritsonis, 2006). While these may have seem obvious and common to all schools; unfortunately, they were not. PLCs made the shift from what students were taught to what students learned. This shift from a focus on teaching to a focus on learning allowed schools to begin to answer three critical questions: (1) What do we want students to learn? (2) How will we know when they have learned it? (3) How will we respond when they fail to learn? The final question represented the essence of a PLC and it embodies the commitment to the first of the three big ideas.

The characteristics of a PLC were: shared mission vision and values, collective inquiry, collaborative teams, action orientation and experimentation, continuous improvement, and results orientation (DuFour & Eaker, 1998). These characteristics represented the road map to accomplishing the big ideas of the
PLC. In the following sections of this chapter, each characteristic will be described.

**Shared Mission, Vision, and Values**

Shared mission, vision, and values represented the group’s collective view and belief of children and their ability to learn, school priorities, and the role of parents, teachers, and administrators. In a PLC, the mission, vision, and value statements represented more than words. They were core beliefs that all members of the organization were encouraged to participate in creating. The shared vision represented a mental image of what was important to the organization and its members. It established the parameters of decision making about teaching and learning in the school. In its purest sense, the shared vision compelled teachers to place the common good of the organization above personal ambition (Hughes & Kritsonis, 2006).

The shared mission was an articulation of a commitment to what the members of the learning community strove to accomplish. In the PLC that was for all students to learn. The mission focused the members of the learning community on their daily task (Hughes & Kritsonis, 2006).

The shared values described what the members of the PLC believed were important. They paralleled the principles identified in the shared vision. In essence, the shared values described who members of the learning community were. The values in conjunction with the shared mission and vision established parameters for teacher actions in the classroom to promote student learning (Hughes & Kritsonis, 2006; Vescio, et al., 2008).
Shared mission, vision, and values fostered a common bond between students, parents, faculty, and administrators. Together, they provided a consistent focus on student learning, and unlike ordinary schools they were the articulated principles of what the people in the PLC believed and what they sought to create.

**Collective Inquiry**

Collective inquiry represented the relentless search for answers to questions related to effective teaching and student learning. By seeking answers to questions, collaboratively researching new ideas and methods, and testing and evaluating the ideas teachers learned. This was a four-step process and consisted of public reflection, establishing shared meaning, joint planning, and coordinated action. In public reflection, group members shared their beliefs and practices with their team members to identify their common questions related to instruction and student achievement. Based on this sharing, the members formed their shared meaning to ensure they were accurately defining the collective inquiry of the group. After establishing their shared meaning, the members engaged in joint planning. In this step, members received their assignments to research and report back to the group. Lastly, in coordinated action the members executed the action plan (Hughes & Kritsonis, 2006).

**Collaborative Teams**

The basic structure of the PLC was the collaborative team. Collaborative teams were the manifestation of protocols, communications, and relationships to increase the school's capacity to learn (DuFour & Eaker, 1998; Hughes &
Kritsonis, 2006). Collaboration supported interdependence by creating webs of knowledge, information, and relationships among the community's members (Huffman & Jacobson, 2003). Simply stated, members of collaborative teams learned from one another (DuFour & Eaker, 1998; Senge, 1999; Leonard, 2002).

**Action Orientation and Experimentation**

Action orientation and experimentation in PLCs represented the quality of not sitting passively. A PLC would not tolerate inaction. Members of PLCs recognized that learning occurred when action was taken. They believed that experience was the most effective teacher. A corollary to this characteristic was a willingness to experiment. Members developed and tested hypotheses on instructional practices to improve student learning. In this effort, failure was not viewed as a negative but an integral part of learning (DuFour & Eaker, 1998; Hughes & Kritsonis, 2006).

**Continuous Improvement**

In the PLC, a commitment to continuous improvement was a way of operating daily in which innovation and experimentation were the norm. Continuous improvement represented a continual discomfort with the status quo. It occurred when collaborative teams were formed, and they were actively engaged in ongoing dialogue about the school's mission and purpose. As part of the continuous improvement process, learning community members had to remain focused on their fundamental purpose and what they hoped to achieve as articulated in the shared mission and vision. As a part of their discovery through
learning they had to identify strategies for becoming better and criteria to assess improvement efforts (DuFour & Eaker, 1998; Hughes & Kritsonis, 2006).

Results Orientation

Results orientation was the recognition that constant assessments were essential to a results oriented culture. The members of the PLC recognized that shared mission, vision and values, collective inquiry, collaborative teams, action orientation and experimentation, and continuous improvement had to be assessed based on results and not intentions (DuFour & Eaker, 1988; Hughes & Kritsonis, 2006). This also represented the rationale for the learning organization, for it functioned under the premise that it would yield better results (Senge, 1990).

Learning Organizations and PLCs

Table 1 (See Table 1, p. 42) depicts the alignment of learning organization disciplines, PLC characteristics, and School Professional Staff as Learning Community Survey indicators. While PLCs were derived from Senge’s study of learning organizations, for the purposes of this study the table below was prepared as a visual example of the relationship among learning organization, PLCs, and the School Professional Staff as Learning Community Survey. The links between the disciplines and characteristics were determined using the definitions of the disciplines and characteristics and establishing shared meanings or practices where appropriate (Hughes & Kritsonis, 2006).
Table 1
Learning Organizations, PLCs, and Survey

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<tr>
<th>Disciplines of a Learning Organization</th>
<th>Characteristics of a PLC</th>
<th>School Professional Staff as Learning Community Survey</th>
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<tr>
<td>Building Shared vision</td>
<td>Shared Mission Vision</td>
<td>Sharing Power, Authority and Leadership</td>
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<td>and Values</td>
<td>Shared Visions</td>
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<td>Supportive Conditions/Capacities</td>
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<td>Team Learning</td>
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<td>Collective Inquiry</td>
<td>Supportive Condition/Capacities</td>
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<td>Mental Models</td>
<td>Action Orientation and</td>
<td>Collective Learning</td>
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<td></td>
<td>Experimentation</td>
<td>Supportive Condition/Capacities</td>
</tr>
<tr>
<td>Personal Mastery</td>
<td>Continuous Improvement</td>
<td>Peer Review</td>
</tr>
<tr>
<td>Systems Thinking</td>
<td>Results Orientation</td>
<td>Peer Review</td>
</tr>
</tbody>
</table>

PLCs Effect on Student Achievement

The professional learning model was a major cornerstone of educational reform. While schools at all levels have adopted PLCs, few empirical studies have confirmed their effectiveness in improving student achievement; nevertheless, the available research has shown that teachers who work in PLCs made a positive difference in student achievement (Norwood, 2007; Vescio, et al., 2008).

Vescio, Ross, and Adams (2008) prepared a literary review of 11 empirical studies that examined the relationship between teachers' participation in PLCs and changes in teacher pedagogy and/or improvement in student achievement. All schools in the studies either directly or implicitly adhered to the essential characteristics of a PLC. All studies attempted to make a connection between PLCs and teachers' classroom practices. Eight of the 11 studies added student...
achievement data, such as standardized test results or interview data, to their results to attempt to establish a link between PLCs and improved student academic performance. Vescio, Ross, and Adams (2008) found that all of the studies indicated a change in the professional culture of the schools that formed PLCs, and teacher pedagogy improved. In the eight studies that linked PLCs and student achievement, the researchers found that the formation of a PLC had a positive effect on student learning.

Vescio, Ross, and Adams (2008) reported that teachers' practices changed in schools that formed PLCs. Dunne, Nave, and Lewis (2000) found that teachers' practices were more student centered after participating in critical friends groups. Researchers also found that teachers added more flexibility to the arrangement of the classroom and varied the pace of instruction to accommodate varying levels of content mastery. Louis and Marks (1998) studied a three teacher learning community and a mixed methods study of 24 schools – eight elementary, middle, and high schools, respectively. In the school study, they found that PLCs account for 36% of the variance in the quality of classroom instruction when compared to previous teacher practices. In two of the three studies the power of the findings was diminished because the researchers failed to capture the teachers' practices prior to the start of the study. In the most comprehensive study reviewed, Bolam, McMahon, Stoll, Thomas, and Wallace (2005) examined survey data from 393 schools from early childhood to secondary schools and case study data from 16 of the schools. The survey and case study data indicated participation in collaborative activities had a positive
impact on teaching practice and morale. Teachers reported an increase in collaboration as they worked in learning communities.

Vescio, Ross, and Adams (2008) summarized eight studies that correlated PLC practices among teachers and increased student achievement. These studies found that teacher participation in a PLC resulted in improved student learning. A study of a rural elementary school over four-year period revealed students went from a 50% to 80% pass rate on a grade level assessment. In a study involving a middle school faculty who formed a PLC, Phillips (2003) documented an increase in students' pass rate from 50% to 90% on the statewide standardized tests in Reading, Writing, Math, Science, and Social Studies over a four year period. In a third study of three elementary schools, researchers reported an increase in students' pass rate from 50% to 75% over a three year period as a result of teachers' participation in a PLC. Finally, Bolam, et al (2005) conducted a large scale study on the effect of PLC characteristics of school on student performance on a national student assessment. They found a statistically significant link between the strength of PLC characteristics in a school and the level of student achievement. Essentially, the more a faculty adhered to PLC practices, the more its students increased their academic achievement in primary and secondary grades (Vescio, et al., 2008).

While this literature review used a relatively small number of studies, the findings were consistent. Teachers who participated in PLCs change their pedagogy. PLCs had a positive effect on the professional culture of schools.
Teacher pedagogy improved, and most importantly the formation of a PLC had a positive effect on student achievement (Vescio, et al., 2008).

Summary

For some, the achievement gap had become a perpetual dilemma. It had its origin in the disparity in educational opportunity that African-Americans experienced since the founding of our country. It was documented in the disparity in achievement as evidenced by our inability to fill the gap that persists between Black and White students' academic performance, and it was perpetuated by a myriad of factors from home, school, and the community.

Educators had success in narrowing the achievement gap. From the reporting of the gap in achievement in The Coleman Report in 1966, students and teachers increased African-American and White students' achievement and narrowed the gap in Math and Reading. Yet despite their efforts, the achievement gap remained.

While schools have received a number of formal and informal missions from government, there was general consensus that a school's best endeavor in closing the achievement gap occurred by focusing its efforts at the school. PLCs represented the latest, and possibly, best effort to improve all students' academic achievement and close the achievement gap (Vescio, et al., 2008).

While the research base supporting PLC claims was meager, the results achieved by those schools that had organized and maintained a sole focus on improving teaching to improve student learning were consistently positive (Vescio, et al., 2008). The next chapter of this study described the methodology
used to investigate the relationship between PLC practices and student performance on the Virginia Standards of Learning exams.
CHAPTER III
METHODOLOGY

Introduction

The purpose of this chapter was to describe the design of this study. It included the purpose of the study, research questions, research design, description of the population and participants, instrumentation, and data collection procedures.

Statement of the Problem

This study added to the research on PLCs effect on improving student learning. The study used the School Professional Staff as Learning Community Survey to quantify participants' adherence to PLC practices and correlated those values with all, African-American, and White students scale scores on the 2008–2009 Virginia Standards of Learning exams in Math and Reading in grades 3 – 5.

Schools have claimed to be PLCs by reorganizing and adopting PLC practices, but they seldom investigated whether their practices improved student learning. This study offered a definition of PLC practices and provided an instrument to assess the level of implementation of PLC principles and organization. Second, this study provided a means to measure the degree to which a school was a PLC. Third, this study compared the level of PLCness to a standard measure of student achievement – Virginia Standards of Learning assessments – to determine if adopting PLC practices was related to improved student achievement. Finally, this study investigated whether or not there is a
relationship between PLCs and improved learning for African-American students and closing the achievement gap.

The outcomes of this study were important because the findings revealed: (1) a better understanding of which PLC practices were most common among schools that claim to be PLCs, (2) whether the level of PLCness in a school was related to improved student performance on the Math and Reading Standards of Learning exams in grades 3–5, and (3) whether PLC practices were related to higher African-American student performance on the Math and Reading Standards of Learning exams in grades 3-5.

**Research Questions**

Among a sample of elementary schools with established PLCs:

1. For all students:
   a. To what extent is the presence of PLC practices related to achievement in Math?
   b. To what extent does SES influence this relationship?
   c. To what extent do SES and attendance influence this relationship?

2. For all students:
   a. To what extent is the presence of PLC practices related to the achievement of all students in Reading?
   b. To what extent does SES influence this relationship?
   c. To what extent do SES and attendance influence this relationship?
3. To what extent is the set of PLC practices related to the achievement of African-American students in Math?

4. To what extent is the set of PLC practices related to the achievement of African-American students in Reading?

5. To what extent is the presence of PLC practices related to the achievement of White students in Math?

6. To what extent is the presence of PLC practices related to the achievement of White students in Reading?

7. To what extent do the set of PLC measures explain the variance in achievement of African-American students in Math when controlling for SES?

8. To what extent do the set of PLC measures explain the variance in achievement of African-American students in Reading when controlling for SES?

Setting and Participants

The school district used in this study was located in the southeastern United States. It had over 100 schools and a student enrollment of over 70,000. The school district had a minority-majority student population. White students comprised 42% of its student population, and minority students comprised 58% of the student population. African-American students were 25% of the overall student population. The school district had almost 10,000 employees. For the past six years, the schools were organized and worked as PLCs.
This was a convenience sample, and schools were not randomly selected for participation. Of the 56 elementary schools in the school district, 43 schools were made available to participate in this study. The remaining 13 schools were in training for an elementary school initiative, and the researcher was asked not to contact them for this study. Participating schools volunteered their faculty to be part of the study. Teachers who participated in the School Professional Staff as Learning Community Survey were also volunteers, but they had to have taught at the school during the 2008-2009 school year.

Each participant responded to questions on the School Professional Staff as Learning Community Survey. Participants received no compensation for participating in this study, but participating schools will received 1 of 6 gifts valued at $100, $50, 4 X $25. The researcher randomly drew the names of the participating schools and sent the gift cards to the first six schools’ names drawn.

Data Collection

After notification from the central office, the researcher sent an introductory letter with a copy of the survey and a self-addressed post card to the school’s principal. Principals returned the self-addressed post card to accept or reject participating in the study. Schools that participated in the study received a second envelope with a cover letter that included instructions for administering the survey, 50 copies of the survey instrument with a cover letter to the volunteers, and a self-addressed return envelope. In the second envelope the researcher asked the principals to administer the survey during a faculty meeting or other gathering of the faculty. He also asked the principal to allow another
member of his faculty to administer the survey to avoid compromising survey participants' identities.

The person administering the survey was instructed to give the survey with survey cover sheet to the volunteer, non-randomly selected participants, and have them read the survey cover letter and complete the survey. The cover letter instructed the person administering the survey to only give the survey to teachers who taught at their school during the 2008-2009 school year. When the teachers returned the surveys, the person administering the survey placed them in the self-addressed stamped envelope, sealed the envelope and placed it in the outgoing mail.

The researcher requested average scale score results for all, African-American, and White students' for all elementary schools for the 2008-2009 school year on the Virginia Standards of Learning exams for Math and Reading from the central office. Schools' attendance rates and free and reduced lunch percentages were retrieved from the Virginia Department of Education website.

Instrumentation

The School Professional Staff as Learning Community Survey, developed by Hord (1997), was a two page, 17 item instrument designed to assess the extent to which teachers believed their school had implemented the practices associated with PLCs (Cowley, 1999). The survey had five main descriptors: shared vision, collective creativity, peer review, and supportive conditions/capacities. Each descriptor had from 2 to 5 sub-items with a response
scale of 1 to 5 – low to high degree to which the respondent felt his school had
developed as a PLC. A description of the five main descriptors was as follows:

*Sharing Power, Authority, and Leadership* “the collegial and facilitative
participation of the principal who shares leadership – and thus, power and
authority – through inviting staff input in decision making.” Shared leadership had
two sub-items – shared leadership and staff involvement.

*Shared Visions* “a shared vision is developed from an unswerving
commitment on the part of staff to students’ learning and that is consistently
articulated and referenced for the staff’s work.” Shared vision had three sub-
items – shared vision, vision for teaching and learning, and vision for
improvement.

*Collective Learning and Application of the Learnings* “collective learning
among staff and application of the learning to solutions that address students’
needs.” Collective creativity had five sub-items – collective inquiry, collaboration,
shared practice, action orientation and experimentation, and results orientation.

*Peer Review* “the visitation and review of each teacher’s classroom
behavior by peers as a feedback and assistance activity to support individual and
community improvement.” Peer review had two sub-items – peer observations
and debrief peer observation debrief.

*Supportive Conditions/Capacities* “physical conditions and human
capacities that support an operation.” Supportive conditions/capacities had five
sub-items – restructured time, staff proximity and interaction, staff
communication, trust and openness, and caring collaborative and productive relationships.

The validity of an instrument represented the ability of the instrument to measure what it was intended to measure (Kiess, 2002). Three types of validity analyses – content, concurrent, and construct – were performed on the School Professional Staff as Learning Community Survey. Hord (1997) assessed content validity in three stages – during the development, early review, and modest reformatting. In the first stage, Hord (1997) established the five dimensions of the survey based on a review of educational and business literature and her research with U. S. schools that functioned as PLCs. In the second stage, three colleagues independently reviewed the five dimensions and 17 descriptors. They did some reformatting and editing to increase the clarity and consistency of the wording in the instrument. In the third stage, Hord (1997) reviewed her colleagues’ revisions and confirmed that the reformatting was consistent with the instrument’s original intent. Based on the three-stage review, the instrument was deemed to possess sufficient content validity.

Hord (1997) administered a school climate instrument to assess the concurrent validity of the School Professional Staff as Learning Community Survey. Concurrent validity is comparing the instrument with another that measures a construct considered to be correlated with the construct under study. Hord (1997) found that the instrument had satisfactory correlation with the school climate instrument. The correlation between the two instruments was .75, (p<.0001).
Construct validity is the determination of whether the instrument measures the intended construct – professional learning. Hord determined the construct validity by comparing the scores of a group that was known to be a PLC with the scores of 690 teachers from 21 schools in a field test database. She found that the teachers in the group from schools known to be structured as PLCs differed significantly (p<.0001) from the scores of teachers in the field test group. She found that the instrument appeared to represent the construct of a mature PLC.

The reliability of an instrument represents the internal consistency of responses to the survey items (Kiess, 2002). In this instrument, the five descriptors were combined to form a total scale score. The reliability of the School Professional Staff as Learning Community Survey is .94 (Hord, 1997).

**Alignment of PLC Characteristics and Survey Instrument Main Descriptors**

Table 2 (See Table 2, p. 55) depicts the alignment of PLC characteristics and School Professional Staff Learning Community Survey main descriptors. The purpose of this activity was to show that the survey descriptors addressed all PLC characteristics the researcher presented in the study. The links between the characteristics and main descriptors were determined using the definitions or descriptions of each. Characteristics and descriptors with similar meanings were identified as equivalent and aligned in the table.
### Table 2

**Alignment of PLC Characteristics and Survey Instrument Main Descriptors**

<table>
<thead>
<tr>
<th>Characteristics of a PLC</th>
<th>Main Descriptors of Survey Instrument</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shared Mission, Vision, and Values</td>
<td>Sharing Power, Authority and Leadership</td>
</tr>
<tr>
<td></td>
<td>Shared Visions</td>
</tr>
<tr>
<td></td>
<td>Supportive Conditions/Capacities</td>
</tr>
<tr>
<td>Collaborative Teams</td>
<td>Collective Learning</td>
</tr>
<tr>
<td>Collective Inquiry</td>
<td>Supportive Conditions/Capacities</td>
</tr>
<tr>
<td>Action Orientation and</td>
<td>Collective Learning</td>
</tr>
<tr>
<td>Experimentation</td>
<td>Peer Review</td>
</tr>
<tr>
<td>Continuous Improvement</td>
<td>Peer Review</td>
</tr>
<tr>
<td>Results Orientation</td>
<td></td>
</tr>
</tbody>
</table>

**Student Achievement**

All, African-American, and White students average scale scores from the 2008–2009 Virginia Standards of Learning exams in Math and Reading for grades 3-5 represented student achievement. Adopted in 1995, the Standards of Learning objectives represent the learning and achievement objectives for all students in all grades in Virginia Public Schools. The Standards of Learning assessments was an untimed criterion-referenced exam (Lau, Arce-Ferrer, McAllaster, & Escobar, 2005). Administered annually to students in selected
grades, these exams were designed to assess students' learning in Math, Reading, Writing, Science, and Social Studies (Lau, et al., 2005).

The Math and Reading Standards of Learning exams were administered in grades 3-5. The Math exam consisted of 60 multiple choice questions in each grade and the Reading exam consisted of 42 questions in 3rd and 4th grades and 50 questions in 5th grade. A select number of questions from each exam were field test items used to confirm their validity and reliability for use in future exams. Field test items were not used to compute students' final scores. Each exam had a designated number of questions per Standard of Learning objective, but the exam questions were not evenly distributed among objectives. For example, the 5th grade Math exam had questions from 5 Standards of Learning categories:

- numbers and number sense: 8 questions
- computation and estimation: 12 questions
- measurement and geometry: 12 questions
- probability and statistics: 8 questions
- patterns, functions and Algebra: 10 questions

The Math and Reading exams had an average reliability of .93 and .95, respectively (Lau, et al., 2005).

The scale scores on the Standards of Learning exams ranged from 0 – 600. The scale scores represented a non-linear transformation of numbers of questions answered correctly to scale scores. A pass/proficient score on the exam was 400-499. Pass advanced was 500-600. Scoring was based on a
formula that varied based on the number of questions the student answered correctly. For example

- On the 3rd and 5th grade Math exams, students had to answer 35 out of 50 questions correctly to earn 400 points.
- On the 4th grade Math exams, students had to answer 31 out of 50 questions correctly to earn 400 points.
- On the 3rd, 4th, and 5th grade Math exams, students had to answer 45, 43, and 44 out of 50 questions to earn 500 points, respectively.
- On the 3rd and 4th grade Reading exams, students had to answer 23 out of 35 questions correctly to earn 400 points.
- On the 5th grade Reading exam, students had to answer 27 out of 40 questions correctly to earn 400 points.
- On the 3rd and 4th grade Reading exams, students had to answer 31 out of 35 questions correctly to earn 500 points.
- On the 5th grade Reading exam, students had to answer 37 out of 40 questions correctly to earn 500 points.

Research Design

This study was designed to determine whether or not the degree to which a school had the characteristics of a PLC was related to students' achievement and closed the achievement gap between African-American and White students. The study used the School Professional Staff as Learning Community Survey to quantify PLCness. PLCness was the independent variable in this study. Average scale scores from the 2008-2009 Virginia Standards of Learning exams in Math
and Reading for grades 3-5 were the dependent variables. Free and reduced lunch percentage and average attendance were also used as independent variables in the study to gage their effect on student achievement when correlated with PLCness.
Data Analysis

Table 3 (See Table 3, pp. 59-61) depicts the data source and data
analysis technique used to answer each study question.

Table 3

<table>
<thead>
<tr>
<th>Research Question</th>
<th>Data Source</th>
<th>Data Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. All Students Math</td>
<td>School Professional Staff as Learning Community Survey Grades 3-5 Math Standards of Learning average scale scores for all students</td>
<td>Bivariate Correlation</td>
</tr>
<tr>
<td>a. To what extent is the presence of PLC practices related to achievement in Math?</td>
<td>School Professional Staff as Learning Community Survey Grades 3-5 Math Standards of Learning average scale scores for all students Free and reduce lunch percentage</td>
<td>Partial Correlation controlling for SES</td>
</tr>
<tr>
<td>b. To what extent does SES influence this relationship?</td>
<td>School Professional Staff as Learning Community Survey Grades 3-5 Math Standards of Learning average scale scores for all students Free and reduce lunch percentage</td>
<td>Multiple Regression Analysis</td>
</tr>
<tr>
<td>c. To what extent do SES and attendance influence this relationship?</td>
<td>School Professional Staff as Learning Community Survey Grades 3-5 Math Standards of Learning average scale scores for all students Free and reduce lunch percentage Attendance rate</td>
<td>Multiple Regression Analysis</td>
</tr>
<tr>
<td>2. All Students Reading</td>
<td>School Professional Staff as Learning Community Survey Grades 3-5 Reading Standards of Learning average scale scores for all students</td>
<td>Bivariate Correlation</td>
</tr>
<tr>
<td>a. To what extent is the presence of PLC practices related to the achievement of all students in Reading?</td>
<td>School Professional Staff as Learning Community Survey Grades 3-5 Reading Standards of Learning average scale scores for all students</td>
<td>Bivariate Correlation</td>
</tr>
<tr>
<td>Research Question</td>
<td>Data Source</td>
<td>Data Analysis</td>
</tr>
<tr>
<td>-------------------</td>
<td>-------------</td>
<td>--------------</td>
</tr>
<tr>
<td>b. To what extent does SES influence this relationship?</td>
<td>School Professional Staff as Learning Community Survey</td>
<td>Partial Correlation Controlling for SES</td>
</tr>
<tr>
<td>c. To what extent do SES and attendance influence this relationship?</td>
<td>School Professional Staff as Learning Community Survey</td>
<td>Multiple Regression Analysis</td>
</tr>
<tr>
<td>3. To what extent do the set of PLC practices related to the achievement of African-American students in Math?</td>
<td>School Professional Staff as Learning Community Survey</td>
<td>Bivariate Correlation</td>
</tr>
<tr>
<td>4. To what extent is the set of PLC practices related to the achievement of African-American students in Reading?</td>
<td>School Professional Staff as Learning Community Survey</td>
<td>Bivariate Correlation</td>
</tr>
<tr>
<td>5. To what extent is the presence of PLC practices related to the achievement of White students in Math?</td>
<td>School Professional Staff as Learning Community Survey</td>
<td>Bivariate Correlation</td>
</tr>
</tbody>
</table>
### Research Question

<table>
<thead>
<tr>
<th>Research Question</th>
<th>Data Source</th>
<th>Data Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>6. To what extent is the presence of PLC practices related to the achievement of White students in Reading?</td>
<td>School Professional Staff as Learning Community Survey Grades 3-5 Reading Standards of Learning average scale scores for White students</td>
<td>Bivariate Correlation</td>
</tr>
<tr>
<td>7. To what extent do the set of PLC measures explain the variance in achievement of African-American students in Math when controlling for SES?</td>
<td>School Professional Staff as Learning Community Survey Grades 3-5 Standards of Learning learning average scale scores for African-American students in Math Free and reduce lunch percentage</td>
<td>Partial Correlation Controlling for SES</td>
</tr>
<tr>
<td>8. To what extent do the set of PLC measures explain the variance in achievement of African-American students in Reading when controlling for SES?</td>
<td>School Professional Staff as Learning Community Survey Grades 3-5 Reading Standards of Learning average scale scores for African-American students Free and reduce lunch percentage</td>
<td>Partial Correlation Controlling for SES</td>
</tr>
</tbody>
</table>

### Limitations

This study was limited by school, participants, and tested variables. The following is a description of the limitations:

- This was a convenience sample. Schools were not randomly selected for participation.

- A limited number of schools within the target school district were made available to participate in this study, and all schools that participated in the study volunteered.
• All schools that participated in this study were organized as PLCs.

• All teachers who completed the study were volunteers. No sampling techniques were used to select participants.

• The 2008-2009 Virginia Standards of Learning in Math and Reading for grades 3-5, SES, and average attendance were the only independent variables used in this study.

• This was a study of one year's student performance on a state standardized assessment and the volunteer teachers' belief about the school as a PLC. It did not capture trend data.
CHAPTER IV
ANALYSIS OF RESULTS

Introduction

PLCs have become a framework for improving students' achievement. School district's have invested resources and reorganized based on PLCs claims of delivering improved teaching and student learning. The purpose of this study was to determine whether or not there was a relationship between a school's adherence to PLC practices and improved achievement for all students. This study also investigated whether or not there was a relationship between a school's adherence to PLC practices and higher achievement for African-American and White students and closing the achievement gap.

The researcher used SPSS/PASW version 17.0 to answer the eight research questions in this study. Survey participants' entries on the School Professional Staff as Learning Community Survey yielded participating schools' PLCness scores. The school district provided overall and disaggregated average scale scores from the 2008-2009 Virginia Standards of Learning exam for Math and Reading in grades 3-5, SES represented by free and reduced lunch percentages for all students, and overall and disaggregated attendance rates for participating schools.

Participants

Table 4 (See Table 4, p. 64) depicts descriptive statistics of the teachers who completed the School Professional Staff as Learning Community Survey. A total of 346 teachers in 25 schools completed the survey. This was a mean of
15.2 teachers per school (SD = 10.6). The numbers of surveys received from participating schools ranged from 7-45, and the mode was 7 teachers per school.

Table 4

**Study Participants**

<table>
<thead>
<tr>
<th>Participants per school</th>
<th>M</th>
<th>Mode</th>
<th>SD</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>15.2</td>
<td>7</td>
<td>10.66</td>
<td>7-45</td>
</tr>
</tbody>
</table>

**Factor Analysis**

To test the internal reliability of the PLC measure, a Cronbach's Alpha was conducted and found to be .94. While there is general consensus about the characteristics of a PLC, a factor analysis was conducted on the 17 items from the School Professional Staff as Learning Community Survey to test whether the subscales aligned with the proposed components of PLCs. A factor analysis is a statistical technique used to examine variability among items in a scale and to look for patterns of covariance.

Table 5 (See Table 5, p. 69) depicts the results of the factor analysis of the 17 items from the School Professional Staff as Learning Community survey. The factor analysis revealed that the 17 survey items loaded strongly across 3 factors. Seven items (item numbers: 5d, 5e, 1b, 1a, 2b, 2c, and 5b) loaded on the first factor and another seven items (item numbers: 4b, 5a, 3a, 4a, 3b, 3c, and 5c) loaded strongly on the second. Three items (item numbers: 2a, 3d, and 3e) loaded strongly across the third factor. Nine items (item numbers: 1a, 2b, 2c, 5b, 3b, 5c, and 3e) were found to be dual loaded on two or more factors. Item numbers 5b and 3b dual loaded on Factors 1 and 2. Item numbers 1a, 2b, and 2c
were dual loaded on Factors 1 and 3, and item number 5c and 3e were dual loaded on Factors 2 and 3. Item number 1a ("Although there are some legal and fiscal decisions required of the principal, this person consistently involves the staff in discussing and making participative decisions about most of the school issues") had factor loading values of .73 and in Factor 1 and .51 in Factor 3. Item 2b ("Visions for improvement are always focused on students and teaching and learning") had factor loading values of .71 in Factor 1 and .58 Factor 3. Item 2c ("Visions for improvement target high quality learning experiences for all students") had factor loading values of .70 in Factor 1 and .61 Factor 3. Item number 5b ("the size, structure, and arrangements of the school facilitate staff proximity and interaction") had factor loading values of .67 in Factor 1 and .55 in Factor 2. Item number 3b ("the staff, meets regularly and frequently on substantive student-centered educational issues") had factor loading values of .56 on Factor 1 and .63 on Factor 2. Item 3c ("The staff discusses the quality of their teaching and students' learning.") had factor loading values of .58 in Factor 2 and .48 in Factor 3. Item number 5c ("a variety of processes and procedures are used to encourage staff communication") had factor loading values of .57 on Factor 2 and .54 on Factor 3. Item 3d ("The staff, based on their learnings, makes and implements plans that address students' needs, more effective teaching, and more successful student learning.") had factor loading values of .43 in Factor 2 and .70 in Factor 3. Item number 3e ("The staff debriefs and assesses the impact of their actions and makes revisions") had factor loading values of .50 on Factor 2 and .54 on Factor 3. These survey items were ordered
with the factors with which they were most strongly associated based on their values; therefore, 1a, 2b, 2c, and 5b were included with Factor 1. 3b and 5c were included with Factor 2, and 3e was included with Factor 3.

Factor 1 with 7 of 17 survey items (item numbers: 5d, 5e, 1b, 1a, 2b, 2c, and 5b) had an Eigenvalue of 9.39 and explained 55% of the variance. Factor 1’s factor loading values ranged from .90 to .67. Factor 2 also had 7 of 17 survey items (item numbers: 4b, 5a, 3a, 4a, 3b, 3c, and 5c). The Eigenvalue of Factor 2 was 1.94 and explained an additional 12% of the variance. With Factor 1, these two factors explained a cumulative variance of 67%. Factor 2’s factor loading values ranged from .83 to .57. Factor 3 had 3 of 17 survey items (numbers: 2a, 3d, and 3e) with factor loadings that ranged from .79 to .54. With an Eigenvalue of 1.47, Factor 3 explained 9% of the variance, and combined with the three factors explained 76% of the variance.

Factor 1 was comprised of two items that oriented teachers on vision (2b: Visions for improvement are always focused on students and teaching and learning, and 2c: Visions for improvement target high quality learning experiences for all students), and two items that focused teachers on staff involvement and decision making (1b: Administrator(s) involve the entire staff, and 1a: Although there are some legal and fiscal decisions required of the principal, this person consistently involves the staff in discussing and making participative decisions about most of the school issues). The remaining items had to do with quality of interpersonal relationships in support of collaboration (5d: Trust and openness characterize all the staff, 5e: Caring, collaborative, and
productive relationships exist among all the staff, and 5b: The size, structure, and arrangement of the school facilitate staff proximity and interaction). Therefore, Factor 1 was named Shared Vision/Decision Making.

All of the items that comprised Factor 2 addressed some form of group interaction or learning (4b: Staff provide feedback to each other about teaching and learning based on their classroom observations, 5a: Time is managed and committed for whole staff interactions, 3a: The entire staff meets to discuss, share information, and learn with and from each other, 4a: Staff regularly and frequently visit and observe each other's classroom teaching, 3b: The staff meets regularly and frequently on substantive student-centered educational issues, 3c: The staff discusses the quality of their teaching and students' learning, and 5c: A variety of processes and procedures are used to encourage staff communication. Each item addressed either collective work or learning; therefore, it was named Collective Learning.

At least two of Factor 3's items specifically addressed the staff acting to make changes in teaching and learning or assessing their actions (3d: The staff, based on their learnings, makes and implements plans that address students' needs, more effective teaching and more successful student learning, and 3e: The staff debriefs and assesses the impact of their actions and makes revisions.). Factor 3's remaining item addressed consensus for a shared vision among the entire staff (2a: Visions for improvement are discussed by the entire staff such that consensus and a shared vision result); therefore, Factor 3 was named Action Orientation.
The fact that more than half the items loaded on more than one factor suggests that the factor structure may be unstable. Further testing of this measure in future studies is warranted.
Table 5

Factor Loading Table of Survey Items

<table>
<thead>
<tr>
<th>Item</th>
<th>Factor 1</th>
<th>Factor 2</th>
<th>Factor 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>5d. Trust and openness characterize all the staff.</td>
<td>.90</td>
<td>.22</td>
<td>.08</td>
</tr>
<tr>
<td>5e. Caring, collaborative, and productive relationships exist among all the staff.</td>
<td>.85</td>
<td>.28</td>
<td>.03</td>
</tr>
<tr>
<td>1b. Administrator(s) involves the entire staff.</td>
<td>.77</td>
<td>.26</td>
<td>.31</td>
</tr>
<tr>
<td>1a. Although there are some legal and fiscal decisions required of the principal, this person consistently involves the staff in discussing and making participative decisions about most of the school issues.</td>
<td>.73</td>
<td>.16</td>
<td>.51</td>
</tr>
<tr>
<td>2b. Visions for improvement are always focused on students and teaching and learning.</td>
<td>.71</td>
<td>.16</td>
<td>.58</td>
</tr>
<tr>
<td>2c. Visions for improvement target high quality learning experiences for all students.</td>
<td>.70</td>
<td>.09</td>
<td>.61</td>
</tr>
<tr>
<td>5b. The size, structure, and arrangements of the school facilitate staff proximity and interaction.</td>
<td>.67</td>
<td>.55</td>
<td>.02</td>
</tr>
<tr>
<td>4b. Staff provide feedback to each other about teaching and learning based on their classroom observations.</td>
<td>.07</td>
<td>.83</td>
<td>.20</td>
</tr>
<tr>
<td>5a. Time is managed and committed for whole staff interactions.</td>
<td>.30</td>
<td>.79</td>
<td>.02</td>
</tr>
<tr>
<td>3a. The entire staff meets to discuss, share information, and learn with and from each other.</td>
<td>.31</td>
<td>.78</td>
<td>.17</td>
</tr>
<tr>
<td>4a. Staff regularly and frequently visit and observe each other’s classroom teaching.</td>
<td>.11</td>
<td>.72</td>
<td>.26</td>
</tr>
<tr>
<td>3b. The staff meets regularly and frequently on substantive student-centered educational issues.</td>
<td>.56</td>
<td>.63</td>
<td>.15</td>
</tr>
<tr>
<td>3c. The staff discusses the quality of their teaching and students’ learning.</td>
<td>.35</td>
<td>.58</td>
<td>.48</td>
</tr>
<tr>
<td>5c. A variety of processes and procedures are used to encourage staff communication.</td>
<td>.47</td>
<td>.57</td>
<td>.54</td>
</tr>
<tr>
<td>2a. Visions for improvement are discussed by the entire staff such that consensus and a shared vision result.</td>
<td>.30</td>
<td>.08</td>
<td>.79</td>
</tr>
<tr>
<td>3d. The staff, based on their learnings, makes and implements plans that address students’ needs, more effective teaching, and more successful student learning.</td>
<td>-.21</td>
<td>.43</td>
<td>.70</td>
</tr>
<tr>
<td>3e. The staff debriefs and assesses the impact of their actions and makes revisions.</td>
<td>.34</td>
<td>.50</td>
<td>.54</td>
</tr>
</tbody>
</table>

Eigenvalues

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.39</td>
<td>1.94</td>
<td>1.47</td>
<td></td>
</tr>
</tbody>
</table>

Variance

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>.55</td>
<td>.12</td>
<td>.09</td>
<td></td>
</tr>
</tbody>
</table>

Cumulative Percent

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>.55</td>
<td>.67</td>
<td>.76</td>
<td></td>
</tr>
</tbody>
</table>

N= 17, α = .94
Participating Schools' PLCness

Table 6 (See Table 6, p. 70) depicts the descriptive statistics of PLC and the PLC subscales Shared Vision/Decision Making, Collective Learning, and Action Orientation for participating schools. PLC had a mean of 4.06 (SD = .53). PLC average values ranged from 1.8 to 5 on the School Professional Staff as Learning Community Survey. Shared Vision/Decision Making had a mean of 4.16 (SD = .42) and ranged from 3.06 to 5. Collective Learning had a mean of 3.88 (SD = .64) and ranged from 1.81 to 4.8.

Table 6

Participating Schools' PLC and PLC Subscale Data

<table>
<thead>
<tr>
<th></th>
<th>M</th>
<th>SD</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLC</td>
<td>4.06</td>
<td>.53</td>
<td>1.8-5</td>
</tr>
<tr>
<td>Shared Vision/</td>
<td>4.16</td>
<td>.42</td>
<td>3.06-5</td>
</tr>
<tr>
<td>Decision Making</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Collective Learning</td>
<td>3.88</td>
<td>.64</td>
<td>1.81-4.8</td>
</tr>
<tr>
<td>Action Orientation</td>
<td>4.28</td>
<td>.29</td>
<td>3.33-4.8</td>
</tr>
</tbody>
</table>

Students' Performance in Math and Reading

Table 7 (See Table 7, p. 71) depicts descriptive statistics of Grades 3-5 Math and Reading scale scores for students from participating schools. All mean scale scores and ranges of scale scores were in the pass/proficient (400-499) to pass/advanced (500-500) range. The Math mean scale score for all students was 497 (SD = 22.3) and ranged from 446 to 523. White students' Math mean scale score was 516 (SD = 21.2) and ranged from 465 to 545. The White students' Math mean scale score was in the pass/advanced range. African-American students' mean scale score was 476 and ranged from 431 to 502. There was a
40 point gap between the White and African-American students' mean scale scores in Math.

All students Reading mean scale score was 479 (SD = 15.1) and ranged from 447 to 510. White students' mean Reading scale score was 495 (SD = 14.2) and ranged from 457 to 523. African-American students' mean Reading scale score was 456 (SD = 13.4) and ranged from 437 to 486. There was a 39 point gap between White and African-American students' mean scale scores in Reading.

Table 7

<table>
<thead>
<tr>
<th>Grades 3-5 Math and Reading Scale Scores</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Math Scores</strong></td>
</tr>
<tr>
<td>All Students 497 22.3 446-523</td>
</tr>
<tr>
<td>White 516 21.2 465-545</td>
</tr>
<tr>
<td>AA 476 20.7 431-502</td>
</tr>
<tr>
<td><strong>Reading Scores</strong></td>
</tr>
<tr>
<td>All Students 479 15.1 447-510</td>
</tr>
<tr>
<td>White 495 14.2 457-523</td>
</tr>
<tr>
<td>AA 456 13.4 437-486</td>
</tr>
</tbody>
</table>

Free and Reduced Lunch Rate and Attendance

Table 8 (See Table 8, p. 72) depicts free and reduced lunch and average daily attendance percentages for participating schools. In this study, free and reduced lunch percentage represented socioeconomic status of students. The free and reduced lunch percentage was 37% (SD = .24) and ranged from 7% to 75%. The average daily attendance percentage for all students was 96% (SD = .54) and ranged from 95% to 97%. White students' average daily attendance was
95% (SD = .79) and ranged from 94% to 97%. African-American students’ average daily attendance was 96% (SD = .97) and ranged from 94% to 98%.

Table 8

<table>
<thead>
<tr>
<th></th>
<th>M</th>
<th>SD</th>
<th>Min</th>
</tr>
</thead>
<tbody>
<tr>
<td>% FRED Lunch</td>
<td>37%</td>
<td>.24</td>
<td>7%-75%</td>
</tr>
<tr>
<td>% Attendance for All Students</td>
<td>96%</td>
<td>.54</td>
<td>95%-97%</td>
</tr>
<tr>
<td>% Attendance for White Students</td>
<td>95%</td>
<td>.79</td>
<td>94%-97%</td>
</tr>
<tr>
<td>% Attendance for AA Students</td>
<td>96%</td>
<td>.97</td>
<td>94%-98%</td>
</tr>
</tbody>
</table>

Analysis of Research Questions

Questions 1a: For all students, to what extent is the presence of PLC practices related to achievement in Math?

To determine the extent the presence of PLC practices was related to achievement in Math for all students, Pearson Correlation coefficients were computed for PLC and all Math, Shared Vision/Decision Making and all Math, Collective Learning/Sharing and all Math, and Action Orientation and all Math. Table 9 (See Table 9, p. 73) depicts the results of these analyses. Shared Vision/Decision Making was moderately correlated with students’ Math achievement ($r = .47$, $p < .05$). PLC ($r = .37$, n.s.), Collective Learning ($r .27$, n.s.) and Action Orientation ($r = .09$, n.s.) were not statistically significant with Math achievement. PLC was strongly correlated with the subscale factors Shared Vision/Decision Making, Collective Learning, and Action Orientation ($r = .90$, $p < .01$, $r = .91$, $p < .91$, $r = .74$, $p < .01$, respectively). Shared Vision/Decision Making was correlated with Collective Learning and Action Orientation ($r = .66$, p
Collective Learning was correlated with Action Orientation ($r = 0.66, p < .01$).

Table 9

*Pearson Correlation – PLC Correlated with All Students’ Math/Reading Achievement*

<table>
<thead>
<tr>
<th></th>
<th>SV/DM</th>
<th>CL</th>
<th>AO</th>
<th>All Math</th>
<th>All Reading</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLC</td>
<td>0.90**</td>
<td>0.91**</td>
<td>0.74**</td>
<td>0.37</td>
<td>0.46*</td>
</tr>
<tr>
<td>Shared Vision/</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Decision Making</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(SV/DM)</td>
<td>0.66**</td>
<td>0.50*</td>
<td>0.47*</td>
<td>0.56**</td>
<td></td>
</tr>
<tr>
<td>Collective Learning</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(CL)</td>
<td>0.66**</td>
<td>0.27</td>
<td></td>
<td></td>
<td>0.32</td>
</tr>
<tr>
<td>Action Orientation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(AO)</td>
<td>0.09</td>
<td></td>
<td></td>
<td></td>
<td>0.19</td>
</tr>
<tr>
<td>All Math</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All Reading</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.83**</td>
</tr>
</tbody>
</table>

N=25, *p<.05, **p<.01

**Question 1b:** For all students, to what extent does SES influence this relationship?

To determine the extent the presence of PLC practices was related to achievement in Math for all students when controlling for SES, Partial Pearson Correlation were computed between PLC and all students' Math achievement, Shared Vision/Decision Making, Collective Learning and Action Orientation.

Table 10 (Table 10, p. 74) depicts the results of these analyses. PLC ($r = 0.14$, n.s.), as well as the PLC subscales Shared Vision/Decision Making ($r = 0.18$, n.s.), Collective Learning ($r = 0.11$, n.s.), Action Orientation ($r = -0.01$, n.s.) were not statistically significant with all students' achievement in Math when controlling for SES. PLC was correlated with Shared Vision/Decision Making ($r = 0.87$, $p < .01$), Collective Learning ($r = 0.91$, $p < .01$), and Action Orientation ($r = 0.76$, $p < .01$).
Shared Vision/Decision Making was correlated with Collective Learning \( (r = .63, \ p < .01) \) and Action Orientation \( (r = .51, \ p < .05) \). Collective Learning was correlated with Action Orientation \( (r = .66, \ p < .01) \). In this analysis, SES mitigated the correlation between Shared Vision/Decision Making and all students' Math achievement.

Table 10

*Partial Pearson Correlation of PLC Practices Related to All Students' Math/Reading Achievement Controlling for SES*

<table>
<thead>
<tr>
<th></th>
<th>SV/DM</th>
<th>CL</th>
<th>AO</th>
<th>All Math</th>
<th>All Reading</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLC</td>
<td>.87**</td>
<td>.91**</td>
<td>.76**</td>
<td>.14</td>
<td>.26</td>
</tr>
<tr>
<td>Shared Vision/</td>
<td>.63**</td>
<td></td>
<td>.51*</td>
<td>.18</td>
<td>.32</td>
</tr>
<tr>
<td>Decision Making</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(SV/DM)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Collective</td>
<td></td>
<td>.66**</td>
<td></td>
<td>.11</td>
<td>.18</td>
</tr>
<tr>
<td>Learning (CL)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Action</td>
<td></td>
<td></td>
<td></td>
<td>-.01</td>
<td>.14</td>
</tr>
<tr>
<td>Orientation (AO)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All Math</td>
<td></td>
<td></td>
<td></td>
<td>.63</td>
<td></td>
</tr>
<tr>
<td>All Reading</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

N=25, *p<.05, **p<.01

**Question 1c:** For all students, to what extent do SES and attendance influence this relationship?

To determine the extent the presence of PLC practices was related to Math achievement with SES and attendance as variables, a multiple regression analysis was performed using SPSS/PASW. Table 11 (See Table 11, p. 75) depicts the results of these analyses. Three models were generated with PLC, PLC and SES, and PLC, SES and all attendance represented in each model, respectively. In model 2, PLC and SES accounted for 53% of the variance in all
students' achievement in Math. SES made a statistically significant contribution to explaining variance in Math achievement (p < .01). SES's standardized beta is -.68. In model 3, PLC, SES and attendance accounted for 54% of the variance in all students' achievement in Math. The addition of attendance increased the variance explained by 1%. SES was statistically significant (p < .01). PLC's standardized beta was .09. SES standardized beta was -.62. All students' attendance standardized beta was .12. In this analysis, SES had the greatest effect on all students' Math achievement. When PLC was combined with SES, SES made an independent contribution in accounting for variance in students' Math achievement. When PLC was combined with SES and attendance, SES continued to be the only variable to independently account for variance in Math achievement.

Table 11

Multiple Regression Analysis of Math Achievement by All Students, with PLC Score, SES, and Attendance as Predictors

<table>
<thead>
<tr>
<th>Sds</th>
<th>Beta</th>
<th>t</th>
<th>Sig</th>
<th>R²</th>
<th>Adj R²</th>
<th>SE</th>
</tr>
</thead>
</table>
| Model 1
| PLC  | .37  | 1.93 | .06 | .14  | .10    | 21.10 |
| Model 2
| PLC  | .10  | .64  | .53 |      |        |      |
| SES   | -.68 | -4.27| .00 |      |        |      |
| Model 3
| PLC  | .09  | .54  | .60 |      | .54    | .47  |
| SES   | -.62 | -3.36| .00 |      | .50    | .50  |
| Attendance | .12 | .68  | .50 |      |        |      |
**Question 2a:** For all students, to what extent is the presence of PLC practices related to achievement in Reading?

To determine the extent the presence of PLC practices was related to achievement in Reading for all students, Pearson Correlation coefficients were computed for PLC and all Reading, Shared Vision/Decision Making, Collective Learning, and Action Orientation. Table 9 (See Table 9, p. 73) depicts the results of these analyses. PLC ($r = .46, p < .05$) and Shared Vision/Decision Making ($r = .56, p < .01$) were moderately correlated with all students' Reading. Collective Learning ($r = .32, \text{n.s.}$) and Action Orientation ($r = .19, \text{n.s.}$) were not statistically significant with all students' Reading achievement. Thus, PLC practices and Shared Vision/Decision Making were found to be related to all students' Reading achievement.

**Questions 2b:** For all students, to what extent does SES influence this relationship?

To determine the extent the presence of PLC practices was related to achievement in Reading for all students when controlling for SES, a Partial Pearson Correlation was computed between PLC and all Reading, Shared Vision/Decision Making and all Reading, Collective Learning and all Reading, and Action Orientation and all Reading controlling for SES. Table 10 (See Table 10, p. 74) depicts the results of these analyses. PLC ($r = .26, \text{n.s.}$), Shared Vision/Decision Making ($r = .32, \text{n.s.}$), Collective Learning ($r = .18, \text{n.s.}$), and Action Orientation ($r = .14, \text{n.s.}$) were not statistically significant with all students' Reading achievement when controlling for SES. In this analysis, SES mitigated
prior statistically significant correlations between PLC and all students' Reading achievement and Shared Vision/Decision Making and all students' Reading achievement.

**Question 2c:** For all students, to what extent do SES and attendance influence this relationship?

To determine the extent the presence of PLC practices was related to Reading achievement with SES and attendance as variables, a multiple regression analysis was performed using SPSS/PASW. Table 12 (See Table 12, p. 78) depicts the results of these analyses. Three models were generated with PLC, PLC and SES, and PLC, SES, and all attendance, respectively. In model 1 PLC accounted for 21% of the variance in all students' achievement in Reading, and it was statistically significant (p < .05). In model 2, PLC and SES together accounted for 59% of the variance in all students' achievement in Reading. With a beta weight of .67, SES was statistically significance (p < .01), and PLC did not make a statistically significant contribution. In model 3, PLC, SES, and attendance accounted for 59% of the variance in all students' achievement in Reading. SES was the only variable to make a statistically significant contribution (p < .01). Neither PLC nor attendance made significant independent contributions to explaining the variance in Reading achievement. In this analysis, PLC alone accounted for 21% of the variance in all students' achievement in Reading. When PLC was combined with SES, SES accounted for the majority of the variance in students' Reading achievement. When PLC was combined with SES and
attendance, SES continued to account for the majority of the variance among the variables. Attendance had a negligible effect on variance.

Table 12

*Multiple Regression Analysis on Reading Achievement by All Students, with PLC Scores, SES, and Attendance as Predictors*

<table>
<thead>
<tr>
<th>Model</th>
<th>PLC</th>
<th>t</th>
<th>Sig</th>
<th>R²</th>
<th>Adj R²</th>
<th>SE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>PLC</td>
<td>.46</td>
<td>2.47</td>
<td>.02</td>
<td>.21</td>
<td>.18</td>
</tr>
<tr>
<td>2</td>
<td>PLC</td>
<td>.19</td>
<td>1.27</td>
<td>.22</td>
<td>.59</td>
<td>.55</td>
</tr>
<tr>
<td></td>
<td>SES</td>
<td>-.67</td>
<td>-4.53</td>
<td>.00</td>
<td>.59</td>
<td>.54</td>
</tr>
<tr>
<td>3</td>
<td>PLC</td>
<td>.18</td>
<td>1.18</td>
<td>.25</td>
<td>.59</td>
<td>.54</td>
</tr>
<tr>
<td></td>
<td>SES</td>
<td>-.64</td>
<td>-3.70</td>
<td>.00</td>
<td>Adj</td>
<td>Adj</td>
</tr>
<tr>
<td></td>
<td>Attendance</td>
<td>.06</td>
<td>.41</td>
<td>.68</td>
<td>Adj</td>
<td>Adj</td>
</tr>
</tbody>
</table>

**Questions 3:** To what extent is the presence of PLC practices related to the achievement of African-American students in Math?

To determine the extent the presence of PLC practices was related to African-American achievement in Math, Pearson Correlation coefficients were computed between PLC and African-American Math, Shared Vision/Decision Making and African-American Math, Collective Learning and African-American Math, and Action Orientation and African-American Math. Table 13 (See Table 13, p. 79) depicts the results of these analyses. The researcher found that Shared Vision/Decision Making \( r = .46, p < .05 \) was moderately correlated with African-American students' Math achievement. PLC \( r = .29, n.s. \), Collective Learning \( r = .14, n.s. \) and Action Orientation \( r = -.03, n.s. \) were not statistically significant with African-American students' Math achievement. PLC and Shared
Vision/Decision Making ($r = .90$, $p < .01$), PLC and Collective Learning ($r = .91$, $p < .01$), PLC and Action Orientation ($r = .71$, $p < .01$), Shared Vision/Decision Making and Collective Learning ($r = .66$, $p < .01$), Shared Vision/Decision Making and Action Orientation ($r = .50$, $p < .05$), and Collective Learning and Action Orientation ($r = .66$, $p < .01$) were moderately to strongly correlated. This implies that there is a moderate correlation between schools that have Shared Vision/Decision Making and improved Math achievement among African-American students.

Table 13

Pearson Correlation of PLC Practices Related to African-American Math and Reading Achievement

<table>
<thead>
<tr>
<th></th>
<th>SV/DM</th>
<th>CL</th>
<th>AO</th>
<th>AA Math</th>
<th>AA Reading</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLC</td>
<td>.90**</td>
<td>.91**</td>
<td>.74**</td>
<td>.29</td>
<td>.27</td>
</tr>
<tr>
<td>Shared Vision/Decision Making (SV/DM)</td>
<td>.66**</td>
<td>.50*</td>
<td>.46*</td>
<td>.42*</td>
<td></td>
</tr>
<tr>
<td>Collective Learning (CL)</td>
<td></td>
<td>.66**</td>
<td>.14</td>
<td>.09</td>
<td></td>
</tr>
<tr>
<td>Action Orientation (AO)</td>
<td></td>
<td></td>
<td>-.03</td>
<td>.13</td>
<td></td>
</tr>
<tr>
<td>All Math</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All Reading</td>
<td></td>
<td></td>
<td></td>
<td>.68**</td>
<td></td>
</tr>
</tbody>
</table>

N=25, *$p<.05$. **$p<.01$

Questions 4: To what extent is the presence of PLC practices related to the achievement of African-American students in Reading?

To determine the extent the presence of PLC practices was related to African-American achievement in Reading, Pearson Correlation coefficients were computed between PLC and African-American Math, Shared Vision/Decision Making and African-American Reading, Collective Learning and African-
American Reading, and Action Orientation and African-American Reading. Table 13 (See Table 13, p. 79) depicts the results of these analyses. Shared Vision/Decision Making was moderately correlated with African-American students' Reading achievement ($r = .42, p < .05$). This implied that there was a moderate correlation between schools that had Shared Vision/Decision Making and improved Reading achievement among African-American students.

**Questions 5:** To what extent is the presence of PLC practices related to the achievement of White students in Math?

To determine the extent the presence of PLC practices was related to White achievement in Math, Pearson Correlation coefficients were computed between PLC and White Math, Shared Vision/Decision Making and White Math, Collective Learning and White Math, and Action Orientation and White Math. Table 14 (See Table 14, p. 81) depicts the results of these analyses. PLC ($r = .13, \text{n.s.}$), Shared Vision/Decision Making ($r = .17, \text{n.s.}$), Collective Learning ($r = .16, \text{n.s.}$), and Action Orientation were not statistically significant with White students' Reading achievement. PLC and Shared Vision/Decision Making ($r = .90, p < .01$), PLC and Collective Learning ($r = .91, p < .01$), PLC and Action Orientation ($r = .71, p < .01$), Shared Vision/Decision Making and Collective Learning ($r = .66, p < .01$), Shared Vision/Decision Making and Action Orientation ($r = .50, p < .05$), and Collective Learning and Action Orientation ($r = .66, p < .01$) were moderately to strongly correlated.
Table 14

Pearson Correlation of PLC Practices Related to White Math/Reading Achievement

<table>
<thead>
<tr>
<th></th>
<th>SV/DM</th>
<th>CL</th>
<th>AO</th>
<th>Wh Math</th>
<th>Wh Reading</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLC</td>
<td>.90**</td>
<td>.91**</td>
<td>.74**</td>
<td>.13</td>
<td>.31</td>
</tr>
<tr>
<td>Shared Vision/Decision Making (SV/DM)</td>
<td>.66**</td>
<td>.50*</td>
<td>.17</td>
<td>.38</td>
<td></td>
</tr>
<tr>
<td>Collective Learning (CL)</td>
<td>.66**</td>
<td>.16</td>
<td>.20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Action Orientation (AO)</td>
<td></td>
<td>-.15</td>
<td>.15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wh Math</td>
<td></td>
<td></td>
<td>.13</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wh Reading</td>
<td></td>
<td></td>
<td></td>
<td>.50*</td>
<td></td>
</tr>
</tbody>
</table>

N=25, *p<.05. **p<.01

Questions 6: To what extent is the presence of PLC practices related to the achievement of White students in Reading?

To determine the extent the presence of PLC practices was related to White achievement in Reading, Pearson Correlation coefficients were computed between PLC and White Reading, Shared Vision/Decision Making and White Reading, Collective Learning and White Reading, and Action Orientation and White Reading. Table 14 (See Table 14, p. 81) depicts the results of these analyses. PLC (r = .31, n.s.), Shared Vision/Decision Making (r = .38, n.s.), Collective Learning (r = .20, n.s.), and Action Orientation (r = .15, n.s.) were not statistically significant with White students' Reading achievement. In this study, neither PLC nor the PLC subscales Shared Vision/Decision Making, Collective
Learning, or Action Orientation were statistically significant with White students' Reading achievement.

**Question 7:** To what extent do the set of PLC measures explain the variance in achievement of African-American students when controlling for SES in Math?

To determine the extent the set of PLC practices explained the variance in achievement of African-American students in Math when controlling for SES, Partial Pearson Correlation coefficients were computed between PLC and African-American Math, Shared Vision/Decision Making and African-American Math, Collective Learning and African-American Math, and Action Orientation and African-American Math controlling for SES. Table 15 (See Table 15, p. 83) depicts the results of these analyses. PLC ($r = .16, \text{n.s.}$), Shared Vision/Decision Making ($r = .33, \text{n.s.}$), Collective Learning ($r = .05, \text{n.s.}$), and Action Orientation ($r = -.09, \text{n.s.}$) were not statistically significant with African-American students' Math achievement when controlling for SES. PLC was strongly correlated with the subscales Shared Vision/Decision Making ($r = .87, p < .01$), Collective Learning ($r = .91, p < .01$), and Action Orientation ($r = .76, p < .01$) were strongly correlated. Shared Vision/Decision Making was moderately correlated with Collective Learning ($r = .63, p < .01$) and Action Orientation ($r = .51, p < .01$). Collective Learning was moderately correlated with Action Orientation ($r = .66, p < .01$). In this analysis, PLC, Shared Vision/Decision Making, Collective Learning
and Action Orientation accounted for none of the variance in African-American students’ achievement in Math when controlling for SES.

Table 15

Partial Correlation of PLC Practices Related to African-American Math/Reading Achievement Controlling for SES

<table>
<thead>
<tr>
<th></th>
<th>SV/DM</th>
<th>CL</th>
<th>AO</th>
<th>AA Math</th>
<th>AA Reading</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLC</td>
<td>.87**</td>
<td></td>
<td>.76**</td>
<td>.16</td>
<td>.18</td>
</tr>
<tr>
<td>Shared Vision/Decision Making (SV/DM)</td>
<td>.63**</td>
<td></td>
<td>.51*</td>
<td>.33</td>
<td>.34</td>
</tr>
<tr>
<td>Collective Learning (CL)</td>
<td></td>
<td>.66**</td>
<td></td>
<td>.05</td>
<td>.00</td>
</tr>
<tr>
<td>Action Orientation (AO)</td>
<td></td>
<td></td>
<td></td>
<td>-.09</td>
<td>.10</td>
</tr>
<tr>
<td>AA Math</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AA Reading</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.65</td>
</tr>
</tbody>
</table>

N=25, *p<.05. **p<.01

**Question 8:** To what extent do the set of PLC measures explain the variance in achievement of African-American students when controlling for SES in Reading?

To determine the extent the set of PLC practices explained the variance in achievement of African-American students in Reading when controlling for SES, Partial Pearson Correlation coefficients were computed between PLC and African-American Reading, Shared Vision/Decision Making, Collective Learning, and Action Orientation controlling for SES. Table 15 (See Table 15, p. 83) depicts the results of the computations. The researcher found that PLC (r = .18, n.s.), Shared Vision/Decision Making (r = .34, n.s.), Collective Learning (r = .00, n.s.), and Action Orientation (r = .10, n.s.) explained the variance in African-American achievement in Reading when controlling for SES.
n.s.), and Action Orientation ($r = .10, \text{n.s.}$) were not statistically significant with African-American students' achievement in Reading. In this analysis, PLC accounted for none of the variance in African-American students' achievement in Reading when controlling for SES.

Summary

PLC was moderately correlated with all students' Reading achievement ($r = .46, p < .05$). Shared Vision/Decision Making was moderately correlated with all student Math and Reading achievement ($r = .47, p < .05, r = .56, p < .01$, respectively). Shared Vision/Decision Making was also moderately correlated with African-American students' Math and Reading Achievement ($r = .46, p < .05, r = .42, p < .05$, respectively). PLC alone accounted for 21% of the variance in all students' Reading achievement ($p < .05$). PLC, SES, and attendance accounted for 59% of the variance in all students' Reading achievement. When combined with PLC and attendance, SES made the only statistically significant contribution to explaining variance ($p < .01$). PLC, SES, and attendance accounted for 54% of the variance in all students' Math achievement. When combined with PLC and attendance, SES made the only statistically significant contribution to explaining variance in all students' Math achievement ($p < .01$).
CHAPTER V
CONCLUSIONS

Introduction

As the NCLB (2001) goal of all students successfully passing their state's mandated achievement exam in Math and Reading by 2013-2014 school year approaches, educators have adopted a myriad of practices and programs in an effort to ensure that every student meets the mandate. Among the models that have been widely adopted are professional learning communities. Professional learning communities have been credited with improving teaching to improve student learning, but the research base that confirms the link between student success and PLC practices is sparse (Thompson, et al., 2004).

This study examined the relationship between PLC practices and student achievement in 25 participating elementary schools from a suburban school district in Virginia to determine whether or not these practices were positively correlated with student achievement. The school was the unit of analysis and the participants were elementary school teachers who completed the School Professional Staff as Learning Community survey. The average survey results from each school were combined with Standards of Learning Math and Reading average scale scores in Grades 3-5, free and reduced lunch, and attendance rates to respond to the eight research questions. A summary of the results from the analysis of the data produced during this study is as follows:

- PLC was moderately correlated with all students' achievement in Reading ($r = .46$, $p < .05$).
Shared Vision/Decision Making was moderately correlated with all students' achievement in Math \( (r = .47, p < .05) \).

Shared Vision/Decision Making was moderately correlated with all students' achievement in Reading \( (r = .56, p < .01) \).

Shared Vision/Decision Making was moderately correlated with African-American students' achievement in Math \( (r = .46, p < .05) \).

Shared Vision/Decision Making correlated with African-American students' achievement in Reading \( (r = .42, p < .05) \).

PLC alone accounted for 21% of the variance in all students' Reading achievement. PLC, SES, and attendance accounted for 54% of the variance in all students' Math achievement and 59% of the variance in all students' Reading achievement. SES was the only variable that made an independent contribution to explaining the variance.

Summary and Discussion of Findings

Participants

The school district and elementary schools adopted PLC practices six years ago. As a result, the population of elementary school teachers targeted for this study had from 1 to 6 years of experience working in PLCs. This study was comprised of 346 teacher volunteers from 25 schools. The average number of participants per school was 15.2 \( (SD = 10.7) \). The data collection occurred in fall. The researcher requested that participating schools administer the survey during a faculty meeting or other gathering of the staff to teachers who taught the 2008-2009 school year complete the survey. The researcher found that some schools
did not follow this protocol. Some schools placed the surveys in teacher
distribution boxes and at least one school placed the surveys in the faculty
lounge. As a result the researcher could not confirm that all teachers who took
the survey were teachers at the school during the previous school year. The
researcher also found that schools that did not follow the requested survey
administration procedures returned as few as one survey. Schools that returned
fewer than seven surveys were not included in the study.

*Students' Performance in Math and Reading*

The school district was a minority-majority school district. White students
were 42% and minority students were 58% of the student population. African-
American students comprised 25% of the student population. The students from
the participating schools performed exceptionally well on the Math and Reading
Standards of Learning exams. All average scale scores were at least
pass/proficient. There was a gap in achievement between African-American and
White students. White students' average scale score in Math of 516 (SD = 21.2)
was 40 points higher than African-American students' scale score of 476 (SD =
20.7). White students' average scale score in Reading of 495 (SD = 14.2) was 39
points higher than African-American students' scale score of 456. All students'
average scale score in Math was also higher than the average scale score in
Reading. The differences were 22 points between Math and Reading for all
students, 21 points between Math and Reading for White students, and 20 points
between Math and Reading for African-American students.
While there was room for improvement among all groups, the Math and Reading scores were relatively high and flat. There was little variability among mean scale scores. The mean scale scores for all, African-American, and White students were within 40 points of each other in Math and 29 points in Reading. In a correlational study in which the goal was the explanation of variance within variables the high but level performance in Math and Reading may have hidden changes in performance that could have been the result of PLC practices. If PLC practices were responsible, in part, for these high achievement scores, there may not have been enough variability in student achievement to identify all of the relationships.

Free and Reduced Lunch and Attendance

In this study, free and reduced lunch was used as a proxy for SES. Participating schools' free and reduced lunch percentage was $M = 37\%$ ($SD = .24$). This was above the national poverty rate of 13%. More than one-third of the students from participating schools were on the lower end of the SES scale, yet the overall and disaggregated achievement on the Math and Reading Standards of Learning exams were well within the pass/proficient range. Students' success may be attributed to other initiatives in the school that promoted achievement despite the negative effects of SES. Students' success may also be attributed to the high achievement of the other students. The high scale scores in Math and Reading indicated that students were performing very well on their Standards of Learning exams. The remaining two-thirds of the students may have performed so well on the exams that average scale scores for all students and
disaggregated scores did not capture how well or poorly students from lower SES homes performed.

The average attendance rate was 96% (SD = .538) for all students, 96% (SD = .974) for African-American students, and 95% (SD = .974) for White students. Attendance rates were high due to the school district’s attendance policy which had significant consequences. For example, students who had more than 10 unexcused absences were considered for retention in their current grade. While school attendance and student achievement were positively correlated, the high and flat – little variability among groups – attendance rate had a negligible effect.

PLC and PLC Subscales Scores

In this study, teachers' average scores on the School Professional Staff as Learning Community Survey indicated that they considered their schools to be professional learning communities. PLC, comprised of all 17 survey items had a mean score of 4.06 out of 5 (SD = .53). Their scores of the PLC subscales – Shared Vision/Decision Making, Collective Learning, and Action Orientation – also indicated they identified with these practices. Shared Vision/Decision Making comprised of 7 survey items had a mean score of 4.16 (SD = .42). Collective Learning also comprised of 7 survey items had a mean score of 3.88 (SD = .64). Action Orientation comprised of 3 survey items had a mean score of 4.28 (SD = .29).

The means for the variables may represent the degree to which they are present in the schools. For example, Action Orientation represented teachers
working together to implement new programs and practices to improve their teaching to improve student learning. The district was known for implementing new programs and initiatives. This ranking may have represented a confirmation that this activity had happened in schools. Shared Vision/Decision Making represented how school visions were focused and the presence of shared decision making. The high average score for this variable may have indicated a high presence of these practices in schools. PLC which represented the characteristics of a PLC as described in the survey instruments was ranked third. Its score may have indicated that teachers identified with many of the practices described in the survey instrument. While it was not the highest ranked variable, it could mean that schools were practicing many of the characteristics associated with PLC. Finally, Collective Learning represented practices associated with group learning and collaboration. This was the only variable with a mean score below four. Teachers’ responses indicated that at least two of the practices associated with Action Orientation – observing other teachers and providing feedback on their observations of other teachers teaching – were not occurring in schools. These items received scores of 2 to 1 on the survey, and were the primary reason that Collective Learning was rated lowest of the variables.

*PLC and Student Achievement*

The analyses of data from this study revealed that PLC was moderately correlated with all students’ achievement in Reading ($r = .46$, $p < .05$). PLC represented Hord’s (1997) School Professional Staff as Learning Community Survey and was comprised of all 17 survey items. PLC may have been related
to all students' Reading achievement because there was room for improvement in Reading. All students average scale score in Reading was 479 (SD = 15.1). There may have been enough variability in the average scores to realize a relationship between PLC Reading achievement. PLC may have only correlated with 1 of 6 indicators of student achievement because of the overall high and flat performance of White students in Math and Reading and all students in Math. White students' average scale score on the Math assessment was 516 (SD = 21.2). On average they were in the pass/advanced range – scores from 500 to 600. White students' average scale score in Reading was 495 (SD = 14.2). They were within 5 points of pass/advanced. All students’ average scale score in Math was 497 (SD = 22.3). The score was within three points of pass/advanced.

There was no relationship between PLC and African-American students’ achievement in Math and Reading. While African-Americans students’ average scores in Math and Reading were well within the pass/proficient range, they were not as high as any of the other student groups’ mean scale scores. PLC could have been related to African-American student achievement, but more schools may be required to make the relationship statistically significant. Another possible reason for the absence of a relationship between PLC and African-American students’ achievement was there was no relationship. PLC practices may not promote improved achievement for African-American students.

Share Vision/Decision Making and Student Achievement

The PLC subscale Shared Vision/Decision Making moderately correlated with all students' achievement in Math (r = .47, p < .05) and Reading (r = .56, p <
.01) and African-American students' achievement in Math ($r = .46$, $p < .05$) and Reading ($r = .42$, $p < .05$). It was the only PLC subscale that was correlated with students' achievement. Shared Vision/Decision Making was derived from a factor analysis of the School Professional Staff as Learning Community Survey and consisted of the seven survey items. Shared vision represented a mental image of what was important to the organization and its members. Shared decision making represented how the teachers and administrators made choices about school issues. Shared Vision/Decision Making was also comprised of trust and openness among staff, caring collaborative and productive relationships, and size structure and arrangement of the school. These items created the conditions that fostered Shared Vision/Decision Making.

Shared Vision/Decision Making was also similar to 2 of 6 Interstate School Leaders Licensure Consortium (ISLLC) Standards. ISLLC standards were adopted in 1996 to help states and school districts characterize how school leaders could positively influence learning. ISLLC Standards 1 and 4 were related to practices identified in Shared Vision/Decision Making. The National Policy Board for Educational Administration (2007) described Standard 1 as “An educational leader promotes the success of every student by facilitating the development, articulation, implementation, and stewardship of a vision of learning that is shared and supported by all stakeholders” (p. 1). Standard 4 stated “An educational leader promotes the success of every student by collaborating with faculty and community members, responding to diverse community interests and needs, and mobilizing community resources (p. 2).”
These standards were related to formation of a shared vision and collaboration among teachers. Both are parts of Shared Vision/Decision Making.

In this study, Shared Vision/Decision Making was related to all and African-American students' Math and Reading achievement. Shared Vision/Decision Making was also found to be similar to at least two ISLLC standards. Shared Vision/Decision Making could be related to leadership. In this view, the practices of administrators allowing teachers to share in forming the school's vision and share in decision making were related to student achievement. This could mean that good leadership was important to African-American students' achievement, but it was not important to White students' achievement.

Shared Vision/Decision Making was only related to one subgroup – African-American students' achievement. While it is noteworthy that it was not related to White students' achievement, White students' performance in Math and Reading was high with little variability. As a result, there may be a relationship between Shared Vision/Decision Making and White students' achievement, but a more diverse sample of students may be required to reveal it.

Collective Learning and Student Achievement

The PLC subscale Collective Learning was comprised of 7 of 17 School Professional Staff as Learning Community Survey items. It was not related to any students' achievement, and it had the lowest mean score 3.88 (SD = .64) of all of the subscale variables and PLC. Collective Learning seemed to capture the qualities that were most often associated with professional learning communities.
Collective Learning captured the teacher practices of working together to improve their practice to improve student learning, but in this study those practices were not associated with student achievement. Collective Learning may not have been related to any students' achievement because participating schools did not adhere to the practices associated with the variable. For example, two of the lowest rated practices – observing teachers teaching and providing feedback on their teaching – were part of Collective Learning. On average, teachers reported that they never or seldom engaged in these activities. This lack of practice could have accounted for the absence of a relationship between Collective Learning and student achievement.

*Action Orientation and Student Achievement*

The PLC subscale Action Orientation was comprised of 3 of 17 School Professional Staff as Learning Community Survey items. Action Orientation represented teachers trying new practices to improve teaching to improve student learning. It had the highest mean score, $M = 4.28$ (SD = .29), of any of the variables used to measure school practice. In this study Action Orientation may not have been related to student achievement because taking action was not related to student achievement. The school district implemented a number of initiatives to improve student achievement, and the teachers' survey responses indicated that they did things in the schools related to teaching and student learning. Action Orientation simply captured that there were actions related to teaching and student learning happening in the school. This could mean that simply initiating programs was not enough to promote student achievement.
**PLC and Variance in Student Achievement**

In this study, PLC alone accounted for 21% of the variance in all students' Reading achievement \((p < .05)\). Attendance gave no statistically significant contribution to explaining variance. PLC, SES, and attendance accounted for 54% of all students' variance in Math achievement and 59% of all students variance in Reading achievement \((p < .01)\). It was noteworthy that PLC accounted for variance in students' Reading achievement. While PLC did not account for student variance when combined with SES and attendance, PLC practices did make a difference.

SES was the dominant variable in explaining variance. When combined with PLC and attendance, it was the only variable that made a statistically significant contribution to explaining variance in students' Math and Reading achievement. This confirmed what was previously known about the overriding effect of SES on student achievement.

**PLC and Closing the Achievement Gap**

White students outperformed their African-American peers on the Math and Reading Standards of Learning exams. The gap in achievement between the groups was 40 points in Math and 39 points in Reading. These scores were snapshots of student performance. Shared Vision/Decision Making was moderately correlated with African-American students' Math and Reading achievement \((r = .46, p < .05; r = .42, p < .05, \text{ respectively})\), and was not related to White Student's achievement in Math and Reading. PLC, Collective Learning,
and Action Orientation were not related to African-American or White students' achievement in Math or Reading.

Shared Vision/Decision Making may have been related to African-American students' Math and Reading achievement because there was a larger range in their scores. Shared Vision/Decision Making may also have led to practices that promoted more achievement among African-American students. It was possible that an initiative promoted achievement for all students and African-American students' had more success as a result of the initiative, but its effect could not be distinguished from the effect of Shared Vision/Decision Making.

PLC, Shared Vision/Decision Making, Collective Learning, and Action Orientation were not related to White students' achievement in Math and Reading. They may be unrelated because of White students' high and flat performance in Math and Reading. There may be too little variance in their results to be captured in a correlational study. The study may not have had enough power to capture any variance in White students' performance.

In summary, while Shared Vision/Decision Making was related to African-American students' achievement in Math and Reading, PLC nor any of the PLC subscales were related to White students' achievement. Based on the results of this study, PLC nor the PLC subscales closed the achievement gap between African-American and White students.

Implications for Practice

In this study, PLC was related to all students' Reading achievement, and Shared Vision/Decision Making was related to all students' and African American
students' Math and Reading achievement. Shared Vision/Decision Making which was a subscale of PLC was related to improvement in more students' achievement than PLC. This could mean that the 17 items associated with PLC may not be as effective in promoting student achievement as the 7 items associated with Shared Vision/Decision Making.

PLC as characterized in this study was comprised of the major descriptors: Sharing Power, Authority, and Leadership; Shared Vision; Supportive Conditions/Capacities; Collective Learning; and Peer Review. Conceptually it was teachers working collaboratively to improve their teaching to improve student learning. Shared Vision/Decision Making was comprised of shared vision and shared decision making, the qualities of trust, and caring and collaborative relationships, and organizing the school to promote proximity and interaction. PLCs have been in existence for more than twenty years. While the empirical research connecting PLC practices to improved student achievement was limited, there were empirical studies that consistently found that PLC improved student achievement. This study found that a subscale of PLC improved student achievement. It may be that the leadership practices associated with Shared Vision/Decision Making represent the practices that promote more students' achievement.
Recommendations for Future Research

The following are recommendations for future research based on the findings from this study:

- This study was comprised of 25 participating schools from a school district that had experience as a PLC. Student achievement on Math and Reading on the Standards of Learning exam was high, and the average scale scores among student groups were within 40 points on both assessments. The attendance rate was high, and one-third of the students received free and reduced lunch. It would be helpful to conduct this study with a larger more diverse sample. In this study, a larger sample could reveal relationships between PLC and other students' achievement in other subjects. Since the students in this study on average were high achieving, there was little range in their scores on the Standards of Learning exam. Incorporating more schools with a greater range of scores could also reveal other relationships that promote student achievement.

- It would be useful to investigate the construct of professional learning communities to determine which practices were related to student achievement. In this study, Shared Vision/Decision Making, a PLC subscale, was related to more students' achievement than the full PLC scale. Investigating which
practices actually promoted student achievement could lead to a more streamlined set of practices.

- While there were studies of schools that were professional learning communities, there was little research comparing the practices of schools organized as PLCs and student success with non-PLCs and student success. It would be useful to conduct a correlational study using schools that claimed to be PLCs and those that did not to determine which schools' practices promoted student achievement. In such a study, a measure of PLC could be used to identify common practices and a state assessment or other measure could be used to measure student achievement.

- While there are snapshots of PLC practices, there was little quantitative research on how PLCs relate to students' achievement over time. It would be useful to conduct a longitudinal study to determine how student achievement varied as schools' experience as a PLC increased. In this study, participants would complete a PLC survey to measure the extent of adherence to PLC practices annually and a common assessment could be used to measure student achievement. These findings could also help determine whether or not PLC helped close the achievement gap.
Summary

In this study, PLC was related to all students' Reading achievement. It may have only been related to all students' Reading achievement because of the high and flat average scale scores for White students in Math and Reading and all students in Math. Shared Vision/Decision Making was related to all and African-Americana students' achievement in Math and Reading. It also corroborated two ISLLC standards related to the importance of leadership and student achievement. PLC alone account for 21% of the variance in all students' Reading achievement. SES was the only variable that explained students' variance in Math and Reading. PLC and the PLC subscales did not close the achievement gap.
School Professional Staff as Learning Community Survey

The questionnaire concerns your perceptions about your school as a learning organization. There are no right or wrong responses. Please consider where you believe your school is in its development or each of the five numbered descriptors shown in bold face type on the left. Each sub-item has a five-point scale. On each scale, circle the number that best represents the degree to which you feel your school has developed.

APPENDIX A

SCHOOL PROFESSIONAL STAFF AS LEARNING COMMUNITY SURVEY
1. School administrators participate democratically with teachers sharing power, authority, and decision making.

<table>
<thead>
<tr>
<th>Score</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Although there are some legal and fiscal decisions required of the principal, this person consistently involves the staff in discussing and making participative decisions about most of the school issues.</td>
</tr>
<tr>
<td>4</td>
<td>Administrators invite advice and counsel from the staff and then make decisions themselves.</td>
</tr>
<tr>
<td>3</td>
<td>Administrators never share information with the staff nor provide opportunity to be involved in decision making.</td>
</tr>
<tr>
<td>2</td>
<td>Administrator(s) does not involve any staff.</td>
</tr>
<tr>
<td>1</td>
<td>Administrator(s) involves the entire staff.</td>
</tr>
</tbody>
</table>

2. Shared visions for school improvement have an undeviating focus on student learning and are consistently referenced for the staff's work.

<table>
<thead>
<tr>
<th>Score</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Visions for improvement are always focused on students and teaching and learning.</td>
</tr>
<tr>
<td>4</td>
<td>Visions for improvement are not thoroughly explored; some staff agree and others do not.</td>
</tr>
<tr>
<td>3</td>
<td>Visions for improvement are sometimes focused on students and teaching and learning.</td>
</tr>
<tr>
<td>2</td>
<td>Visions for improvement are sometimes focused on students and teaching and learning.</td>
</tr>
<tr>
<td>1</td>
<td>Visions for improvement do not include concerns about the quality of learning experiences.</td>
</tr>
</tbody>
</table>

3. Staff's collective learning and application of the learnings (taking action) create high intellectual learning tasks and solutions to address student needs.

<table>
<thead>
<tr>
<th>Score</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>The entire staff meets to discuss, share information, and learn with and from each other.</td>
</tr>
<tr>
<td>4</td>
<td>Subgroups of the staff meet to discuss issues, share information, and learn with and from each other.</td>
</tr>
<tr>
<td>3</td>
<td>The staff meets occasionally on substantive student-centered educational issues.</td>
</tr>
<tr>
<td>2</td>
<td>The staff meets regularly and frequently on substantive student-centered educational issues.</td>
</tr>
<tr>
<td>1</td>
<td>The staff偶尔 acts on their instructional practices nor its influence on student learning.</td>
</tr>
<tr>
<td>1</td>
<td>The staff, based on their learnings, The staff occasionally acts on their</td>
</tr>
</tbody>
</table>
School Professional Staff as Learning Community Survey

The questionnaire concerns your perceptions about your school as a learning organization. There are no right or wrong responses. Please consider where you believe your school is in its development or each of the five numbered descriptors shown in bold face type on the left. Each sub-item has a five-point scale. On each scale, circle the number that best represents the degree to which you feel your school has developed.

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<thead>
<tr>
<th>5</th>
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<tbody>
<tr>
<td>The staff debriefs and assesses the impact of their actions and makes revisions.</td>
<td>The staff infrequently assesses their actions and seldom makes revisions based on the results.</td>
<td>The staff does not assess their work.</td>
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4. Peers review and give feedback based on observing each other’s classroom behaviors in order to increase individual and organizational capacity.

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<tbody>
<tr>
<td>Staff regularly and frequently visit and observe each other’s classroom teaching.</td>
<td>Staff occasionally visit and observe each other’s teaching.</td>
<td>Staff never visit their peers’ classrooms.</td>
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<td></td>
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<tbody>
<tr>
<td>Staff provide feedback to each other about teaching and learning based on their classroom observations.</td>
<td>Staff discuss non-teaching issues after classroom observations.</td>
<td>Staff do not interact after classroom observations.</td>
<td></td>
<td></td>
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</table>

5. Conditions and capacities support the school’s arrangement as a professional learning organization.

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<tbody>
<tr>
<td>Time is managed and committed for whole staff interactions.</td>
<td>Time is arranged but frequently the staff fails to meet.</td>
<td>Staff cannot arrange time for interacting.</td>
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<tbody>
<tr>
<td>The size, structure, and arrangements of the school facilitate staff proximity and interaction.</td>
<td>While the faculty and school membership are large, the staff are working to maximize existing arrangements for interaction.</td>
<td>The staff takes no action to manage the facility and personnel for interaction.</td>
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<tbody>
<tr>
<td>A variety of processes and procedures are used to encourage staff communication.</td>
<td>A single communication exists and is sometimes used to share information.</td>
<td>Communication devices are not given attention.</td>
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<td></td>
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</thead>
<tbody>
<tr>
<td>Trust and openness characterize all the staff.</td>
<td>Some of the staff are trusting and open.</td>
<td>Trust and openness do not exist among the staff.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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</thead>
<tbody>
<tr>
<td>Caring, collaborative, and productive relationships exist among all the staff.</td>
<td>Caring and collaboration are inconsistently demonstrated among the staff.</td>
<td>Staff are isolated and work alone at their task.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX B

LETTER TO SCHOOLS REQUESTING PARTICIPATION
Dear (insert principal's name):

My name is Anthony Copeland. I am a Ph. D. candidate at the College of William and Mary. I am writing to request your participation in a study to determine whether or not there is a correlation between adherence to professional learning community practices and student achievement.

Participation in the study consists of administering a one-sheet survey to your teachers. Individual teacher participation in the study is voluntary. Participants should be able to complete the survey in less than three minutes. Administering the survey should take no more than 10 minutes. A copy of the survey is enclosed.

I hope you will choose to participate. I have also enclosed a self addressed stamped post card for you to use to indicate whether or not you will take part in the study. As a show of appreciation, schools that participate in the study will be entered in a drawing for gift cards that you can use to purchase supplies for your school.

Sincerely,

Anthony E. Copeland

Enclosures (2)
APPENDIX C

LETTER TO PARTICIPATING SCHOOLS
Dear (insert principal's name):

Enclosed you will find 60 copies of the letter to participants, informed consent form, School Professional Staff as Learning Community survey, and one self addressed stamped envelope to return the surveys and informed consent forms. While I appreciate your personal assistance with this survey, I request that you designate a teacher to administer, collect, and return the surveys to me.

Only teachers on your faculty during the 2008-2009 school year are eligible to participate in this study. Administer the survey at a faculty meeting or other faculty gathering. Distribute the survey with the participant's cover letter. Teacher participants should read the cover letter before starting the survey. After the participants complete the survey have them place it in the self addressed stamped envelope. When all of the surveys are returned, seal the self addressed stamped envelope and place it in the outgoing mail. The returned surveys complete your participation in this study. Please return all surveys by October 15, 2009.

If you or a participant has any questions about the study, contact me via e-mail at aecope@wm.edu or at 540-429-3177.

Thank you for your assistance.

Sincerely,

Anthony E. Copeland

THIS PROJECT WAS APPROVED BY THE COLLEGE OF WILLIAM AND MARY PROTECTION OF HUMAN SUBJECTS COMMITTEE (Phone 757-221-3966) ON 2009-07-01 AND EXPIRES ON 2010-07-01.
APPENDIX D

LETTER TO PARTICIPANTS
The survey you are about to complete is part of a study of professional learning communities (PLCs) in your school division and can be easily completed in five minutes or less. The study attempts to determine whether or not there is a correlation between schools that have the characteristics of a PLC and improved student learning. The survey is designed to measure your perceptions about your school as a PLC. A better understanding of this relationship may help us refine group practices and improve all students' learning.

Your participation is voluntary. You may decline to complete the survey or you may skip any items you feel uncomfortable answering. There are no correct or incorrect answers. We are only interested in your honest opinion. If you would like a copy of the study results, please contact me via phone or e-mail using the information below.

Thank you for sharing your time and insights with us! If you have any questions, you may contact me at (540) 373-5144 or e-mail: aecope@wm.edu.

Sincerely,

Anthony E. Copeland

THIS PROJECT WAS APPROVED BY THE COLLEGE OF WILLIAM AND MARY PROTECTION OF HUMAN SUBJECTS COMMITTEE (Phone 757-221-3966) ON 2009-07-01 AND EXPIRES ON 2010-07-01.
References


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Vita

Anthony Eugene Copeland

Birth date: July 15, 1960
Birth place: Atlanta, Georgia

Education:

2000-2009 The College of William and Mary
            Williamsburg, Virginia
            Doctor of Education

1997-1999 Old Dominion University
          Norfolk, Virginia
          Master of Education

1979-1983 United States Military Academy
          West Point, New York
          Bachelor of Science

Experience:

2005-Present Assistant Principal
            North Stafford High School
            Stafford, Virginia

2002-2005 Teacher
            North Stafford High School
            Stafford, Virginia