RELATIONSHIPS AMONG PERCEPTIONS OF PROFESSIONAL LEARNING COMMUNITIES, SCHOOL ACADEMIC OPTIMISM, AND STUDENT ACHIEVEMENT IN ALABAMA MIDDLE AND HIGH SCHOOLS

by

AMANDA H. CASSITY

DAISY ARREDONDO RUCINSKI, Ph. D., COMMITTEE CHAIR
DAVID DAGLEY, Ph. D., J. D.
JUDY GIESEN, Ph. D.
BOBBY L. JOHNSON, Ph. D.
C. JOHN TARTER, Ed. D.

A DISSERTATION

Submitted in partial fulfillment of the requirements for the degree of Doctor of Philosophy in the Department of Educational Leadership, Policy, and Technology Studies in the Graduate School of The University of Alabama

TUSCALOOSA, ALABAMA

2012
ABSTRACT

The purpose of this study was to examine relationships among perceptions of professional learning communities, school academic optimism, and student achievement in Alabama middle and high schools. Quantitative data were collected through online surveys and hard copy surveys during the spring of 2012. The study was driven by research questions involving the relationship between teachers’ and principals’ perceptions that their school is a learning community and the level of academic optimism in those schools; the relationship between teachers’ and principals’ perceptions their school is a learning community and the level of student achievement; the comparison of school levels with teachers’ and principals’ perceptions; and the joint contribution of the perceptions of professional learning communities (PLCs) and academic optimism on student achievement. Two surveys were used: the School Professional Staff as Learning Community Questionnaire (SPSLCQ) and the School Academic Optimism Survey (SAOS), measuring participants’ perceptions of their schools as learning communities and participants’ perceptions of the level of academic optimism at their schools, respectively. Seven hundred three teachers and administrators from 59 schools across the state of Alabama were surveyed. Data were compared using correlations, t-tests, and regression analyses. Results confirmed findings from prior research regarding the relationship between academic optimism and student achievement. In addition, evidence showed that there is a positive, significant correlation between the perceptions of PLCs and academic optimism. Results of this study give school leaders tools with which to address the factors that lead to improved teacher efficacy and academic emphasis and thus increased student achievement.
DEDICATION

In memory of my mother

Brownie Hitson

The wisest person I have ever known.
ACKNOWLEDGMENTS

Since no man—or woman—is, indeed, an island, I have quite a few acknowledgments to make. Of course, the members of my dissertation committee provided untold hours of support and encouragement during this process. Dr. Daisy Arredondo Rucinski, my dissertation chair, thank you for making me feel as if I were already a colleague. Your professionalism and high expectations always propelled me to do my best work. And thank you for assuring me that a tornado was a legitimate reason for finishing six months later than I had planned. Dr. John Tarter, thank you for sparking my interest in academic optimism from both theoretical and practical aspects, as well as introducing me to the higher levels of sarcasm, which I have embraced. Dr. Dave Dagley, thank you for making me think past the conventional. Dr. Judy Giesen, thank you for teaching me most of what I know about statistical analysis and for being patient as I learned. Dr. Bob Johnson, thank you for your input and helpful suggestions. To my committee members, because of the dedication you have to your profession and the time and effort you spent with me, this has been the most significant, positive learning experience I have ever had. Thank you for the privilege of expanding my knowledge and abilities under your guidance.

I also have to acknowledge my “dissertation buddies,” Terri Boman and Dr. Julie Gray. We were the Three Amigos. You ladies made this experience a joyful one, even though your jobs were to push, and push, and push. Thanks for pushing.
Thank you, also, to my long distance encouragers, Sheila Tyler, Linda Hess, Suzanne Kauffman, and Mary Turner. You supported me, distracted me, and made me laugh while you assured me I was going to finish this. And I did. Thanks, friends.

Finally, thank you to my family for staying the course with me. To my husband, Bernard, I could not have done it without you. Thank you for taking care of kids, making supper, listening to my ideas, and telling me I could do it. To my children, Mary Grace and Jed, who are smart, funny, and creative in their own right; thank you for being proud of your mom. It means a great deal to me. To my in-laws, Pat and Bo Cassity, thank you for making me feel special and for encouraging me. And to my father, Archie Hitson, thank you for the incredible example you are, for raising me in a loving home, for making me think I could do and be anything I wanted, and for saying, “I love you,” every time we talk.
## CONTENTS

ABSTRACT ......................................................................................................................... ii

DEDICATION ...................................................................................................................... iii

ACKNOWLEDGMENTS ...................................................................................................... iv

LIST OF TABLES ............................................................................................................... x

LIST OF FIGURES ............................................................................................................ xi

1 Introduction ................................................................................................................... 1

   Statement of the Problem .......................................................................................... 2

   Purpose ....................................................................................................................... 2

   Research Questions .................................................................................................... 3

   Hypotheses ................................................................................................................ 4

   Theoretical Framework ............................................................................................... 4

   Definitions of Concepts ............................................................................................. 8

   Scope .......................................................................................................................... 10

   Limitations ................................................................................................................ 10

   Summary .................................................................................................................... 11

2 Review of Literature

   Introduction ................................................................................................................. 12

   Conceptual Framework .............................................................................................. 12

      Academic Optimism ............................................................................................... 12

      Collective Efficacy ................................................................................................. 13
<table>
<thead>
<tr>
<th>Topic</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic Emphasis</td>
<td>15</td>
</tr>
<tr>
<td>Trust</td>
<td>15</td>
</tr>
<tr>
<td>Organizational Culture</td>
<td>18</td>
</tr>
<tr>
<td>Professional Learning Communities</td>
<td>20</td>
</tr>
<tr>
<td>Leadership</td>
<td>24</td>
</tr>
<tr>
<td>Principal Development</td>
<td>24</td>
</tr>
<tr>
<td>Functions of Leadership</td>
<td>25</td>
</tr>
<tr>
<td>Leadership Theories</td>
<td>26</td>
</tr>
<tr>
<td>Participative Leadership</td>
<td>27</td>
</tr>
<tr>
<td>Participative Leadership and Professional Learning Communities</td>
<td>28</td>
</tr>
<tr>
<td>Summary</td>
<td>33</td>
</tr>
<tr>
<td>3 Methodology</td>
<td>35</td>
</tr>
<tr>
<td>Research Design</td>
<td>35</td>
</tr>
<tr>
<td>Population</td>
<td>36</td>
</tr>
<tr>
<td>Sample</td>
<td>37</td>
</tr>
<tr>
<td>Survey Participants</td>
<td>37</td>
</tr>
<tr>
<td>Measurements</td>
<td>37</td>
</tr>
<tr>
<td>School Professional Staff as Learning Community Questionnaire</td>
<td>38</td>
</tr>
<tr>
<td>School Academic Optimism Survey</td>
<td>38</td>
</tr>
<tr>
<td>Student Achievement</td>
<td>38</td>
</tr>
<tr>
<td>Socioeconomic Status</td>
<td>39</td>
</tr>
<tr>
<td>Variables</td>
<td>39</td>
</tr>
<tr>
<td>Validity and Reliability</td>
<td>41</td>
</tr>
</tbody>
</table>
School as Professional Staff Leadership Community Questionnaire .................. 41
School Academic Optimism Survey ................................................................ 43
Data Collection Methods .............................................................................. 44
Data Analysis Techniques ............................................................................. 45
Conclusion ..................................................................................................... 46

4 Analysis of Data and Research Findings ..................................................... 47
Descriptive Statistics .................................................................................... 49
Reliability ....................................................................................................... 53
Correlation Analyses .................................................................................... 54
T-Test Analyses ............................................................................................ 59
Hierarchical Regression Analyses ................................................................. 61
Summary ........................................................................................................ 62

5 Conclusions, Discussions, and Implications ............................................... 65
Purpose of the Study ...................................................................................... 65
Summary of Methods ..................................................................................... 66
Summary of Findings ..................................................................................... 69
Hypothesized Findings .................................................................................. 69
Non-Hypothesized Findings ........................................................................ 70
Discussion of Findings .................................................................................. 71
Demographics ............................................................................................... 71
Professional Learning Communities ............................................................... 72
Academic Optimism ...................................................................................... 74
Collective Efficacy ......................................................................................... 75
Faculty Trust .............................................................................................................. 77
Academic Emphasis ...................................................................................................... 78
Study Limitations ........................................................................................................ 79
Implications for Practice ............................................................................................. 80
Recommendations for Further Research ...................................................................... 84
Summary ................................................................................................................... 85
REFERENCES .................................................................................................................. 87
APPENDICES:

A  SUPERINTENDENT REQUEST LETTER ................................................................. 97
B  PRINCIPAL REQUEST LETTER .................................................................................. 100
C  PARTICIPANT INFORMED CONSENT LETTER ......................................................... 103
D  PERMISSION TO USE THE SCHOOL PROFESSIONAL STAFF AS LEARNING COMMUNITY QUESTIONNAIRE (SPSLCQ) .......................................................... 106
E  SCHOOL PROFESSIONAL STAFF AS LEARNING COMMUNITY QUESTIONNAIRE (SPSLCQ) ..................................................................................................................... 109
F  SCHOOL ACADEMIC OPTIMISM SURVEY ............................................................... 113
G  DEMOGRAPHIC SURVEY .......................................................................................... 116
H  LIST OF SCHOOLS PARTICIPATING IN THE RESEARCH ........................................ 117
I  IRB APPROVAL ......................................................................................................... 119
LIST OF TABLES

1 Professional Learning Communities Dimensions and Description .......................... 6

3 Descriptive Statistics for Research Variables (Sample N = 59) .............................. 51

3 Summary of Participant Demographic Data (Sample N = 703) .............................. 52

4 Alpha Coefficients of Reliability ........................................................................... 54

5 Intercorrelational Matrix of Research Variables ..................................................... 56

6 Correlation Analyses of PLC and Academic Optimism/PLC and Student Achievement ..... 57

7 Intercorrelational Matrix of Research Variables and Demographics ......................... 58

8 Group Statistics for T-Test Analyses of PLC and Level ......................................... 59

9 T-Test Analyses of PLC and Level ........................................................................... 59

10 Group Statistics for T-Test Analyses of Academic Optimism and Level ................. 60

11 T-Test Analyses of Academic Optimism and Level ............................................... 61

12 Summary of Regression Analysis for Variables Predicting Student Achievement ........ 62

13 Summary of Regression Analysis for Subscale Variables Predicting Student Achievement .......................................................................................................................... 63
LIST OF FIGURES

1  Hypothesized relationships among perceptions of professional learning community, academic optimism, and student achievement................................................................. 5

2  Reciprocal causal relationships among the three dimensions of academic optimism (Hoy et al., 2006) ........................................................................................................ 8

3  Relationships among perceptions of professional learning communities, academic optimism, and student achievement.................................................................................. 79
CHAPTER 1

Introduction

“No man is an island, entire of itself.” It has been almost 400 years since John Donne’s meditation acknowledged that humans cannot live in isolation, that there is need for interaction and collaboration. That sentiment is no less true today, particularly in the field of education, a realm in which interaction and collaboration are essential for success. With the heavy emphasis on accountability, superintendents and principals cannot take the burden of success solely on their shoulders, but must engage the talents of their faculties to work together for a common goal. According to Cambron-McCabe, Cunningham, Harvey, and Koff (2005), the most substantive challenge for superintendents is focusing the intellectual resources of their school systems on improving teaching and learning. Professional learning communities (PLCs), as a proposed innovation, may enable the development of principals and teachers for greater collaboration that can change culture and improve student achievement. Bryk, Camburn, and Seashore Louis (1999) concluded that schools organized as learning communities promote greater teacher commitment and more student engagement.

One recent area of study that also involves culture and achievement is academic optimism, the components of which include efficacy, trust, and academic ambition (Hoy, Tarter, & Woolfolk Hoy, 2006). Academic optimism and professional learning communities are both constructs that researchers have linked with leadership, achievement, empowerment, and culture, but not necessarily to each other. Because of the possible impact of both on practices in schools, however, there is a need for studies that investigate any connections that may exist between these
constructs as well as their relationship with student achievement. This research, therefore, hypothesizes a connection among PLCs, academic optimism, and student achievement.

**Statement of the Problem**

Professional learning communities have emerged in the field of education as an innovation or strategy that system and school leaders can use to create a common vision, share knowledge, build consensus, build capacity, and work on continuous improvement. The measurement of the success of PLCs, however, remains an area of need in research. Schools should be able to identify what areas might be affected and how the impact can be measured. By connecting PLCs with another construct that has been used as a measure of success, comparisons can be made to determine how PLCs affect that construct. Since PLCs are generally considered a form of organizational culture, and organizational culture is directly related to the construct of academic optimism, it follows that a relationship should exist. Despite recent studies on both professional learning communities and academic optimism, there has been almost no research connecting them. Researchers have speculated that PLCs could either enable or hinder the development of academic optimism (Beard, Hoy, & Woolfolk Hoy, 2010; Fahy, Wu, & Hoy, 2010), but there have been no empirical studies directly linking PLCs and academic optimism and only a few linking PLCs and student achievement (Arredondo Rucinski, 2012; Lomos, Hofman, & Bosker, 2011).

**Purpose**

The purpose of this research was to determine the relationships among faculty perceptions of professional learning communities (PLCs), the level of academic optimism, and student achievement in public secondary schools. Creswell (2009) argued that a quantitative approach is appropriate for the “identification of factors that influence an outcome” or
“understanding the best predictors of outcomes” (p. 18). This study involves surveys given to principals and teachers from selected public middle and high schools measuring their perceptions of the degree of school academic optimism and their perceptions of the level of professional learning community implementation. Survey data were gathered, and the correlation of academic optimism with the implementation level of PLCs determined. By measuring the correlation between the level of perceptions of professional learning communities in schools with the level of academic optimism, school leaders can identify strategies to increase academic optimism, which has been linked to increases in student achievement. Therefore, it follows that perceptions of professional learning communities may also correlate with achievement, as shown by the meta-analyses of Arredondo Rucinski (2012) and Lomos et al. (2010), and that fostering learning communities and increasing academic optimism may improve achievement.

Research Questions

According to Creswell (2009), quantitative research questions may relate one or more independent variables to one or more dependent variables. The research questions that guided this study addressed the connection between perceptions of PLCs and academic optimism, as well as perceptions of PLCs and student achievement:

1. What is the relationship between the extent to which teachers and principals perceive their school is a learning community and the level of academic optimism in those schools?

2. What is the relationship between perceptions of respondents from middle schools regarding professional learning communities and the perceptions of respondents from high schools?

3. What is the relationship between perceptions of respondents from middle schools regarding academic optimism and the perceptions of respondents from high schools?
4. What is the relationship between the extent to which teachers and principals perceive their school is a learning community and the level of student achievement?

5. What is the joint contribution of perceptions of professional learning communities and academic optimism on student achievement?

Hypotheses

Hoy (2010) provided guidelines for creating hypotheses: Variables should be identified by name, a relationship should be specified, and the unit of analysis should be appropriate. Reflecting Hoy’s recommendations, five hypotheses drove this study:

H1: As the level of perception that a school is a learning community increases, academic optimism increases.

H2: Respondents from middle schools will demonstrate higher levels of perceptions of professional learning communities than respondents from high schools.

H3: Respondents from middle schools will demonstrate perceptions of higher levels of academic optimism than respondents from high schools.

H4: As the level of perception that a school is a learning community increases, student achievement increases.

H5: Perceptions of professional learning communities and academic optimism will contribute jointly to student achievement.

Theoretical Framework

This study is based on the framework for professional learning communities established by Hord (1997, 2004), who identified five dimensions of a professional learning community: shared and supportive leadership; shared beliefs, values and vision; collective learning and
application of learning; supportive conditions; and shared personal practice. Table 1 depicts each dimension of Hord’s (2004) framework.

Figure 1. Hypothesized relationships among perceptions of professional learning communities, academic optimism, and student achievement.

The first of the five dimensions—shared and supportive leadership—stresses that the principal must accept, appreciate, and nurture any change in the school (Hord & Sommers, 2007), allowing and fostering shared decision making. It is the principal’s responsibility to keep the focus directed toward students and instruction. This includes having professional conversations about their practice, and observing and supporting each other (Barth, 2006).

Shared beliefs, values, and vision, the second dimension, outlines the boundaries of decision making about teaching and learning, anchored in “an unrelenting attention to student
learning success” (Hord & Sommers, 2007, p.10). Values describe how people operate on a daily basis (Senge, Kleiner, Roberts, Ross, & Smith, 1994). This dimension is believed to focus school staff members on distribution of resources, as well as how they spend their time and on what topics, leading to better communication. Huffman (2003) noted that communication is more effective when shared values are part of the organizational structure.

Table 1

*Professional Learning Community Dimensions and Description (modified from Hord, 1997)*

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Descriptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shared and supportive leadership</td>
<td>Administrators share power, authority, and decision-making.</td>
</tr>
<tr>
<td>Shared beliefs, values and vision</td>
<td>The staff focuses on students’ learning, strengthened by their own continuous learning.</td>
</tr>
<tr>
<td>Collective learning and application</td>
<td>The community determines what to learn and how they will learn it in order to address students’ learning needs.</td>
</tr>
<tr>
<td>Shared personal practice</td>
<td>Community members give and receive feedback that supports individual and organizational improvement</td>
</tr>
<tr>
<td>Supportive conditions</td>
<td>Structural factors: physical requirements: time, locations, resources, to support collaboration. Relational factors: support human and interpersonal development, openness, honest, respect, and caring.</td>
</tr>
</tbody>
</table>

Through collective learning and application, learning community members continuously learn together and apply that learning to their practice (Hord & Sommers, 2007). As with shared and supportive leadership, conversations about instruction and learning are essential and are believed to create new conditions for the improvement of student learning.

Shared personal practice, or de-privatized teaching, is believed to intertwine with the other dimensions, as well, dealing with “peers helping peers,” visiting each other’s classrooms to
observe and discuss. Peer coaching and feedback support the implementation of new practices (Hord & Sommers, 2007, p. 15).

Hord identified two types of supportive conditions: (1) physical and structural, which deals with logistical conditions, and (2) relational and human capacities, which involves developing participants’ relationships so that they work well with each other (Hord & Sommers, 2007). Time is one of the most challenging factors in creating PLCs and can be addressed in a variety of ways. A central office that values PLCs can promote them by providing time for staffs to meet embedded within the instructional day. In addition, early release days or partial days can also be scheduled. To facilitate change, Boyd (1992) and Louis and Kruse (1995) argued that a variety of factors should be present, including schedules that reduce isolation, policies that provide greater autonomy, and foster collaboration and communication, time to meet and talk, interdependent teaching roles, and teacher empowerment. For relationships, trust is believed to be the most important factor, enabling participants to feel comfortable giving and accepting feedback in order to work toward improvement, allowing them to experience the trustworthiness of colleagues helping them to become trustworthy themselves (Bryk & Schneider, 2002). To nurture human capacities, principals can create a caring environment and help staff relate to one another on a personal level through social activities (Hord & Sommers, 2007).

In addition to PLCs, this study is also rooted in the construct of academic optimism, as created by Hoy and his colleagues (2006), which consists of three components: collective efficacy, academic emphasis, and faculty trust (see Figure 2). Collective efficacy is defined as the judgment of teachers as to how the faculty as a group organizes and carries out plans to have a positive impact on students. Academic emphasis is defined by high academic goals, orderly learning environment, and student respect for academic achievement. Finally, faculty trust
indicates how much the faculty feels that students and parents are acting in their best interest (Hoy et al., 2006). Subsequent studies have expanded the initial research. Hoy et al. (2006), as well as Smith and Hoy (2007), found that academic optimism is a school characteristic that predicts student achievement. Mascall, Leithwood, Straus, and Sacks (2009) determined that high levels of academic optimism were positively and significantly associated with planned approaches to leadership distribution.

Figure 2. Reciprocal causal relationships among the three dimensions of academic optimism (Hoy et al., 2006).

Definitions of Concepts

Academic Optimism: a construct consisting of three components: collective efficacy, academic emphasis, and faculty trust (Hoy et al., 2006)

Collective Efficacy: the judgment of teachers as to how the faculty as a group organizes and carries out plans to have a positive impact on students (Hoy et al., 2006)
Trust: reliance on others’ competence and their willingness to look after rather than harm what is entrusted to their care (Baier, 1986)

Academic Emphasis: high academic goals, orderly learning environment, and student respect for academic achievement (Hoy et al., 2006)

Professional Learning Community or Professional Learning Communities: a group or groups of people sharing and reflecting, promoting growth, and enhancing their effectiveness as professionals. Stoll, Bolam, McMahon, Wallace, and Thomas (2006) described professional learning communities as communities of continuous learning. The concept of professional learning community has also been described as an environment that enables teachers to assume a variety of roles with collaborative values and views on learning, instructional practice, assessment, and reflective conversation (Wahlstorm & Louis, 2008), a group of people who have shared beliefs, values, and vision, shared and supportive leadership, collective learning, supportive conditions, and shared personal practice (Hord & Sommers, 2007), and a model of organizational development and learning that fosters collaboration with the goal of improving student learning (Johnson, 2009).

Organizational Culture: “a system of shared orientations that hold the unit together and give it a distinctive identity” (Hoy & Miskel, 2008, p. 262)

School Climate: “teachers’ perceptions of the general work environment of the school; the formal organization, informal organization, personalities of participants, and organizational leadership” (Hoy & Miskel, 2008, p. 198)

Participative Leadership: a leadership style in which leaders are expected to lead by encouraging team members to discover new opportunities and challenges, and to learn and to cope through sharing knowledge (Somech, 2005a)
Distributed Leadership: a leadership style in which the responsibility for leadership routines involves multiple leaders, depending upon the routine and subject area; takes form in the interaction between leaders and followers rather than as a function of one or more leaders’ actions (Spillane, 2005)

Scope

The scope of this study included a convenience sample of 59 Alabama middle and high schools across the state. Middle schools are defined as those schools with grade configurations of 5-8, 6-8, or 7-8. High schools are defined as those schools with grade configurations of 9-12 or 10-12.

Limitations

There were certain limitations of this study. Because the population of the study was focused on schools only in the state of Alabama, and the sample was a convenience sample, results may not be generalized to other states or across the state of Alabama. Although a relatively wide range of grade configurations was used, results may not be generalized to schools that do not fall within those configurations. In addition, since this is a cross-sectional study, results may be limited as opposed to a study done using longitudinal data.

Another limitation to the study was that it used self-reported data from principals and teachers. The researcher assumed that survey participants provided honest responses. Participants were volunteers; therefore, data were teachers’ and principals’ voluntary responses and perceptions of the variables, the fact of which needs to be included in the considerations of the instruments’ reliability and validity. Although there was an attempt to control for SES in this study, other school variables that were not controlled for may have had an impact on respondents’ perceptions as well.
One section of a state-mandated standardized test was used as the student achievement measure, narrowing that variable. Even though the state has determined this to be the measure of success of a school and the students of that school, there are other methods of measuring achievement. The measure of student achievement was not taken longitudinally, but rather at one point in time, which limits the ability to establish whether PLCs contribute to higher achievement over time or whether student achievement over time contributes to higher levels of perceptions of PLCs.

Finally, the measurements of trust reflected in the literature review and discussions of this study do not represent the entire field but that of a limited area in the field of organizational theory.

Summary

This dissertation, which is divided into five chapters, begins with Chapter 1, introducing the study and presenting a statement of the research problem, the purpose for research, research questions and hypotheses, theoretical framework definitions of concepts, scope and limitations of the study, and a summary. Chapter 2 presents literature representing both the history of research and current research in the areas of academic optimism and professional learning communities. Chapter 3 presents the proposed research methodology, including research design, population, sample, participants, measurements, variables, validity and reliability, data collection methods, data analysis techniques, and a conclusion. Chapter 4 presents descriptive statistics, results from bivariate correlations, multiple regression analyses, data tables, and a brief summary of findings. Chapter 5 presents a summary of the research, a discussion on the results, and implications for further practice and research.
CHAPTER 2

Review of Literature

Introduction

Academic optimism and professional learning communities are both constructs that researchers have linked with leadership, achievement, empowerment, collaboration, and culture, but not yet to each other. There have also not been any studies that connect the two constructs together with student achievement. Because of the possible impact of both constructs on practices in schools, there is a need for studies that investigate connections that may exist.

Conceptual Framework

**Academic Optimism.** Academic optimism consists of three components: collective efficacy, which is the judgment of teachers on how the faculty as a group organizes and carries out plans to have a positive impact on students; academic emphasis, which is defined by high academic goals, orderly learning environment, and student respect for academic achievement; and faculty trust, which indicates how much the faculty feels that students and parents are acting in the faculty’s best interest (Hoy et al., 2006). The construct of academic optimism was identified by Hoy et al. Subsequent studies demonstrated the structure and composition of the construct with elementary schools as well as high schools, in which it was determined that academic optimism had a positive and direct effect on school student achievement in math and science.

Prior to the identification of academic optimism, Harris and Wilover (1998) connected principals’ optimism with teachers’ perceptions about how that optimism affected their school,
determining that the perceptions of teachers about the principals’ optimism were related to their own perceptions about school effectiveness. McGuigan and Hoy (2006) examined the principal’s role in cultivating academic optimism in middle and high schools. They determined that effective leaders enabled the key work on the school and created a culture of optimism. In the past five years, there have been several studies exploring academic optimism, with the primary research conducted by Hoy and his colleagues (2006), and continued by Beard et al. (2010); Smith and Hoy (2007); Hoy, Woolfolk Hoy, and Kurz (2008); and others.

**Collective Efficacy.** Collective efficacy has its roots in Bandura’s (1977, 1993, 1997) social cognitive theory, which presented a framework for motivation and learning. He introduced the concept of self-efficacy as "beliefs in one's capacity to organize and execute the courses of action required to produce given attainments" (Bandura, 1997, p. 3). Collective efficacy, then, was defined as “a group’s shared belief in its conjoint capabilities to organize and execute the courses of action required to produce given levels of attainments” (Bandura, 1997, p. 477).

According to Goddard, Hoy, and Hoy (2000), collective teacher efficacy involves the perceptions of teachers that the efforts of the faculty as a whole will have a positive effect on students. It is a product of the “interactive dynamics of the group members” (Goddard, Hoy, & Woolfolk Hoy, 2000, p. 482). There are four sources of efficacy-shaping information: mastery experience, vicarious experience, social persuasion, and affective states.

Mastery experience involves personal success in a particular task as a result of skill and effort (Bandura, 1997). Positive personal experiences contribute to collective efficacy, particularly when difficulties have been overcome as a result of persistent effort. The experiences of an organization help the members determine the likelihood of future success (Huber, 1996). In addition to mastery experience, humans learn through the achievements of their colleagues.
(Bandura, 1997). This vicarious experience applies to collective efficacy through stories of success or failure from other schools and systems. Teachers learn by observing other teachers. In turn, schools and systems learn by observing other schools and systems (Huber, 1996).

Another source of efficacy-shaping information is social persuasion, which could come via feedback from peers, family, work colleagues, or other people of influence or status (Bandura, 1997; Goddard, LoGerfo, & Hoy, 2004). Both verbal persuasion and modeled behavior can influence individuals or groups as a whole. Again, social persuasion has the potential to affect the collective efficacy of the school by influencing self-efficacy and teacher efficacy. Bandura’s final source is affective states, or psychological or emotional stimulation. He postulated that positive or negative feelings associated with a specific task will affect self-efficacy beliefs and determine how someone might approach a specific task. For example, someone who has a positive affective state would be more likely to have a stronger sense of self-efficacy than someone with a negative affective state. In turn, the collective efficacy of an organization may be influenced by psychological or emotional stimulation of its members, influencing organizational reactions. An organization with a strong sense of efficacy may be able to weather difficulties better than an organization with a weaker sense of efficacy (Goddard et al., 2000).

In looking at the impact of collective efficacy on school organizations, several studies have connected that construct with student achievement. Hoy, Sweetland, and Smith (2002) found collective efficacy to be the key variable in explaining student achievement at the high school level with academic emphasis working through collective efficacy. Similarly, Goddard et al. (2000) determined that student achievement in elementary schools was supported by collective efficacy. In addition, Tschannen-Moran and Woolfolk Hoy (2001) found that teacher efficacy was related to many educational outcomes, such as teachers’ persistence, enthusiasm,
commitment, and instructional behaviors, as well as student outcomes such as achievement, motivation, and self-efficacy beliefs. Collective efficacy has been operationalized previously with the Collective Efficacy Scale (Goddard et al., 2000).

**Academic Emphasis.** Academic emphasis is believed to be characterized by high but achievable academic goals, orderly and serious learning environment, motivation for students to work hard, and a respect for academic achievement (Hoy & Miskel, 2008). In an early study, Lee and Bryk (1989) discovered that high average achievement was related to academic emphasis across diverse social class, racial and ethnic, and academic backgrounds. In subsequent work, Hoy, Tarter, and Kottkamp (1991) related academic emphasis to student achievement in high schools. Goddard, Sweetland, and Hoy (2000) found similar results in their study of mathematics and reading achievement in elementary schools. Academic emphasis was significant in explaining that achievement.

Connecting leadership with academic emphasis, Alig-Mielcarek and Hoy (2005) determined that academic emphasis of the school had the largest impact on student achievement, with the influence of instructional leadership working indirectly through academic emphasis. Academic emphasis has been operationalized previously through the subscale of the Organizational Health Inventory (Hoy & Miskel, 2008).

**Trust.** Characteristics of trust include benevolence, honesty, openness, reliability, and competence (Goddard, Salloum, & Berebitsky, 2009; Hoy & Tschannen-Moran, 2003). Hoy et al. (2006) defined trust as “one’s vulnerability to another in terms of the belief that the other will act in one’s best interests” (p. 429).

Bryk and Schneider (2002) determined that social trust among teachers, parents, and students is a key to school reform. Their longitudinal field study of 400 Chicago elementary
schools, which analyzed surveys of teachers, principals, and students, looked at trends in individual student reading and math achievement.

Relational trust, which involves teachers with students, teachers with other teachers, teachers with parents, and all groups with the principal, is believed to be composed of several components: respect, personal regard, competence in core role responsibilities, and personal integrity. Respect, the characteristic on which relational trust is grounded, allows social discourse to take place in the school community. With that respect, even when there are disagreements, participants can keep communication open by acknowledging that others’ opinions are valuable (Bryk & Schneider, 2002). Personal regard, the willingness of participants to extend themselves beyond what is formally required of them in the organization, involves openness and outreach. Personal integrity, whether or not people can be trusted to keep their word, assumes that there is a moral and ethical perspective guiding people’s work.

One of the crucial ingredients for reform is collective decision-making with broad teacher buy-in. This occurs more readily in schools with strong relational trust, which is important in enabling participants to be able to show vulnerability by talking honestly with colleagues about what is working and what is not working. Finally, principal leadership plays a key role in developing and sustaining trust. The principal must establish respect and personal regard while sharing the school vision. Faculty trust in the principal is largely determined by behavior of the principal (Tschannen-Moran & Hoy, 1997), just as faculty trust in colleagues is largely determined by the behavior of teachers in relation to one another.

These characteristics of trust connect with participatory leadership and professional learning communities. Successful, sustained school reform, which may be facilitated by the development of learning communities, requires both trust among teachers and positive
relationships with one another and with young people (Bullough, 2007). Effective principals can sustain high levels of capacity by establishing trust and creating structures that promote teacher learning (Youngs & King, 2002).

Hoy (2002) determined that faculty trust in parents and students was positively related to student achievement in high schools. The five characteristics identified by Hoy and Tschannen-Moran (2003) and Goddard et al. (2009) work together to create the construct of faculty trust, which has been found in both elementary (Hoy & Tschannen-Moran, 2003) and high schools (Smith, Hoy, & Sweetland, 2001). In a study investigating the consequences of relational trust, Forsyth, Barnes, and Adams (2005) found that a complex and extensive trust environment is predictive of internal school conditions and consequences. Trust has been operationalized previously by the Omnibus Trust Scale (Hoy & Tschannen-Moran, 2003).

Contending that academic optimism “paints a rich picture of human agency” with optimism connecting efficacy, trust, and academic emphasis, Hoy and Miskel (2008) argued that the culture created through academic optimism views “teachers as capable, students as willing, parents as supportive, and academic success as achievable” (p. 195). Because modeling promotes development and understanding of beliefs and actions, teachers learn from modeling, according to Hoy and Woolfolk Hoy (2009). Teachers can also be models for their colleagues, promoting academic optimism and contributing to the organizational culture of the school.

A considerable amount of research has been conducted both for the components of academic optimism and then subsequently for the total construct itself. This research has contributed significantly to the literature relating to efficacy, trust, and academic emphasis. Bandura’s early studies (1977, 1993, 1997) of efficacy laid the groundwork for later research connecting it with student achievement (Goddard et al., 2000; Hoy, Sweetland, & Smith, 2002).
as well as other educational outcomes like teacher enthusiasm and persistence (Tschannen-Moran & Woolfolk Hoy, 2001). Lee and Bryk (1989) also connected achievement with academic emphasis, another component of academic optimism, followed by other studies that had similar findings (Goddard, Sweetland, & Hoy, 2000; Hoy & Miskel, 2008; Hoy, Tarter, & Kottkamp, 1991). The third component of academic optimism, faculty trust, has been connected to leadership (Alig-Mielcarek & Hoy, 2005; Tschannen-Moran, & Hoy, 1997), school conditions (Forsyth, Barnes, & Adams, 2005) and achievement (Hoy, 2002). Despite the large amount of data gathered in research on academic optimism, there is a gap in that data without a connection between academic optimism and professional learning communities. This study attempted to fill that gap.

**Organizational Culture.** There has been a great deal written recently about school culture and the connection with student achievement and success. The concept of culture in schools is not new, however. Deal and Peterson (1999) noted that as far back as 1932, educators recognized that schools had cultures that involved personal relationships, rituals, and traditions. They described the components of school culture and its importance in the achievement of a school, identifying several factors integral to school culture: vision and value, ritual and ceremony, history and stories, and architecture and artifacts.

Although schools at all levels possess these components, whether in a positive or negative way, secondary schools seem to embrace these more obviously. Possibly the most apparent evidence of school culture is that of artifacts, or symbols (Deal & Peterson, 1999). Symbols include mission statements, displays of student work, banners, displays of past achievements, awards and trophies, and mascots. It would be almost impossible to walk the halls of a middle or high school and not see trophy cases, championship banners, drawings of mascots,
sweatshirts, jerseys, hats, and other displays that reflect school pride and identify the school. School names and mascots are yelled in cheers, worn on clothing, hung from gym rafters, flown on flagpoles, and pasted on car bumpers.

These very visible examples of school culture are merely the most obvious. In addition, rituals and ceremonies are evident in secondary schools. For long-established schools, traditions create a tie to the past and a promise of stability for the future. Honor society initiations, senior nights, the prom, cultural diversity celebrations, homecoming, and graduation are all ceremonies and rituals that help define the culture of high schools.

At the center of a school’s culture are the vision and values of the school. Today, almost every school has a mission statement displayed, with varying degrees of real-life application. Deal and Peterson (1999) identified four characteristics of every organization: values, which are the conscious expressions of what an organization stands for; beliefs, which show how people comprehend and deal with the world around them; assumptions, which are the system of beliefs, perceptions, and values that guide behavior; and norms, which are the consolidation of assumptions, values, and beliefs.

Johnson (2009) argued that professional learning community literature suggests an “inadequate understanding of schools as organizations,” and that the failure to implement PLCs successfully is partly caused by “a superficial understanding held by enthusiasts of the fundamental character of schools as human service organizations” (p. 19). It is important, then, that administrators understand the components of organizations and how PLCs may work within that organizational culture.

Organizations, including schools, have a philosophy or ideology, justifying their existence (Katz & Kahn, 1978). To have a unified organization, socialization processes exist “for
inculcating normative standards of behavior” and creating the culture of the organization (Lang, 1992, p. 191). Hoy and Miskel (2008) defined organizational culture as “a system of shared orientations that hold the unit together and give it a distinctive identity” (p. 177). This includes norms, values, beliefs, and tacit assumptions as components of organizational culture. School cultures are further identified as cultures of trust and cultures of efficacy, which are part of the conceptualization of academic optimism. According to Schein (1992), organizational culture shapes how groups think, how they perceive, and how they behave. Senge (1990) described learning organizations as groups “where collective aspiration is set free, and where people are continually learning how to learn together” (p. 3).

Research on organizational culture contributed to this study by providing connections between organizational culture and academic optimism, as well as organizational culture and professional learning communities. Studies of organizational culture addressed trust and efficacy. Most importantly to this study, however, is that the research suggested the negative effect of poor understanding of organizations on inadequate PLC implementation or understanding. Certain findings from this study could fall within this situation.

**Professional Learning Communities.** Just as Hoy and Miskel connected norms and values with organizational culture, Louis, Marks, and Kruse (1996) linked the same characteristics with professional communities, adding a focus on student learning, reflective dialogue, and collaboration as components of that construct. They linked professional inquiry, risk taking, and rethinking leadership as components of a culture of professional community. Stoll et al. (2006) noted that although there is no universal definition of a PLC, most descriptions include a group of people sharing and reflecting, promoting growth, and enhancing their effectiveness as professionals. They usually involve organizational structures, processes, and
conditions, as well as goal, culture, and strategic leadership decisions (Johnson, 2009). PLCs are described as communities of continuous improvement that enhance learning for administrators, teachers, and students. Over a century ago, Dewey argued that shared goals and values influenced behavior (Bryk et al., 1999; Dewey, 1933). Hord and Hirsh (2008) proposed that PLCs provide the context most supportive of learning for professionals. After Senge established PLCs in the business world in the 1990s, the apparent benefits of this collaborative concept appealed to the educational reformers and researchers (Senge, 1990; Senge, Cambron-McCabe, Lucas, Smith, Dutton, & Kleiner, 2000).

Over the past thirty years, the concept of professional learning communities has been defined and measured, resulting in a variety of components and methods of measurement. Collegiality was an early descriptor used by several researchers (Little, 1982; Rosenholtz, 1985; Talbert & McLaughlin, 1994). Additional characteristics developed, including shared vision, collaboration on instruction, and a focus on student learning (Hord, 1997). Most of the early studies were qualitative, but some quantitative measurements were developed as research continued, mainly concentrating on individual dimensions and not the overall concept of professional learning communities (Bryk & Driscoll, 1988; Newmann, Rutter, & Smith, 1989; Rosenholtz, Bassler, & Hoover-Dempsey, 1986). As the concept of PLC progressed, additional measures were developed to combine these dimensions. Louis, Marks, and Kruse (1996), Louis and Marks (1998), and Lee and Smith (1996) used combined evaluations to measure the concept of PLC. These measurements preceded Hord’s (1997) instrument used in this study.

Professional development has long been part of school reform and change. Fogarty and Pete (2007) argued that change happens through professional development initiatives, stressing the aspects of mentoring and coaching, as well as using strategies such as conferencing tools,
reflection journals, and relationship building. PLCs have the capacity to offset the forces of change that might threaten the sustainability of reform efforts (Giles & Hargreaves, 2006). Professional development enables collaboration among teachers and leaders to guide decisions that support student learning (Mullen & Schunk, 2010). Johnson (2009) noted that effective schools provide both a culture of collaborative learning, as well as structures that not only facilitate and but also “institutionalize this group-learning dynamic toward the realization of desired educational outcomes” (p. 19).

Collaboration through learning communities can also enhance collegiality and teacher commitment. Teachers want to collaborate by sharing information, planning, and working together (Wells, 2008). Hausman and Goldring (2001) found that teachers who felt a sense of collegiality and had opportunities to learn indicated they were most committed to their schools. Teacher professional community is central to the development of teacher commitment as well as to the importance of student achievement. Supportive and disciplined reflective communities can help teachers understand that their students’ learning is central, and that their own teaching is subordinate to and in service of that goal (Rodgers, 2002). Ongoing professional development and learning opportunities support sustained efforts toward improved teaching and learning. Smaller educational environments or communities enable more collaborative and collegial communities of teachers, which provide motivation for making better curricular and pedagogical decisions to improve student learning (Supovitz, 2002).

Hord (2009) defined the specific components of the designation “professional learning community,” describing professionals as being responsible for “delivering an effective instructional program to students so that they each learn well” (p. 41). In addition, Hord described learning as the “activity in which professionals engage in order to enhance their
knowledge and skills,” with community defined as “individuals coming together in a group” in order to interact, to develop shared meaning, and to identify shared purposes (p. 41). Hord’s (1996) creation of the School Professional Staff as Learning Community Questionnaire (SPSLCQ) began the recent development of quantitative measurements for PLCs.

Extending Hord’s earlier work, Olivier, Hipp, and Huffman (2003) emphasized the importance of operationalizing PLCs through measures of specific school and classroom practices as determining factors. They recognized the complexity of identifying schools as PLCs, and subsequently created an instrument based on Hord’s initial measure. They eventually created the Professional Learning Community Assessment (PLCA) with a revised instrument, the Professional Learning Community Assessment-Revised appearing in 2010 (Olivier, Hipp, & Huffman, 2010). Professional community describes an environment that enables teachers to assume a variety of roles with collaborative values and views on learning, instructional practice, assessment, and reflective conversation. It is also frequently linked with shared leadership (Wahlstorm & Louis, 2008).

Although it could be argued that professional learning communities research has been going on since the days of Dewey, it was not until relatively recently that schools and systems took new notice of this method of learning and collaborating. Most of the prior research has focused on group dynamics and the impact on teachers who participated in a learning community (Fogarty & Pete, 2007; Hord & Hirsch, 2008; Senge, 1990) rather than the influence of a PLC on student achievement (Rodgers, 2002; Supovitz, 2002; Wahlstrom & Louis, 2008). While there have been studies that added to the literature by comparing those variables, the results of those studies have produced only weak-to-moderate findings (Bolam, McMahon, Stoll, Thomas, &
Wallace, 2005; Louis & Marks, 1998). This study attempted to contribute to the data comparing PLCs and student achievement with the construct of academic optimism also playing a role.

**Leadership.** Although there are many definitions of leadership, most descriptions include the characteristics of influence, motivation, and empowerment (Gill, 2006). Burns (1978) defined leadership as “a mobilization process by individuals with certain motives, values and access to resources in a context of competition and conflict in the pursuit of goals” (p. 425). Gardner (1995) argued that leaders are those who, “by word and/or personal example, markedly influence the behaviors, thoughts, and/or feelings of a significant number of their fellow human beings” (p. 8).

**Principal Development.** In the early days of education, leadership rested on the teacher who was the manager of curriculum, structure, discipline, and all areas of education. With one-room schoolhouses this was a necessary arrangement. As the number of students enrolled in school increased, however, and more teachers were employed in a school, the need arose for a school leader to be responsible for the administration of the increasing numbers of teachers and students, and the increasing diversity of the curriculum. This led to the creation of the principal teacher, who was a teacher in the position of leadership over the other assistant teachers (Goldman, 1966). In the earliest years, the principal teacher had various responsibilities, some of which were outside the school realm and encompassed work within the community.

As school programs expanded, principal teachers were relieved of some of their teaching duties in order to provide better assistance to their staff. Eventually, the role of principal ceased to carry any teaching duties, with the principal becoming primarily a manager of personnel, finances, facilities, and curriculum. The school principal’s training focused more on the technical aspects of education such as budgeting, school construction, and pupil-accounting (Goldman,
1966). In the 1930s, the focus of the principal began to change as a result of studies by industrial psychologists and sociologists. These studies altered the theories of leadership. In the 1950s, emphasis moved away from functions and duties and toward principal-staff relationships.

**Functions of Leadership.** Today, a variety of effective leadership theories shape the role of the modern school principal, almost all of which include the importance of the principal’s ability to involve teachers in decision processes, to articulate vision, to inspire, and to collaborate. Gill (2006) explored commonalities among the vast array of theories and models of leadership. As a result, he set out five functions that define leadership: vision and mission; shared values; strategy; empowerment and influence; motivation, and inspiration (pp. 91-92).

In the function of vision and mission, the leader determines for the group where the group wants to be by defining and communicating a vision of the future and a mission for the group. Vision energizes stakeholders, provides meaning, establishes standards, and focuses the people on the future.

The values and culture of the organization support the vision and mission, and the leader must first be a model for those values. In addition he must bring in all members of the group to embrace those values and culture and to abide by them actively. By sharing common values the group is able to implement strategies more effectively in creating the desired culture.

The third function of a leader is that of strategy. Gill (2006) argued that effective leaders develop strategies, as well as inspire commitment to the completion of those strategies, enabling stakeholders to focus on the vision and mission that reflect the shared values. Strategy is the beginning of action toward the accomplishment of a goal. It is this skill that brings the vision to reality.
The fourth function of a leader is that of empowerment. According to Gill (2006), effective leaders empower people to be able to do what needs to be done. Since a leader is only one human being, empowerment is essential for the accomplishment of shared goals. It is also beneficial in the creation of new leaders that can articulate and expand those values with stakeholders who may not be as involved in the process. According to Leithwood, Jantzi, and Steinbach (2000), most modern beliefs stress the importance of followers concerning their leaders. Burns (1978) included followers in his definition of leadership, arguing that leaders induce followers “to act for certain goals that represent the values and the motivations—the wants and the needs, the aspirations and expectations—of both leaders and followers” (p. 19). Followers must understand and accept leadership in order for leadership to exist. If the relationship exists, many times the leader is looked upon with awe, reverence, and dedication. Followership results from being empowered (Gill, 2006).

The fifth function of a leader is that of influence, motivation, and inspiration. Gill (2006) stated that effective leaders influence, motivate, and inspire people to want to do what needs to be done. As the logical climax to the building steps from vision through empowerment, the functions of influence, motivation, and inspiration expand the parameters that the leader is trying to reach.

As Gill emphasized, all of these functions are critical to the effectiveness of strong leadership and to the accomplishment of the group’s goals, but in relation to professional learning communities, perhaps the most relevant is the leader’s role in creating a common vision and mission and empowering stakeholders.

**Leadership Theories.** There are numerous leadership theories, many of which have developed from the debate between transactional and transformational leadership. In his seminal
work, Burns (1978) introduced transformational leadership, contrasting it with the more traditional, directive, managerial style of transactional leadership. Burns suggested that a more productive style of leadership occurred when both the leader and the followers raise each other’s motivation and sense of higher purpose. Decisions go beyond individual interests in order to provide for the greater good of the group.

From the transformational studies, other styles have emerged, as well, including contingency theories that suggest there is no one best style of leadership. One of those, Hersey and Blanchard’s (1969, 2001) Situational Leadership Theory, relates four leadership styles based on the followers’ readiness: directive, consultative, participative, and delegative. Transformational leaders use all of these leadership styles (Gill, 2006). The style participative leadership is found in other theories, as well, including the five styles of leadership identified by Bass, Valenzi, Farrow, and Solomon (1975). They associated participative leadership with reaching consensus on decision making.

**Participative Leadership.** Although transformational leadership has dominated theorists’ attentions in the past two decades, increasing demands on administrators have led to a new type of leadership known as participative or participatory leadership. Another term for that is distributed or distributive leadership. Proponents argue that participatory or distributed leadership is not a style of leadership at all, but a way of thinking about a situation through the leadership framework, involving leaders’ thinking, activity and behaviors, and the situation. Distributed leadership goes beyond the actions and beliefs of single leaders (Spillane & Diamond, 2007). Harris (2004) argued that collaboration is the most important part of distributive education since it is based on a collective undertaking toward change.
The goal of participative leadership, which involves group or school-wide influence, is to obtain increased capacity of the organization to respond productively to internal and external demands for change. Hackman (2001) suggested that by sharing responsibility for leadership, group members could use their disagreements to feed creativity. A distributed perspective on leadership acknowledges the work of all individuals who contribute to leadership practice, whether or not they are formally designated or defined as leaders (Harris & Spillane, 2008). Gronn (2003) indicated that it is rare to have just one leader and a number of followers. Participatory or distributed leadership utilizes what Brunner (2000) called “power with” instead of “power over” (p. 134). Whereas “power over” deals with control, command, and domination over others, “power with” gives group members the capacity to accomplish certain social goals through cooperation among agents with various interests and concerns. According to Brunner, this collaborative model of power is appropriate for the pluralistic and fragmented cultures found in schools. As Bryk and Schneider (2002) found, trust is key to collaboration. Smylie, Mayrowetz, Murphy, and Louis (2007) examined the relationship between trust and the development of distributed leadership, finding that trust mattered in the design, performance, and perceptions of distributed leadership. They determined that principal leadership and the trust relationship between principal and teachers were especially important to distributed leadership development. Johnson (2009) identified distributed leadership as one possible characteristic defining a PLC.

**Participative Leadership and Professional Learning Communities.** Yukl’s theory (1989) that leadership roles can be filled not only by the members at the top of the organization, but also by those in managerial positions fits with those proponents of professional learning communities associated with shared or participatory leadership. Gardiner (2006) described
transcendent leadership, a leadership style that is “more inclusive, more trusting, more sharing of information, more meaningfully involving associates or constituents, more collective decision making through dialogue and group consent processes, more nurturance and celebration of creative and divergent thinking and a willingness to serve the will of the collective consciousness as determined by the group” (Gardiner, 2006, p. 72). The philosophy of transcendent leadership shares similar characteristics with those identified by some researchers as belonging to professional learning communities. Gronn (2003) suggested that instead of “leadership,” organizations have “communities of practice” (p. 433). Transformational leadership styles are needed to create and sustain learning communities, focusing on improving teaching and learning (Heck & Hallinger, 1999).

Most definitions of professional learning communities include a sense of mission, shared vision, and collaboration. Little (1990) and Louis and Marks (1998) identified critical components of professional learning communities: deprivatization of practice, meaning that teachers observe each other’s classes to provide and receive feedback, and collaboration; reflective dialogue, which describes how teachers engage of professional conversations about educational issues; collaborative activity, or how teachers work cooperatively; shared sense of purpose toward the school’s mission; and collective focus on student learning, indicating the commitment of teachers as a group to student success. Focusing on the school reform movement in secondary schools, Lee and Smith (1996) identified collective responsibility, or school norms reflecting teachers’ attitudes toward their students, as an element for reform through professional community.

A few studies have attempted to tie professional learning communities to improved instruction and student achievement (Wahlstrom & Louis, 2008), with modest success. Vescio,
Ross, and Adams (2008) conducted a review of the research on the impact of PLCs on teaching practice and student learning. They determined that the small number of studies that attempted to link PLCs with student achievement found evidence to suggest a positive correlation, which varied with the strength of the PLC (Bolam, McMahon, Stoll, Thomas, & Wallace, 2005; Louis & Marks, 1998). In addition, Supovitz (2002), and Supovitz and Christman (2003) found positive but inconsistent student achievement results. A following study that involved teachers working in learning teams to develop instructional strategies found more consistent results of improved student achievement (Berry, Johnson, & Montgomery, 2005). In a meta-analysis that included twelve studies focusing on effects of PLCs on student learning, Arredondo Rucinski (2012) concluded that there was a variety of effect sizes, from small (.18) to large (.74), reported in articles that found significant relationships between PLCs and student learning. Another meta-analysis of five studies of secondary schools (Lomos, Hofman, & Bosker, 2011) determined that there was a small, but significant summary effect (d = .25, p < .05), which could indicate a relationship between PLCs and student achievement. Because of the weak, but positive relationship, Lomos et al. (2011) suggested a need for further study into the possible indirect effects of PLCs on student achievement.

School leadership plays a key role in the success of professional learning communities (Clausen, Aquino, & Wideman, 2009; Scribner, Cockrell, Cockrell, & Valentine, 1999; Thompson, Gregg, & Niska, 2004). Leaders who empower others create “a climate of freedom in the organization” (Gill, 2006, p. 216). Participative leadership empowers. Short and Rinehart (1992) described it as individuals’ opportunities for “autonomy, choice, responsibility, and participation, in decision making in organizations” (p. 952). Their School Participant Empowerment Scale (SPES) measures teacher empowerment, defining six dimensions of
empowerment: decision-making, professional growth, status, self-efficacy, autonomy, and impact. In a participative leadership format, such as those described by Yukl and Gill, all stakeholders can support and enhance the leadership of the superintendent and principals. Teacher leadership is a characteristic resulting from participatory leadership. Like principals, teacher leaders can be effective decision-makers, educational role models, and visionaries (Angelle & Schmid, 2007). Empowerment of principals and teachers can lead to a common vision for the school and system and increased participation in carrying out that vision among the teachers and students, resulting in improved student achievement across the system.

In their study of principal and teacher leadership on student engagement, Leithwood and Jantzi (1999) found that there were strong, significant relationships between principal leadership and school conditions. In addition, Pounder, Ogawa, and Adams (1995) suggested that the implementation of shared decision-making and leadership has the potential to improve school performance. In a meta-analysis of 35 years of educational research, Marzano (2003) identified leadership, cooperation, a learning organization, staff development, and shared vision and goals as common factors leading to school effectiveness and student achievement. The study by Thompson et al. (2004) sought to determine if there was a relationship among professional learning communities, leadership, and student learning in middle schools, hypothesizing that leadership affects professional learning communities which then affect student achievement. Using a mixed methodology, they gathered data through interviews, focus groups, and surveys. Qualitative responses supported the belief that the schools were learning organizations, but there were no quantitatively significant correlations among the three variables.

In professional learning communities, superintendents model shared decision making with their principals, and principals do the same with their teachers. It is anticipated that, in a
professional learning community, the more participative the leadership, the more empowered the principals and teachers will feel, and the more influence they will have on system direction and student achievement. Somech (2005b) corroborated the idea that participative leadership is positively related to innovation and empowerment.

Principals actively engaged with colleagues benefit from “sustained opportunities to reflect on and apply new knowledge in their work situation” (Barnes, Camburn, Sanders, & Sebastian, 2010, p. 242). Collaboration and cooperative learning have long been espoused for the classroom as important in visions of innovation and school reform. Cooperative learning structures, of which learning communities are a part, are frequently identified as “desirable features of teaching and learning” (Hoy & Hoy, 2009, p. 135). By utilizing learning communities, superintendents and principals have the opportunity to bring stakeholders together to work toward professional, collaborative goals to improve student achievement.

There is extensive research in the area of leadership. From Burns’ (1978) seminal work with transformational leadership, which helped school leaders see a style much different from that of the previous transactional, managerial style, to Hersey and Blanchard’s (1969; 2001) Situational Leadership Theory, as well as Yukl’s theory (1989) that there can be many leaders and many levels of an organization, leadership studies have looked at numerous components of leadership and effectiveness of certain leadership styles. The literature has established a connection between distributed, or participatory leadership, and a variety of other educational variables. Collaboration has emerged as an important offshoot of participatory leadership (Harris, 2004), empowering followers (Brunner, 2000) and establishing trust among stakeholders (Bryk & Schneider, 2002; Smylie, Mayrowetz, Murphy, & Louis, 2007). The literature also indicated that distributed leadership was a possible characteristic of professional learning.
communities (Clausen, Aquino, & Wideman, 2009; Johnson, 2009; Scribner, Cockrell, Cockrell, & Valentine, 1999; Thompson, Gregg, & Niska, 2004). In addition, research has connected participative leadership with student achievement (Pounder, Ogawa, & Adams, 1995), as well as PLCs with student achievement (Bolam, McMahon, Stoll, Thomas, & Wallace, 2005; Louis & Marks, 1998; Supovitz, 2002; Supovitz & Christman, 2003; Wahlstrom & Louis, 2008; Vescio, Ross, & Adams, 2008), although most of the latter connections are only weak or moderate. Because of this weak, but positive relationship, this study attempted to further the research of the effects of PLCs on student achievement.

Summary

The practice of professional learning communities has emerged as a form of organizational culture; organizational culture is directly related to academic optimism. Although the recent research on both professional learning communities and academic optimism has grown, no studies have been conducted linking the two constructs. It follows, then, that a study to determine what impact the practice of using professional learning communities in systems and schools has on the academic optimism of those systems and schools would be beneficial to school leaders in identifying strategies to increase academic optimism. Academic optimism has been linked to increases in student achievement, but only a few studies have indicated a weak link between professional learning communities and student achievement, indicating a need for more research.

The research that has contributed to the variables of this study varies, with an extensive amount of data comprising the literature on efficacy, trust, and leadership. Bandura’s early studies of efficacy (1977, 1993, 1997) created the bedrock that allowed subsequent researchers, such as Hoy et al. (2002) and Goddard et al. (2000) to build on. Academic emphasis found its
independent feet with Lee and Bryk (1989), Hoy et al (1991), Goddard et al. (2000), and Hoy and Miskel (2008). After Tschannen-Moran and Hoy (1997), Alig-Mielcarek and Hoy (2005), and others studied the area of trust, the construct of academic optimism was created by the combination of all three (Hoy et al., 2006).

Academic optimism has been established as a predictor of student achievement, but there have not been studies connecting academic optimism with student achievement. This study’s first hypothesis addressed that correlation and added new information to the literature. The literature regarding professional learning communities consists mainly of qualitative studies, although there is some quantitative research that has produced weak-to-moderate findings (Bolam, McMahon, Stoll, Thomas, & Wallace, 2005; Louis & Marks, 1998). There was additional research needed to add to this small number of quantitative studies.

Although studies of leadership played a role in this study, for the most part leadership was used as a method of implementing professional learning communities and bringing those characteristics to schools and school leaders. Since participatory leadership seemed to be the style that most clearly enabled PLCs (Clausen, Aquino, & Wideman, 2009; Johnson, 2009; Scribner, Cockrell, Cockrell, & Valentine, 1999; Thompson, Gregg, & Niska, 2004), research into that leadership method was necessary. The most important aspects of the literature pertaining to this study included the following: (1) the established predictor of academic optimism on student achievement; (2) the determination of participatory leadership as an enabler of collaboration and PLCs; and (3) the gap in the literature of research connecting the perceptions of PLCs with academic optimism, as well as the small number of studies connecting perceptions of PLCs with student achievement.
CHAPTER 3

Methodology

This study examined the relationship among principals’ and teachers’ perceptions of professional learning communities, academic optimism, and student achievement. Five hypotheses were tested:

H₁: As the level of perception that a school is a learning community increases, academic optimism increases.

H₂: Respondents from middle schools will demonstrate perceptions of higher levels of professional learning communities than respondents from high schools.

H₃: Respondents from middle schools will demonstrate perceptions of higher levels of academic optimism than respondents from high schools.

H₄: As the level of perception that a school is a learning community increases, student achievement increases.

H₅: Perceptions of professional learning communities and academic optimism will contribute jointly to student achievement.

Research Design

This research used a non-experimental survey design that measures the relationships among the perceived level of professional learning communities at schools, the level of academic optimism, and student achievement. The use of the survey design in this study was preferable because the method allows for generalization from a sample to a population and provides a rapid turnaround of data (Creswell, 2009). Yin (2009) described research design as being the “logical
sequence” connecting empirical data with research questions and eventually the study’s conclusions. He identified five components of a research design: the study’s questions, the propositions, unit of analysis, linking of data to the propositions, and criteria for interpreting the findings.

Data collection was cross-sectional, with the data being collected at one point in time as opposed to longitudinal, and was conducted through two online surveys, or if preferred by the schools, through hardcopies of the two surveys. Sue and Ritter (2007) indicated that online surveys are appropriate when the sample size is fairly large and widely distributed, when the target respondents have access to the Internet, and when respondents are first contacted by email. Student achievement data were gathered from 2010-2011 standardized reading test scores obtained through the Alabama Department of Education website.

Wolters and Daughtery (2007) supported web-based surveys as a viable method of data collection. Studying the participation rate, amount of missing data, and scale reliabilities from their study of goal structures and teachers’ sense of efficacy, conducted through the Internet, they determined that this method of recruitment of participants and data collection was as effective as traditional data collection in a similar situation. They further determined that, because raw data were automatically transferred into an electronic database, web-based collection was simpler, quicker, and less susceptible to input errors than paper-and-pencil survey methods.

Population

Four hundred and thirty-nine Alabama middle and high schools made up the population for this study. Middle schools were defined as schools made up of grade configurations of 5-8, 6-8, or 7-8. High schools were defined as schools made up of grade configurations of 8-12, 9-12, or 10-12. Schools identified as vocational or career technical schools were excluded since many
of them served only as resource centers. A list of schools that fit these definitions was obtained from the online 2011-2012 Alabama Department of Education Directory through the Alabama State Department of Education website.

**Sample**

Data were collected through surveys of teachers and principals from a convenience sample of 59 schools across the state of Alabama that met the grade configurations for middle and high schools. Student achievement data for each participating school were obtained from the Alabama Department of Education website with the Alabama High School Graduation Exam scores used for high schools and the Alabama Reading and Math Test scores used for middle schools.

**Survey Participants**

Participants of the study included principals, full-time teachers, guidance counselors, and library media specialists within the sample middle and high schools. Each of the participants was guaranteed anonymity, confidentiality, and the option of participating or not participating. Principals were included because their leadership styles and decisions directly impact the interactions among faculty. The decision to use PLCs is the principal’s, and his or her reasons for the type of leadership model could affect the attitudes of the teachers. Teachers, counselors, and library media specialists were selected because their actions and attitudes indicate the level of academic optimism, especially in the components of faculty trust and collective efficacy.

**Measurements**

The survey data were collected through two questionnaires: the School Professional Staff as Learning Community Questionnaire (SPSLCQ), and the School Academic Optimism Survey (SAOS), with additional demographic information requested.
School Professional Staff as Learning Community Questionnaire. The SPSLCQ (Hord, 1996), a 17-item rating scale, was used to assess teachers’ perceptions about the school relative to the five dimensions of a professional learning community: shared and supportive leadership; shared beliefs, values and vision; collective learning and application; shared personal practice; and supportive conditions. The SPSLCQ is designed to assess the respondent’s perceptions about the school’s level of maturity as a professional learning community (Hord, Meehan, Orletsky, & Sattes, 1999). Organization of the items includes five subscales reflecting five dimensions. Responses reflect the teachers’ perceptions of the level of maturity, ranging from 5, indicating the highest degree of maturity, to 1, indicating the lowest degree.

School Academic Optimism Survey. The SAOS is a 30-item Likert-type rating scale comprised of three parts. The first part measures the sense of collective efficacy. The second part measures the faculty trust in students and parents, and the third part measures the school’s academic emphasis. Combining the measures of these three components creates an index of school academic optimism (Hoy, 2005). The PLC instrument was used to analyze the extent to which PLCs are operational at the sample schools, and the relationship between PLCs and academic optimism was ascertained by a correlation between perceptions of maturity level and academic optimism scores.

Student Achievement. Using data obtained from the Alabama State Department of Education’s (2010-2011) online Accountability Reporting System located on the Alabama State Department of Education website, student achievement levels for each school were determined by standardized test scores. High school achievement scores were obtained from 2010-2011 Alabama High School Graduation Exam (AHSGE) results in reading for eleventh graders.
Middle school achievement scores were obtained from 2010-2011 Alabama Reading and Math Test (ARMT) reading results for seventh graders. The AHSGE and the ARMT are instruments used respectively by the Alabama State Department of Education to assess high school students’ mastery of content standards in reading, mathematics, language, biology, and social studies, and middle school students’ mastery of content standards in reading and mathematics, respectively.

**Socioeconomic Status.** The socioeconomic status (SES) of each school was determined through data obtained from the Alabama State Department of Education Accountability Documents and Reports (2010-2011). Using a formula of “100 minus the percentage of students receiving free/reduced meals,” the percentage of students not receiving free/reduced meals was the indicator of each school’s SES. Data used came from the 2011-2012 State of Alabama Department of Education Free Reduced Percentages report.

**Variables**

The independent variable was teachers’ perceptions of their school’s maturity as a learning community. Constitutively, a professional learning community is defined as an environment that enables teachers to assume a variety of roles with collaborative values and views on learning, instructional practice, assessment, and reflective conversation. It is also frequently linked with shared leadership (Wahlstrom & Louis, 2008). Operationally, PLCs are measured through an instrument created by Hord (1996) that gauges stakeholders’ perceptions of schools as learning communities: the School Professional Staff as Learning Community Questionnaire (SPSLCQ). The survey consists of five conceptual dimensions: shared and supportive leadership; shared beliefs, values, and vision; collective learning and application; shared personal practice; and supportive conditions. Each dimension contains items with individual Likert-type response scales ranging from 5, indicating the highest degree of maturity,
to 1, indicating the lowest degree. The higher the total score the more strongly the school is viewed by respondents as a mature PLC. Anchor statements at both ends and midpoint are included to differentiate the low, middle, and high points of the scale. Through field testing (Hord et al., 1999), the instrument was determined to measure one overall construct for a total scale score that indicates the extent to which teachers view their school as a positive learning community. The higher the score, the more positively the school is viewed as a learning community.

Sample items include the following: (1) school administrators participate democratically with teachers, sharing power, authority, and decision making; (2) the staff shares visions for school improvement that have an undeviating focus on student learning, and these visions are consistently referenced in the staff’s work; and (3) the staff’s collective learning and application of the learning (taking action) create high intellectual learning tasks and solutions to address student needs (Hord, 1996). Level was used as a dummy variable with the assigned arbitrary scores of 1 for middle school and 2 for high school.

The first dependent variable was the level of academic optimism at the school. Constitutively, academic optimism consists of three components: collective efficacy, which is the judgment of teachers on how the faculty as a group organizes and carries out plans to have a positive impact on students; academic emphasis, which is defined by high academic goals, orderly learning environment, and student respect for academic achievement; and faculty trust, which indicates how much the faculty feels that students and parents are acting in the faculty’s best interest (Hoy et al., 2006). Operationally, academic optimism was measured by Hoy’s (2005) School Academic Optimism Survey (SAOS), which uses a 6-point Likert-type rating scale ranging from 1 (strongly disagree) to 6 (strongly agree) and a 4-point scale ranging from 1
(rarely occurs) to 4 (very often occurs). Academic Optimism was also used as an independent variable when regressing PLCs and academic optimism on student achievement.

The second dependent variable was student achievement, which was measured using state-mandated standardized test scores. High school student achievement was measured by 2010-2011 Alabama High School Graduation Exam reading scores for eleventh grade. Middle school student achievement was measured by 2010-2011 Alabama Reading and Math Test (ARMT) reading scores for seventh grade.

**Validity and Reliability**

**School Professional Staff as Learning Community Questionnaire.** The SPSLCQ was first tested in a pilot study involving 28 students, parents, and educators participating in a summer program. For the pilot test, Cronbach's Alpha reliability for the total of the 17 items was .92, indicating appropriate instrument internal consistency. The test-retest measured reliability at .94. According to Hord et al. (1999) these results suggested that the instrument possessed “psychometric properties sufficient to continue its use, but a field test with a larger sample of schools was required” (Hord et al., 1999, p. 5). A field test was then conducted with three goals in mind: (1) to assess reliability; (2) to assess validity; and (3) to draw conclusions about its use in educational improvement efforts (Hord et al., 1999). The sample for the field test included 690 teachers in 21 schools throughout Kentucky, Tennessee, Virginia, and West Virginia. A subsample of teachers (n = 231) also volunteered to participate in a concurrent validity and stability (test-retest) reliability analyses.

Researchers created a descriptive analysis of the 690 teacher files, computing all of the descriptive statistics for the 17 individual instrument descriptor items and the total score. The same descriptive statistics were also computed by elementary, middle/junior high, and high
school levels. Then, the descriptive statistics were computed for the 21 different schools in the field test. Based on the descriptive statistics from the instrument with the 21 schools and using mean scores, the instrument differentiated among all the schools. When the schools were sub-grouped into elementary, middle/junior high, and high school, the instrument differentiated the school faculties in terms of their development as professional learning communities. Reliability analyses were also conducted for internal consistency and stability.

First, the internal consistency reliability coefficient, using a Cronbach’s alpha formula, was computed for the total instrument. The alpha reliability coefficient (.94) was computed on the 690 teacher responses. Next, the instrument's alpha reliabilities were computed for the 21 individual schools in the field test. These analyses were conducted to assess the reliabilities at the level of intended use, which was the individual school. These reliability scores ranged from .62 to .95, with most of the scores falling in the .80s and .90s. Hord et al. (1999) concluded that the instrument yielded satisfactory internal consistency reliabilities for the total instrument in the field test at both the full group and the individual school level.

Second, the stability reliability coefficient was computed with the subsample of four high school faculties in Tennessee. Although the coefficient of the stability reliability value was computed on a small subsample (n = 23), Hord et al. (1999) determined that the resulting value for the total instrument score (.6147) was marginally satisfactory, with the potential to increase or decrease, if the sample size were to increase. Content validity, concurrent validity, and construct validity were tested through the review of literature and previous field research, reformatting of the instrument for additional clarity and consistency, and the administration of the School Climate Questionnaire by Manning, Curtis, and McMillen (Hord et al., 1999), to compare measures of the same concept. Based on the three stages of the review of the items in
the instrument, Hord et al. (1999) judged the instrument to possess sufficient content validity for its original intention of measuring the concept of a community of learners within the professional staff of K-12 schools. In regards to concurrent validity, the instrument measuring school climate possessed satisfactory correlation with the school climate instrument used in the field test with a subsample (n = 114) of four high school faculties. The correlation between the 17-item field test instrument and the 10-item school climate instrument was .7489, significant at the .001 level.

Construct validity determined if the instrument measured the psychological construct called professional learning communities. The scores of the teachers in a school known from previous research to be functioning as a professional learning community were compared to the scores of the 690 teachers from the 21 schools in the field-test database. The purpose of this construct validity check was to assess the difference of the scores from the known-group teachers with the scores from all other teachers in the main database with the t-test. The higher scores from the teachers in the school that was known to be a learning community of professionals differed significantly (.0001) from those of the teachers in the field test. Using the known-group methodology, the instrument appeared to represent the construct of a mature professional learning community. Finally, a factor analysis included principal components analysis and compared before-rotation data with after-rotation data, then went back to the descriptive statistics on the scores, and included distributions. Based on factor analysis results, Hord et al. (1999) determined that the 17-item instrument represented a unitary construct of a professional learning community within schools.

**School Academic Optimism Survey.** On the SAOS, the subtest measuring academic emphasis is composed of eight Likert-type items scored on a 4-point scale ranging from 1 (rarely occurs) to 4 (very often occurs). Sample items include “Students respect others who get good
grades”; and “The school sets high standards for academic performance.” The reliability of the scale in this study has an alpha coefficient of .83. The subtest measuring collective efficacy is the short version of the 12-item Collective Efficacy Scale (Goddard et al., 2000). Items are scored on a 6-point Likert-type scale ranging from 1 (strongly disagree) to 6 (strongly agree). Sample items include “Teachers here are confident they will be able to motivate their students”; and “These students come to school ready to learn.” The alpha coefficient in the present study was .91. The subtest for faculty trust is measured on a 6-point Likert-type scale ranging from 1 (strongly disagree) to 6 (strongly agree). Sample items include “Teachers in this school can trust their students”; “Parents in this school are reliable in their commitment”; and “Students in this school can be counted on to do their work.” The alpha coefficient in the validating study was .94 (Hoy et al., 2006).

Data Collection Methods

Emails and letters requesting permission to contact principals were sent to superintendents of the systems of which the sample schools were a part. Upon receipt of permission from superintendents, emails and letters were sent to principals of schools identified as sample schools. When possible, face-to-face meetings were also held with principals, as well as superintendents if the systems required it. In the letters and at the meetings, the purpose of the study was shared, the data collection method described, and any questions answered. Drafts of the letters to superintendents and principals are included in the appendix of this dissertation.

After permission was received from the superintendents and principals, data collection began with the administration of the SPSCLQ and SAOS to principals and teachers of the sample schools via the online survey program Qualtrics or through paper/pencil hardcopies. Both collection methods included an explanation, consent indicator, and instructions for completion of
the surveys. Demographic information was also collected at that time. Participants were instructed to read and check the consent box before they completed the surveys and not to include their names or any other identifying information on the surveys. Online survey responses were logged automatically upon completion. Surveys distributed in person were collected by the principal or faculty designee and returned to the researcher or picked up directly by the researcher. There was follow-up communication with the participants to obtain an adequate number of surveys. Data were coded by school, respondent, and item per instrument.

**Data Analysis Techniques**

With the school as the unit of analysis, statistical software PASW (SPSS) 17.0 was used for input of survey data from individual responses to the PLCA-R and SAOS. In addition, student reading achievement data were also input. PASW (SPSS) was used to analyze the data. Several statistical analyses were computed to address the four research questions, including descriptive statistics. The first and fourth hypotheses were tested using a bivariate correlation. The second and third hypotheses were tested using a t-test. The fifth hypothesis was tested using a hierarchical regression analysis for perceptions of PLCs and academic optimism on student achievement. The following hypotheses were tested using these techniques:

**H1:** As the level of perception that a school is a learning community increases, academic optimism increases.

**H2:** Respondents from middle schools will demonstrate perceptions of higher levels of professional learning community than respondents from high schools.

**H3:** Respondents from middle schools will demonstrate perceptions of higher levels of academic optimism than respondents from high schools.
$H_4$: As the level of perception that a school is a learning community increases, student achievement increases.

$H_5$: Perceptions of professional learning communities and academic optimism will contribute jointly to student achievement.

**Conclusion**

The recent emphasis on professional learning communities as organizational structures for schools and the continued push for accountability for student achievement create relevance for connecting the two constructs of PLCs and academic optimism. With evidence that academic optimism has a positive and direct effect on school student achievement, and that effective leaders create a culture of optimism, the link between how that optimism is created and its effect on achievement should be of interest to researchers, as well as superintendents and principals. Professional learning communities involve empowerment of principals and teachers, which leads to a common vision and increased participation in carrying out that vision. Although studies have shown positive results of academic optimism on student achievement, only a few studies indicate connections between PLCs and student achievement. Initial observations indicated the need for further research into the impact of professional learning communities on academic optimism of schools, including the three main components of collective efficacy, faculty trust, and academic press. This study measuring the relationship among perceptions of PLCs, academic optimism, and student achievement may contribute to the understanding of how the leadership structures of schools, specifically professional learning communities, impact attitudes and opinions of principals and teachers and influence the level of academic optimism and student achievement at their schools.
CHAPTER 4
Analysis of Data and Research Findings

The purpose of this research was to determine the relationships among perceptions of professional learning communities (PLCs), the level of academic optimism, and student achievement in public secondary schools. Findings discussed in this chapter are based on results of survey data from the School Professional Staff as Learning Community Questionnaire (SPSLCQ) and School Academic Optimism Survey (SAOS), demographic data obtained with the survey administration, student achievement data as determined by standardized tests in reading, and school socioeconomic level, interpreted through percentages of students not receiving free and reduced meals. The unit of analysis for this study was the school; therefore, mean school values were calculated for each variable. This chapter provides the descriptive statistics for all variables, results of correlation analyses, t-test analyses, and multiple regression analyses, as well as a brief summary.

The variable of perceptions of professional learning communities was measured using the School Professional Staff as Learning Community Questionnaire (SPSLCQ), a 17-item rating scale that assesses teachers’ perceptions about their school relative to the five dimensions of a professional learning community: shared and supportive leadership; shared beliefs, values and vision; collective learning and application; shared personal practice; and supportive conditions. The SPSLCQ is designed to assess the respondent’s perceptions about the school’s level of maturity as a professional learning community (Hord, Meehan, Orletsky, & Sattes, 1999).
Responses reflect the teachers’ perceptions of the level of maturity, ranging from 5, indicating the highest degree of maturity to 1, indicating the lowest degree.

The construct of school academic optimism was measured using the School Academic Optimism Survey (SAOS), a 30-item Likert-type rating scale comprised of three parts. The first part measures the sense of collective efficacy. The second part measures the faculty trust in students and parents, and the third part measures the school’s academic emphasis. Parts one and two use a 6-point scale ranging from strongly disagree (1) to strongly agree (6). The third part uses a 4-point scale from rarely (1) to often (4). The SAOS includes positively- and negatively-worded items, with the negatively-worded items being reverse scored. Combining the measures of these three components creates an index of school academic optimism (Hoy, 2005).

Student achievement was determined by using data obtained from the Alabama Department of Education’s (2010-2011) online Accountability Reporting System located on the Alabama Department of Education website. Student achievement levels for each school were determined by standardized test scores. High school achievement scores were obtained from 2010-2011 Alabama High School Graduation Exam (AHSGE) results in reading for eleventh graders. Middle school achievement scores were obtained from 2010-2011 Alabama Reading and Math Test (ARMT) reading results for seventh graders. The AHSGE and the ARMT are instruments used, respectively, by the Alabama State Department of Education to assess high school students’ mastery of content standards in reading, mathematics, language, biology, and social studies, and middle school students’ mastery of content standards in reading and mathematics.

The socioeconomic status (SES) of each school was determined through data obtained from the Alabama Department of Education Public Data Reports (2010-2011). Using a formula
of “100 minus the percentage of students receiving free/reduced meals” the percentage of students not receiving free/reduced meals was the indicator of each school’s SES.

The original sample included 136 schools, as determined by the 27 systems from which permission to contact principals was obtained from superintendents. Of those 136 schools, principals’ permission to participate was received from 60 for a rate of 45%. Of the 60 schools agreeing to participate, 59 schools completed online or paper/pencil surveys, for a rate of 98.5% of the schools that agreed to participate. Given the option of having their faculty members complete online surveys or pencil/paper hard copies of surveys, 51 principals selected the online version using the Qualtrics Research Suite™, which protects the identity of respondents in order to maintain confidentiality (Qualtrics, 2012), and eight principals chose the pencil/paper hard copy version. For the principals selecting the online survey option, instructions and survey links were sent to them via email. The principals then forwarded the instructions and links to their faculties. In one situation, a principal preferred that links were sent directly to the faculty members from the researcher. Faculty email addresses from the school’s website were used for that correspondence. For the principals selecting the pencil/paper hard copy option, survey packets with school codes were delivered to the principals for distribution during a faculty meeting. Completed surveys were then either returned to the researcher by the principal or designee or picked up directly from the school by the researcher. There were a total of 703 respondents from 32 middle schools with grade configurations of 5-8, 6-8, or 7-8, and 27 high schools with grade configurations of 8-12, 9-12, or 10-12.

**Descriptive Statistics**

Descriptive statistics for independent and dependent variables are aggregated to the school level. The *independent variable* was the principals’ and teachers’ perceptions of their
school’s maturity as a learning community (PLC). The dependent variables were the level of academic optimism (AO) at the school and student achievement (SA), which was measured using state-mandated standardized test scores. Academic optimism was also used as an independent variable when student achievement was regressed on PLCs and academic optimism. Socioeconomic status (SES) was used as a control variable.

Aggregated at the school level, descriptive statistics provided in Table 2 show the number of sample schools (N), the mean (M), standard deviation (SD), variance (V), and range (R). Faculty responses to the SPSLCQ and SAOS surveys were aggregated into a school mean and used to determine an overall mean for each variable. Means for student achievement and SES were created from the means of the 59 participating schools. The three subscales of academic optimism were also included: collective efficacy (CE), faculty trust (FT), and academic emphasis (AE). Level was divided into middle school, coded as (1), and high school, coded as (2).

In addition to the survey questions, demographic data were gathered. These data included overall years of teaching experience, years of experience at the school, gender, ethnicity, highest degree earned, and level taught. Respondent demographic statistics are provided in Table 3. Males were coded as (1) and females as (2). In the category of highest degree earned, bachelor’s degree was coded as (1), master’s as (2), educational specialist as (3), and doctorate as (4). For ethnicity, the categories were as follows: African-American (1); Asian (2); Hispanic (3); Native American (4); White (5); and Other (6). When determining years of experience and years at the school surveyed, categories ranged from 1 to 5 years (1), 6 to 10 years (2), 11 to 15 years (3), 16 to 20 years (4), and 20 or more years (5). For level, middle school was coded as (1), with high school being coded as (2).
Table 2

*Descriptive Statistics for Research Variables (N=59)*

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>Range</th>
<th>Min</th>
<th>Max</th>
<th>Mean</th>
<th>SD</th>
<th>Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic Optimism</td>
<td>59</td>
<td>1.79</td>
<td>2.86</td>
<td>4.64</td>
<td>3.67</td>
<td>.383</td>
<td>.14</td>
</tr>
<tr>
<td>Collective Efficacy</td>
<td>59</td>
<td>1.74</td>
<td>3.35</td>
<td>5.08</td>
<td>4.24</td>
<td>.414</td>
<td>.17</td>
</tr>
<tr>
<td>Faculty Trust</td>
<td>59</td>
<td>2.14</td>
<td>2.96</td>
<td>5.10</td>
<td>3.92</td>
<td>.474</td>
<td>.22</td>
</tr>
<tr>
<td>Academic Emphasis</td>
<td>59</td>
<td>1.48</td>
<td>2.27</td>
<td>3.75</td>
<td>2.86</td>
<td>.313</td>
<td>.09</td>
</tr>
<tr>
<td>Professional Learning Community</td>
<td>59</td>
<td>1.48</td>
<td>2.92</td>
<td>4.40</td>
<td>3.64</td>
<td>.332</td>
<td>.11</td>
</tr>
<tr>
<td>Shared Leadership</td>
<td>59</td>
<td>2.30</td>
<td>2.40</td>
<td>4.70</td>
<td>3.60</td>
<td>.538</td>
<td>.29</td>
</tr>
<tr>
<td>Shared Vision</td>
<td>59</td>
<td>1.83</td>
<td>2.83</td>
<td>4.67</td>
<td>3.95</td>
<td>.370</td>
<td>.13</td>
</tr>
<tr>
<td>Collective Learning</td>
<td>59</td>
<td>1.51</td>
<td>3.09</td>
<td>4.60</td>
<td>3.83</td>
<td>.330</td>
<td>.11</td>
</tr>
<tr>
<td>Shared Practice</td>
<td>59</td>
<td>1.92</td>
<td>2.08</td>
<td>4.00</td>
<td>2.84</td>
<td>.462</td>
<td>.21</td>
</tr>
<tr>
<td>Supportive Conditions</td>
<td>59</td>
<td>2.26</td>
<td>2.14</td>
<td>4.40</td>
<td>3.61</td>
<td>.401</td>
<td>.16</td>
</tr>
<tr>
<td>Socioeconomic Status</td>
<td>59</td>
<td>87.66</td>
<td>2.09</td>
<td>89.75</td>
<td>47.92</td>
<td>20.24</td>
<td>409.92</td>
</tr>
<tr>
<td>Student Achievement</td>
<td>59</td>
<td>36.51</td>
<td>63.49</td>
<td>100</td>
<td>84.5</td>
<td>8.4</td>
<td>70.72</td>
</tr>
<tr>
<td>Level</td>
<td>59</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>1.45</td>
<td>.50</td>
<td>.25</td>
</tr>
</tbody>
</table>
### Table 3

**Summary of Participant Demographic Data**

<table>
<thead>
<tr>
<th>School Demo. Characteristics</th>
<th>N</th>
<th>%</th>
<th>Range</th>
<th>Min</th>
<th>Max</th>
<th>Mean</th>
<th>SD</th>
<th>Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Years of Teaching Experience</td>
<td>(632)</td>
<td></td>
<td>4.00</td>
<td>1.00</td>
<td>5.00</td>
<td>3.05</td>
<td>1.46</td>
<td>2.14</td>
</tr>
<tr>
<td>0 – 5</td>
<td>121</td>
<td>19.1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 – 10</td>
<td>140</td>
<td>22.2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11 - 15</td>
<td>114</td>
<td>18.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16 - 20</td>
<td>100</td>
<td>15.8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20+</td>
<td>157</td>
<td>24.8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Years of Exp. at Surveyed School</td>
<td>(631)</td>
<td></td>
<td>4.00</td>
<td>1.00</td>
<td>5.00</td>
<td>1.97</td>
<td>1.16</td>
<td>1.36</td>
</tr>
<tr>
<td>0 – 5</td>
<td>292</td>
<td>46.3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 – 10</td>
<td>173</td>
<td>27.4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11 - 15</td>
<td>93</td>
<td>14.7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16 - 20</td>
<td>36</td>
<td>5.7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20+</td>
<td>37</td>
<td>5.9</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>(629)</td>
<td></td>
<td>1.00</td>
<td>1.00</td>
<td>2.00</td>
<td>1.70</td>
<td>.45</td>
<td>.20</td>
</tr>
<tr>
<td>Male</td>
<td>184</td>
<td>29.3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>445</td>
<td>70.7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ethnicity</td>
<td>(628)</td>
<td></td>
<td>5.00</td>
<td>1.00</td>
<td>6.00</td>
<td>4.61</td>
<td>1.19</td>
<td>1.45</td>
</tr>
<tr>
<td>African-American</td>
<td>60</td>
<td>9.6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asian</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hispanic</td>
<td>3</td>
<td>.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Native American</td>
<td>3</td>
<td>.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>554</td>
<td>88.2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>8</td>
<td>1.3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Highest Degree Earned</td>
<td>(622)</td>
<td></td>
<td>3.00</td>
<td>1.00</td>
<td>4.00</td>
<td>1.82</td>
<td>.67</td>
<td>.45</td>
</tr>
<tr>
<td>Bachelors</td>
<td>192</td>
<td>30.9</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Masters</td>
<td>359</td>
<td>57.7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education Specialist</td>
<td>58</td>
<td>9.3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Doctorate</td>
<td>13</td>
<td>2.1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Level</td>
<td>(703)</td>
<td></td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>1.53</td>
<td>.50</td>
<td>.25</td>
</tr>
<tr>
<td>Middle</td>
<td>330</td>
<td>46.9</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High</td>
<td>373</td>
<td>53.1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The highest category for total years of teaching experience was that of teachers with 20 or more years of experience with the second highest being that of teachers with 6 to 10 years of experience. Data for the frequency of the number of years of experience teachers had at the school participating in the research study demonstrated that almost half of the respondents had been at their respective schools for five years or fewer. The second highest category was 6 to 10 years. The vast majority of respondents were female at a little over 70% (see Table 3). Of the 628 respondents who identified an ethnicity, the largest percentage (88.2) was White. African-American respondents followed with 9.6%. Most of the respondents held master’s degrees (57.7%), with the percentage of bachelor’s degrees following at 30.9%. The percentage decreased with educational specialist degrees and doctorates. The percentage of respondents between the middle and high school levels was relatively balanced with 46.9% respondents at the middle school level and 53.1% respondents from the high school level.

**Reliability**

In order to ensure reliability, the School Academic Optimism Survey (SAOS) and School Professional Staff as Learning Community Questionnaire (SPSLCQ) were tested individually, first using the individual as the unit of analysis, and second using the school as the unit of analysis (see Table 4). Instruments must have a Cronbach’s coefficient alpha of at least .70 to be considered reliable (Muijs, 2004). Using that determination, both the SAOS and SPSLCQ were confirmed as reliable. In addition, all three components of the SAOS, collective efficacy (CE), faculty trust (FT), and academic emphasis (AE), were also separately confirmed as reliable. Using the school as the unit of analysis, confirmation of reliability was also confirmed for both the SAOS and SPSLCQ. The three components of the SAOS again were confirmed as reliable.
Table 4

**Alpha Coefficients of Reliability**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Instrument</th>
<th>Number of Items</th>
<th>Cronbach’s Alpha</th>
<th>N</th>
<th>Cronbach’s Alpha</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic Optimism</td>
<td>SAOS</td>
<td>30</td>
<td>.94</td>
<td>703</td>
<td>.97</td>
<td>59</td>
</tr>
<tr>
<td>Collective Efficacy</td>
<td>SAOS</td>
<td>12</td>
<td>.84</td>
<td>703</td>
<td>.92</td>
<td>59</td>
</tr>
<tr>
<td>Faculty Trust</td>
<td>SAOS</td>
<td>10</td>
<td>.92</td>
<td>703</td>
<td>.96</td>
<td>59</td>
</tr>
<tr>
<td>Academic Emphasis</td>
<td>SAOS</td>
<td>8</td>
<td>.87</td>
<td>703</td>
<td>.93</td>
<td>59</td>
</tr>
<tr>
<td>Professional Learning Community</td>
<td>SPSLCQ</td>
<td>17</td>
<td>.93</td>
<td>703</td>
<td>.94</td>
<td>59</td>
</tr>
</tbody>
</table>

**Correlation Analyses**

To test Hypotheses 1 and 4, normality was first assessed through Shapiro-Wilk tests; then correlation analyses were computed for research variables using the Pearson Correlation. In addition, the three subscales of academic optimism were also tested for correlation with PLC. Almost all of the correlations were found to be positive and significant (see Table 5).

The first hypothesis states that as the level of perception that a school is a learning community increases, academic optimism increases. For this hypothesis, data show that there is a positive, significant correlation between perceptions of PLC and academic optimism when the academic optimism measurement is taken as a whole (see Table 6). There are positive, significant correlations between perceptions of PLC and two of the three components of academic optimism, as well as the complete measure of academic optimism (AO): CE \( r = .34; \)
There is, however, a significant correlation indicated between perceptions of PLCs and the component of Faculty Trust ($r = .21$; $p = .104$). When the components of PLC are tested separately, shared vision (SV), collective learning (CL), and supportive conditions (SC) have significant, positive correlations with academic optimism as a whole: $SV$ ($r = .34, p < .01$), $CL$ ($r = .36, p < .01$), and $SC$ ($r = .29, p < .05$). In addition, there are significant, positive correlations among the following subscales: shared vision and collective efficacy ($r = .33, p < .05$), shared vision and academic emphasis ($r = .44, p < .01$), collective learning and collective efficacy ($r = .37, p < .01$), collective learning and academic emphasis ($r = .428, p < .01$), supportive conditions and collective efficacy ($r = .31, p < .05$), and supportive conditions and academic emphasis ($r = .38, p < .01$). Again, there are no correlations indicated when any of the PLC components are compared with faculty trust.

Although a correlation between academic optimism and student achievement was not hypothesized, results showed correlations between the complete construct as well as all three subscales and student achievement. Academic optimism as a whole had a strong correlation ($r = .59, p < .01$). There is a positive, significant correlation between academic optimism and student achievement, indicating that as the academic optimism of a school increases, student achievement increases. For all three subscales, the results were similar. Collective efficacy had the strongest correlation ($r = .60, p < .01$), with faculty trust next ($r = .59, p < .01$) and academic emphasis last, but still with a moderate to strong correlation ($r = .47, p < .01$). These data confirm previous research findings that indicated a strong relationship between academic optimism and student achievement (Goddard, Sweetland, & Hoy, 2000; Hoy et al., 2006; Hoy, Tarter & Kottkamp, 1991; Lee & Bryk, 1989; Smith & Hoy, 2007).
Table 5

*Intercorrelational Matrix of Research Variables*

<table>
<thead>
<tr>
<th></th>
<th>CE</th>
<th>FT</th>
<th>AE</th>
<th>PLCs</th>
<th>SA</th>
<th>SES</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Academic Optimism</strong></td>
<td>.969*</td>
<td>.964*</td>
<td>.931*</td>
<td>.323*</td>
<td>.589*</td>
<td>.436*</td>
</tr>
<tr>
<td><strong>Collective Efficacy</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>.899*</td>
<td>.873*</td>
<td>.338*</td>
<td>.604*</td>
<td>.426*</td>
<td></td>
</tr>
<tr>
<td><strong>Faculty Trust</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>.835*</td>
<td>.214</td>
<td>.589*</td>
<td></td>
<td>.499*</td>
<td></td>
</tr>
<tr>
<td><strong>Academic Emphasis</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Professional Learning Communities</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.016</td>
<td>-.172</td>
</tr>
<tr>
<td><strong>Student Achievement</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.709*</td>
</tr>
<tr>
<td><strong>Socioeconomic Status</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>--</td>
</tr>
</tbody>
</table>

*p < .05, two-tailed. **p < .01, two-tailed

The fourth hypothesis states that as the level of perception that a school is a learning community increases, student achievement increases. Data do not show a significant correlation directly between perceptions of PLCs and student achievement \((r = .02, p = .905)\), indicating that the fourth hypothesis is not supported by evidence (see Table 6). Although not part of the original hypothesis, the five components of PLC were also tested for correlation with student achievement. None of those components was found to have a significant correlation with student achievement.
Table 6

Correlation Analyses of PLC and Academic Optimism/PLC and Student Achievement

<table>
<thead>
<tr>
<th>PLCs</th>
<th>Academic Optimism</th>
<th>Collective Efficacy</th>
<th>Faculty Trust</th>
<th>Academic Emphasis</th>
<th>Student Achievement</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>.323*</td>
<td>.338**</td>
<td>.214</td>
<td>.415**</td>
<td>.016</td>
</tr>
<tr>
<td>Shared Leadership</td>
<td>.160</td>
<td>.131</td>
<td>.117</td>
<td>.236</td>
<td>-.079</td>
</tr>
<tr>
<td>Shared Vision</td>
<td>.336**</td>
<td>.332*</td>
<td>.233</td>
<td>.442**</td>
<td>.089</td>
</tr>
<tr>
<td>Collective Learning</td>
<td>.356**</td>
<td>.372**</td>
<td>.256</td>
<td>.428**</td>
<td>.055</td>
</tr>
<tr>
<td>Shared Practice</td>
<td>.117</td>
<td>.185</td>
<td>.031</td>
<td>.137</td>
<td>.041</td>
</tr>
<tr>
<td>Supportive Conditions</td>
<td>.292*</td>
<td>.308*</td>
<td>.187</td>
<td>.384**</td>
<td>-.026</td>
</tr>
</tbody>
</table>

*p < .05, two-tailed. **p < .01, two-tailed

Correlation analyses were run for all research and demographic variables (see Table 7). Demographic variables included in the correlation were years of teaching experience (YTE), years of experience the school surveyed (YASS), gender (G), and highest earned degree (HD). Means for each demographic variable were calculated for each school. Significant correlations between the demographic and research variables were found for years of teaching experience and faculty trust ($r = .26, p < .05$), years of teaching experience and PLCs ($r = -.31, p < .05$), and years at the school and PLCs ($r = -.49, p < .01$). These results indicate a positive, but weak, correlation between years of teaching experience and faculty trust. The longer someone has taught, the more trust that person has in his or her colleagues. Results show negative, significant correlations between years of teaching and PLCs as well as years at the school and PLC, both with the overall PLCs measure and with some of the components, the strongest being years at the school and shared leadership ($r = -.60, p < .01$). This indicates that the longer teachers are in the
profession and the longer they are at a certain school, the lower their perceptions of PLCs. This was somewhat unexpected since more experience might suggest a broader acceptance; however, this could indicate cynicism from teachers having gone through various initiatives and becoming jaded as to the benefits and longevity of those. As would be expected there was a strong, positive, significant correlation between SES and student achievement ($r = .71, p < .01$).

Table 7

*Intercorrelational Matrix of Research Variables and Demographics*

<table>
<thead>
<tr>
<th></th>
<th>Academic Optimism</th>
<th>Collective Efficacy</th>
<th>Faculty Trust</th>
<th>Academic Emphasis</th>
<th>Professional Learning Community</th>
<th>Student Achievement</th>
<th>Socioeconomic Status</th>
<th>Years of Teaching Experience</th>
<th>Years of Experience at the Surveyed School</th>
<th>Gender</th>
<th>Highest Degree Earned</th>
</tr>
</thead>
<tbody>
<tr>
<td>CE</td>
<td>.969*</td>
<td>.964*</td>
<td>.931**</td>
<td>.323*</td>
<td>.589*</td>
<td>.436*</td>
<td>.202</td>
<td>.016</td>
<td>.034</td>
<td>.042</td>
<td></td>
</tr>
<tr>
<td>FT</td>
<td>.964*</td>
<td>.899*</td>
<td>.873**</td>
<td>.338*</td>
<td>.604*</td>
<td>.426*</td>
<td>.135</td>
<td>.026</td>
<td>.016</td>
<td>.022</td>
<td></td>
</tr>
<tr>
<td>AE</td>
<td>.931**</td>
<td>.873**</td>
<td>.338*</td>
<td>.604*</td>
<td>.426*</td>
<td>.135</td>
<td>.026</td>
<td>.016</td>
<td>.022</td>
<td>.054</td>
<td></td>
</tr>
<tr>
<td>PLC</td>
<td>.323*</td>
<td>.338*</td>
<td>.589*</td>
<td>.499*</td>
<td>.264*</td>
<td>.038</td>
<td>.039</td>
<td>.054</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SA</td>
<td>.589*</td>
<td>.604*</td>
<td>.589*</td>
<td>.499*</td>
<td>.264*</td>
<td>.038</td>
<td>.039</td>
<td>.054</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SES</td>
<td>.436*</td>
<td>.426*</td>
<td>.499*</td>
<td>.264*</td>
<td>.038</td>
<td>.039</td>
<td>.054</td>
<td>.039</td>
<td>.054</td>
<td></td>
<td></td>
</tr>
<tr>
<td>YTE</td>
<td>.202</td>
<td>.135</td>
<td>.264*</td>
<td>.164</td>
<td>.164</td>
<td>-.034</td>
<td>.044</td>
<td>.044</td>
<td>.022</td>
<td></td>
<td></td>
</tr>
<tr>
<td>YASS</td>
<td>.016</td>
<td>.026</td>
<td>.038</td>
<td>.164</td>
<td>-.034</td>
<td>.044</td>
<td>.044</td>
<td>.022</td>
<td>.054</td>
<td>.044</td>
<td></td>
</tr>
<tr>
<td>G</td>
<td>.034</td>
<td>.016</td>
<td>.039</td>
<td>.044</td>
<td>.044</td>
<td>-.034</td>
<td>.044</td>
<td>.044</td>
<td>.022</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HD</td>
<td>.042</td>
<td>.022</td>
<td>.054</td>
<td>.044</td>
<td>.044</td>
<td>.022</td>
<td>.054</td>
<td>.044</td>
<td>.054</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*p < .05, two-tailed. **p < .01, two-tailed*
T-Test Analyses

T-Test analyses were computed for the second and third hypotheses. For both tests, homogeneity of variance was assessed by Levene’s Equality of Variances and statistical significance accepted at the $p < .01$ level for $H_2$ and the $p < .05$ level for $H_3$. The second hypothesis states that respondents from middle schools will demonstrate perceptions of higher levels of perceptions of professional learning communities (PLCs) than respondents from high schools. Table 8 shows the group statistics for the t-test of PLC and level. Table 9 shows the t-test analysis of the two variables. Teachers at the middle school level ($M = 3.77$) had statistically significant ($p < .01$) higher perceptions of PLCs than teachers at the high school level ($M = 3.49$), although the two means, taken from a five-point scale, were close. The effect size was moderate at .41.

Table 8

*Group Statistics for T-Test Analyses of PLC and Level*

<table>
<thead>
<tr>
<th>Level</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLC 1 (middle)</td>
<td>32</td>
<td>3.77</td>
<td>.324</td>
<td>.057</td>
</tr>
<tr>
<td>PLC 2 (high)</td>
<td>27</td>
<td>3.49</td>
<td>.283</td>
<td>.054</td>
</tr>
</tbody>
</table>

Table 9

*T-Test Analyses of PLC and Level*

<table>
<thead>
<tr>
<th></th>
<th>Levene’s Test for Equality of Variance</th>
<th>t-test for Equality of Means</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F</td>
<td>Sig.</td>
</tr>
<tr>
<td>PLC</td>
<td>.800</td>
<td>.375</td>
</tr>
</tbody>
</table>
Table 10

*Group Statistics for T-Test Analyses of Academic Optimism and Level*

<table>
<thead>
<tr>
<th></th>
<th>Level</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Academic Optimism</strong></td>
<td>1 (middle)</td>
<td>32</td>
<td>3.77</td>
<td>.371</td>
<td>.065</td>
</tr>
<tr>
<td></td>
<td>2 (high)</td>
<td>27</td>
<td>3.56</td>
<td>.373</td>
<td>.071</td>
</tr>
<tr>
<td><strong>Collective Efficacy</strong></td>
<td>1 (middle)</td>
<td>32</td>
<td>4.35</td>
<td>.386</td>
<td>.068</td>
</tr>
<tr>
<td></td>
<td>2 (high)</td>
<td>27</td>
<td>4.11</td>
<td>.414</td>
<td>.079</td>
</tr>
<tr>
<td><strong>Faculty Trust</strong></td>
<td>1 (middle)</td>
<td>32</td>
<td>4.01</td>
<td>.488</td>
<td>.086</td>
</tr>
<tr>
<td></td>
<td>2 (high)</td>
<td>27</td>
<td>3.82</td>
<td>.443</td>
<td>.085</td>
</tr>
<tr>
<td><strong>Academic Emphasis</strong></td>
<td>1 (middle)</td>
<td>32</td>
<td>2.94</td>
<td>.289</td>
<td>.051</td>
</tr>
<tr>
<td></td>
<td>2 (high)</td>
<td>27</td>
<td>2.76</td>
<td>.316</td>
<td>.060</td>
</tr>
</tbody>
</table>

The third hypothesis states that respondents from middle schools will demonstrate perceptions of higher levels of academic optimism (AO) than respondents from high schools. Table 10 shows the group statistics for the t-test of AO, its components, and level. Table 11 shows the t-test analysis of the variables. Teachers at the middle school level (M = 3.77) had statistically significant (p < .05) higher levels of academic optimism than teachers at the high school level (M = 3.56), although, again, as in Hypothesis 2, the means are not far apart. When the three components of AO are broken down, collective efficacy (CE) and academic emphasis (AE) showed statistically significant (p < .05) differences between middle and high school teachers, with the means of the middle school teachers’ scores higher than those of high school teachers’. For the component of faculty trust (FT), however, although the means were higher at the middle school level, the results were not statistically significant (p = .123). The subscales of
collective efficacy and faculty trust use a 6-point Likert-type scale; the subscale of academic optimism uses a 4-point Likert-type scale. The effect size was moderate at .27.

Table 11

**T-Test Analyses of Academic Optimism and Level**

<table>
<thead>
<tr>
<th></th>
<th>Levene's Test for Equality of Variance</th>
<th>t-test for Equality of Means</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F</td>
<td>Sig.</td>
</tr>
<tr>
<td>Academic Optimism</td>
<td>.343</td>
<td>.560</td>
</tr>
<tr>
<td>Collective Efficacy</td>
<td>.458</td>
<td>.501</td>
</tr>
<tr>
<td>Faculty Trust</td>
<td>.036</td>
<td>.851</td>
</tr>
<tr>
<td>Academic Emphasis</td>
<td>.600</td>
<td>.442</td>
</tr>
</tbody>
</table>

**Hierarchical Regression Analyses**

Hypothesis 5 was tested using hierarchical regression analyses with the dependent variable of student achievement being regressed on the independent variables of PLC and academic optimism and the control variable of SES. The results partially supported the hypothesis. Two hierarchical regressions were used, both controlling for SES. In the first regression, only the total scores for academic optimism and PLC were included (see Table 12). Academic optimism (AO) had a significant, positive effect on student achievement ($\beta = .35, p < .01$). The control variable of SES had the strongest contribution ($\beta = .56, p < .01$). The combined effects of the variables explained 60% ($R^2 = .60$) of the variance for student achievement.
Table 12

Summary of Regression Analysis for Variables Predicting Student Achievement

<table>
<thead>
<tr>
<th>Dependent variable: student achievement</th>
<th>B</th>
<th>β</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Predictor variables</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Professional Learning Community</td>
<td>.004</td>
<td>.000</td>
<td>.999</td>
</tr>
<tr>
<td>Academic Optimism</td>
<td>7.579</td>
<td>.346**</td>
<td>.002</td>
</tr>
<tr>
<td>Socioeconomic Status</td>
<td>.232</td>
<td>.558**</td>
<td>.000</td>
</tr>
</tbody>
</table>

**.p < .01, two-tailed. \(R^2 = .599\)**, Adjusted \(R^2 = .577\)**

In the second regression, the subscale scores for academic optimism were also included (see Table 13), with SES again being used as a control variable. Although the total measure of academic optimism showed a significant, positive effect on student achievement in the first regression, its three subscale components did not have significant individual effects. Neither collective efficacy (\(β = .46\)), faculty trust (\(β = -.114\)), nor academic emphasis (\(β = .02\)) was found to have any significant relationship with student achievement as measured by the state-mandated standardized tests. Only the control variable of SES was a strong predictor (\(β = .56, p < 01\)) of student achievement. The combined effects of the variables explained 62% (\(R^2 = .62\)) of the variance for student achievement.

Summary

Of the five hypotheses tested, results ranged from full support to no support. Hypotheses 1 and 4 were tested using bivariate correlations. The first hypothesis was supported fully, with a positive, significant relationship between perceptions of PLCs and academic optimism. As the level of PLC at the school increases, so does the level of academic optimism, indicating that PLC could contribute to academic optimism. The fourth hypothesis (which stated that as the level of
perceptions of PLC at a school increased, student achievement would increase) was not supported. Data did not show a direct, significant relationship between PLC and student achievement.

Table 1

*Summary of Regression Analysis for Subscale Variables Predicting Student Achievement*

<table>
<thead>
<tr>
<th>Dependent variable: student achievement</th>
<th>B</th>
<th>β</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Predictor variables:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PLC</td>
<td>-.687</td>
<td>-.027</td>
<td>.790</td>
</tr>
<tr>
<td>Collective Efficacy</td>
<td>9.340</td>
<td>.461</td>
<td>.051</td>
</tr>
<tr>
<td>Faculty Trust</td>
<td>-2.021</td>
<td>-.114</td>
<td>.604</td>
</tr>
<tr>
<td>Academic Emphasis</td>
<td>.509</td>
<td>.019</td>
<td>.923</td>
</tr>
<tr>
<td>SES</td>
<td>.232</td>
<td>.559**</td>
<td>.000</td>
</tr>
</tbody>
</table>

**p < .01, two-tailed. R² = .616**, Adjusted R² = .580**

T-Tests were used for the second and third hypotheses, and results supported both.

Hypothesis 2 compared the level of perception of PLCs at middle school with the level of perception of PLCs at high school, hypothesizing that the middle school perceptions would be higher than those of the high school. Hypothesis 3 presented a similar comparison using academic optimism instead of PLCs. With both hypotheses, the differences between middle school perceptions and high school perceptions were significant, although the differences between the means of each were small.

Finally, hierarchical regressions were used to test the fifth hypothesis. The dependent variable of student achievement was regressed on the independent variables of PLC and academic optimism and the control variable of SES. The results partially supported the
hypothesis with the total construct of academic optimism and SES being strong predictors of student achievement. Neither perceptions of PLC nor the three individual components of academic optimism, when separated, were found to be predictors of student achievement. Final results produced support for Hypotheses 1, 2, and 3. Hypothesis 4 was not supported, and Hypothesis 5 was partially supported.
CHAPTER 5

Conclusions, Discussions, and Implications

The constructs of academic optimism and professional learning communities have been linked with leadership, achievement, empowerment, and culture, but no connection between the two has been previously studied. Because of the possible impact of both on practices in schools, there was a need for studies that investigate connections that may exist between these constructs as well as their relationship with student achievement. Since academic optimism has been linked to increases in student achievement, and both are believed to improve school organizational culture, it followed that professional learning communities should have an impact on achievement both in conjunction with academic optimism and independently, as well. Two meta-analyses have been conducted. The first (Lomos et al., 2011) was based on five studies, and the second included twelve studies (Arredondo Rucinski, 2012). Both found small, positive effect sizes between components of PLCs and student learning (.09 - .21). This dissertation, therefore, hypothesized a connection among perceptions of PLC, academic optimism, and student achievement. A summary of the research and findings, as well as implications for practice and further research are discussed in this chapter.

Purpose of the Study

The purpose of this research was to determine the relationships among perceptions of professional learning communities (PLCs), the level of academic optimism, and student achievement in public secondary schools. The study was based on the framework for professional learning communities established by Hord (1997, 2004), who described five
dimensions of a professional learning community: shared and supportive leadership; shared beliefs, values and vision; collective learning and application of learning; supportive conditions; and shared personal practice. This study is also based on the construct of academic optimism, as determined by Hoy and his colleagues (2006), which consists of three components: collective efficacy, academic emphasis, and faculty trust. Hoy et al. (2006), as well as Smith and Hoy (2007) found that academic optimism is a school characteristic that predicts student achievement. One of the objectives for this study was to determine if perceptions of professional learning communities also correlated with academic optimism and, ultimately, student achievement, so that educational leaders could use these findings to support a leadership focus on fostering learning communities to increase academic optimism and, thus, improve achievement.

**Summary of Methods**

Five research questions guided this study to address the perceived relationships among professional learning communities, academic optimism, and student achievement:

1. What is the relationship between the extent to which teachers and principals perceive their school is a learning community and the level of academic optimism in those schools?

2. What is the relationship between perceptions of respondents from middle schools regarding professional learning communities and the perceptions of respondents from high schools?

3. What is the relationship between perceptions of respondents from middle schools regarding academic optimism and the perceptions of respondents from high schools?

4. What is the relationship between the extent to which teachers and principals perceive their school is a learning community and the level of student achievement?
5. What is the joint contribution of perceptions of professional learning communities and academic optimism on student achievement?

The survey data were collected from a convenience sample of 59 Alabama middle and high schools across the state through two questionnaires: the School Professional Staff as Learning Community Questionnaire (SPSLCQ), and the School Academic Optimism Survey (SAOS), with additional demographic information requested. There were a total of 703 respondents.

The SPSLCQ measured teachers’ perceptions of their school’s maturity as a learning community. Academic optimism was measured by the SAOS. Student achievement data for each participating school were obtained from the Alabama Department of Education website with the Alabama High School Graduation Exam eleventh grade reading scores used for high schools and the Alabama Reading and Math Test seventh grade reading scores used for middle schools.

Using a bivariate correlation, the relationship between perceptions of PLC and academic optimism was investigated. Although there have been no studies directly linking PLC and academic optimism, Hoy and Hoy (2009) determined that modeling promotes understanding and ownership of beliefs and actions, and that teachers learn from modeling. When teachers model for their colleagues, academic optimism is promoted. Two of the five dimensions of professional learning communities, according to Hord (2004), are collective learning and application of learning and shared personal practice, both areas that involve modeling and the collaboration that promotes academic optimism. This prior research contributed to this study’s intent of determining the relationship between PLC and academic optimism.

Also using a bivariate correlation, the relationship between perceptions of PLCs and student achievement was tested. Wahlstrom and Louis (2008) emphasized professional
community because of what they determined to be “the accumulating evidence that it is related both to improved instruction and to student achievement” (p. 463). Teacher professional community is central to the development of teacher commitment as well as to the importance of student achievement (Rodgers, 2002). This study sought to determine what relationship, if any, actually existed between perceptions of PLC and student achievement.

In addition to comparisons of perceptions of PLCs with academic optimism and student achievement, differences between middle and high school teacher perceptions of PLCs and levels of academic optimism were also tested, using t-tests. Cowley (1999) used the SPSLCQ to explore perceptions of PLCs and compared findings between elementary teachers and high school teachers. Higher means for elementary teachers (M = 63.87) indicated that high school teachers (M = 56.77) might feel less a part of a learning community than elementary teachers. Academic optimism has also been studied at various levels. Hoy et al. (2006) found consistent results of the impact of academic optimism on student achievement at both the elementary and high school levels. Acknowledging the established comparisons between elementary and high school levels, this study included middle school to determine if there were significant differences between the two secondary levels.

Finally, the joint effect of the relationship of perceptions of PLCs and academic optimism on student achievement was investigated, using hierarchical regressions. Hoy, Tarter, and Kottkamp (1991) related academic emphasis, prior to its inclusion as a component of academic optimism, to student achievement in high schools. Goddard, Sweetland, and Hoy (2000) found similar results in their study of mathematics and reading achievement in elementary schools; academic emphasis was significant in explaining that achievement. In addition, Hoy et al. (2006) connected academic optimism with student achievement. Although Wahlstrom and Louis (2008)
argued that professional community is related to student achievement, there was not a direct, quantitative measure used to verify that determination in their study. One objective of this study was to see if PLCs and academic optimism combined to have an effect on student achievement.

**Summary of Findings**

**Hypothesized Findings.** Of the five hypotheses tested, three were fully supported by test results, one was partially supported, and one was not supported. The first hypothesis, which proposed that as the level of perception that a school is a learning community increases, academic optimism increases, was supported. There is a positive, significant correlation between perceptions of PLCs and academic optimism ($r = .32, p < .05$).

The second and third hypotheses, which proposed that respondents from middle schools demonstrate perceptions of higher levels of professional learning communities and academic optimism than respondents from high schools, were supported.

The fourth hypothesis, which stated that as the level of perception that a school is a learning community increases, student achievement increases, was not supported either through testing PLCs as a whole ($r = .02, p = .905$) or through testing the components of PLCs. There is, however, the possibility that an indirect relationship between PLCs and student achievement does exist because of the direct relationship between PLCs and academic optimism and the direct relationship between academic optimism and student achievement.

The fifth hypothesis proposed that perceptions of PLCs and academic optimism will contribute jointly to student achievement. Results showed partial support for the hypothesis with the total construct of academic optimism and SES being strong predictors of student achievement, but with neither PLC nor the individual components of academic optimism, when separated, were found to be predictors of student achievement.
Non-Hypothesized Findings. In addition to the hypothesized findings, some results were observed that were not included in the original study hypotheses. Academic optimism as a whole had a strong correlation \( r = .589, p < .01 \) with student achievement. There is a positive, significant correlation between academic optimism and student achievement, indicating that as the academic optimism of a school increases, student achievement increases. Collective efficacy had the strongest correlation \( r = .60, p < .01 \), with faculty trust next \( r = .59, p < .01 \) and academic emphasis last, but still with a moderate to strong correlation \( r = .47, p < .01 \). These data confirm previous research findings that indicated a strong relationship between academic optimism and student achievement (Goddard, Sweetland, & Hoy, 2000; Hoy et al., 2006; Hoy, Tarter & Kottkamp, 1991; Lee & Bryk, 1989; Smith & Hoy, 2007).

There were significant correlations between the demographic and research variables for years of experience and faculty trust \( r = .26, p < .05 \), years of experience and PLC \( r = -.31, p < .05 \), and years at the school and PLC \( r = -.49, p < .01 \). These results indicate a positive, but weak correlation between years of teaching experience and faculty trust. The longer someone has taught, the more trust that person has in his colleagues. Results show negative, significant correlations between years of teaching and PLC as well as years at the school and PLC. This indicates that the longer teachers are in the profession and the longer they are at a certain school, the lower their perceptions of PLC. Possible explanations of these results could be found in the development of cynicism in teachers who have gone through various initiatives and become jaded as to the benefits and longevity of those. Experience could have clouded perceptions of older teachers, diminishing the often idealistic vision of those who are early in their careers.

Socioeconomic status (SES), defined as the proportion of students not receiving free or reduced lunch, was included as a control variable because it had already been established in
previous research as having a significant effect on student achievement. When analyzed in the regression model, SES was confirmed as being a strong predictor of student achievement ($r = .71, p < .01$).

**Discussion of Findings**

**Demographics.** Although demographic variables were not hypothesized, they were included in the descriptives and tested as part of the correlation analyses. With a combined percentage of 58.6, the majority of respondents had eleven or more years of total experience, indicating an experienced participant sample. In comparison, however, the vast majority (73.7%) of respondents had been at the schools surveyed for ten or fewer years, with 46.3% being there five years or fewer. This indicates that, although a majority of the teachers taking the surveys could be considered veteran teachers, most of them had been at their current schools for a relatively short period of time. This time period could have an impact on their perception of professional learning communities, especially if they have not had the opportunity to collaborate and get to know their colleagues. Being at the school for fewer years might not provide teachers the time to build faculty trust and efficacy.

In addition to experience, degrees earned played a factor in the demographics of the participants. More teachers had earned master’s degrees (57.7%) than any other degrees. With this degree level being considered as an advanced degree past the bachelor’s, the additional professional study could have contributed to teachers’ perceptions of PLC and academic optimism. There was a positive, significant correlation between highest degree and total years of experience ($r = .32, p < .05$), indicating that as teachers stay in the profession longer, they pursue at least one advanced degree, furthering their professional growth. It could be inferred that professional growth might allow for increased exposure to PLC knowledge and experience.
Data for gender and ethnicity were collected and tested. An overwhelming majority of respondents were female (70.7%). Compared with a study from the National Education Association (2010), this percentage is higher than the national average, which lists females as making up 57% of secondary school positions. Of the 628 respondents who identified race or ethnicity, the largest percentage (88.2%) were White. African-American respondents followed with 9.6%. These percentages reflect the national average, as reported again by the National Education Association study (2010), with 87% of teachers being White, and 7% African-American. Gender had no significant correlation with the research variables. Race or ethnicity was not included in correlation analyses with research variables.

Finally, although more middle schools (32) participated than high schools (27), there was a higher percentage of respondents from high school (53.1%) than from middle school (46.9%). T-tests that included level as a variable showed significant but small differences in the responses between the two levels, indicating that, although the mean differences were slight, there may be benefits from collaboration between middle school teachers and high school teachers through professional learning communities.

**Professional Learning Community.** Professional learning community (PLC) was involved in four of the hypotheses for this study, testing its correlation with academic optimism, differences in levels of perception between middle and high school teachers, correlation with student achievement, and joint impact with academic optimism on student achievement. PLC was found to have a positive, significant correlation with academic optimism ($r = .32, p < .05$). In addition, there was a statistically significant difference between the perceptions of middle school teachers and high school teachers on the level of PLC in their schools; however, when means were compared, the difference between the two was small, with the middle school mean...
at 3.77 and the high school mean at 3.49 on a 5-point scale, indicating only a slightly higher perception of PLC at the middle school level. One possibility of why middle school teachers had slightly higher perceptions of PLC than high school could be that high schools are more departmentalized and formally structured, and middle schools often group teachers by grade level teams with common planning time (Herriot & Firestone, 1984), which may more closely resemble a learning community.

Surprisingly, in both tests of bivariate correlation and regression, no direct relationship was identified between perceptions of PLC and student achievement. With the correlation between PLC and academic optimism and the relationship between academic optimism and student achievement, as well as on the few studies found in the literature, a relationship between perceptions of PLC and student achievement was expected. A number of factors could explain this finding. The understanding of respondents regarding what a PLC actually is could have had an impact on their responses. As Johnson (2009) proposed, the literature on PLCs shows an “inadequate understanding of schools as organizations,” and the failure to implement PLCs successfully is partly caused by “a superficial understanding held by enthusiasts of the fundamental character of schools as human service organizations” (p. 19). Although most descriptions of PLCs include certain characteristics, Stoll et al. (2006) noted that there is no universal definition of a PLC. Perceptions of what would be considered a PLC could affect respondents’ perceptions. That does not, however, mean that PLC has no relationship at all with student achievement. The impact of PLC on student learning may be less direct, with PLC serving as a moderator variable. The correlation of PLC and academic optimism, and the relationship of academic optimism with student achievement, undoubtedly indicate a need for
further research to determine if there is an indirect or direct relationship between PLC and student achievement.

Another effect on PLCs, untested in this study, is leadership. It is anticipated that, in a professional learning community, the more participative the leadership, the more empowered the principals and teachers will feel, and the more influence they will have on system direction and student achievement. Somech (2005b) corroborated the idea that participative leadership is positively related to innovation and empowerment.

Since there had not been previous research connecting perceptions of PLCs with academic optimism, this study filled a gap in the literature, indicating that professional learning communities may contribute to the increase in academic optimism and expanding the literature in that area. For the part of this study that tested the connection between perceptions of PLCs and student achievement, there was no support for what the literature had shown. Previous research showed a weak but positive relationship between perceptions of PLCs and student achievement; however, this study did not find a direct relationship between the two variables. Nevertheless, with the possibility of an indirect relationship through academic optimism, these findings can be added to the data to build a broader picture of how PLCs might have an impact on student achievement, whether directly or indirectly.

**Academic Optimism.** Several studies of academic optimism, originally described by Hoy et al. (2006), have determined that the construct has a positive and direct effect on student achievement. Although not originally included in the hypotheses, the positive relationship of academic optimism as a complete construct with student achievement in the area of reading achievement in secondary schools in this study ($r = .59, p < .01$) corroborated previous research findings (Goddard, Sweetland, & Hoy, 2000; Hoy et al., 2006; Hoy, Tarter & Kottkamp, 1991;
Lee & Bryk, 1989; Smith & Hoy, 2007). As the academic optimism of a school increases, student achievement increases.

The regression analysis, originally intended to test the joint effect of PLC and academic optimism on student achievement, showed that academic optimism had a positive, significant effect on student achievement ($\beta = .35, p < .01$). In addition, findings showed a positive, significant relationship of academic optimism with perceptions of PLCs ($r = .32, p < .05$). T-tests showed that there was a statistically significant difference between the level of academic optimism at middle school and high school ($r = .56, p < .05$) although, as with the level comparisons with PLC, when means were compared, the difference between the two was small, with the middle school mean at 3.77 and the high school mean at 3.56 on a 6-point scale, indicating only a slightly higher perception of academic optimism at the middle school level.

**Collective Efficacy.** Although not specifically separated in the hypotheses that drove this study, collective efficacy, as a subscale of academic optimism, was tested for its correlation with PLC and its relationship with student achievement. According to Goddard, Hoy, and Hoy (2000), collective teacher efficacy involves the perceptions of teachers that the efforts of the faculty as a whole will have a positive effect on students. It is a product of the “interactive dynamics of the group members” (p. 482). Bandura (1997) described collective efficacy as the shared belief of group members that their combined capabilities will enable them to “organize and execute” (p. 21) the necessary actions to meet their goals.

Most definitions of professional learning communities include a sense of mission, shared vision, and collaboration, which are similar to the characteristics of collective efficacy. This study found that there was a positive, significant correlation between CE and PLC ($r = .34; p < .01$). Louis and Kruse (1995) determined that professional community reinforces a collective
sense of efficacy. Rhyne (2012) found that when schools used common planning to design professional learning communities, teachers’ sense of efficacy and understanding of collaboration increased, contributing to more rigorous, successful classrooms with higher achieving students. This study, in addition to previous research, suggests that it would be valuable to consider the contribution of collective efficacy within a professional learning community.

As found with PLC and the complete construct of academic optimism, t-tests showed a statistically significant difference between the levels of collective efficacy at middle school and high school \((r = .50, p < .05)\) although, again, when means were compared, the difference between the two was small, with the middle school mean at 4.35 and the high school mean at 4.11 on a 6-point scale, indicating only a slightly higher perception of collective efficacy at the middle school level.

Several studies have connected collective efficacy with student achievement. Hoy, Sweetland, and Smith (2002) determined that collective efficacy was the key variable in explaining student achievement at the high school. Similarly, Goddard et al. (2000) found a relationship between student achievement in elementary schools and collective efficacy. When collective efficacy was included in a Pearson correlation with student achievement, it had a strong correlation \((r = .60, p < .01)\); however, when included in a regression, with student achievement being regressed on academic optimism and its three components, collective efficacy was not shown to be a predictor of achievement. It is possible that the inclusion of PLC, which was not shown to have a direct relationship with student achievement, affected the relationship of collective efficacy. The previous correlation with student achievement and the contribution to
the total construct of academic optimism indicate that collective efficacy plays a role in student achievement.

**Faculty Trust.** Also not part of the original hypotheses for the study, as a component of academic optimism, faculty trust was included in correlations, t-tests, and regressions. It was shown, through a Pearson correlation, to have a strong, positive correlation with student achievement \((r = .59, p < 01)\), as previously determined by Bryk and Schneider (2002) whose longitudinal field study of 400 Chicago elementary schools, which analyzed surveys of teachers, principals, and students, looked at trends in individual student reading and math achievement. In addition, they connected trust among teachers with trust in the school leadership, specifically the principal.

Surprisingly, however, faculty trust did not have a relationship with student achievement when tested as part of a regression analysis although, like collective efficacy, it can be argued that the correlation between faculty trust and student achievement, as well as its contribution to the total construct of academic optimism, does establish a relationship between faculty trust and student achievement. Although trust has been identified as an essential part of a professional learning community (Forsyth et al., 2011), when connected to PLC, faculty trust was the only subscale of academic optimism that did not have a positive, significant correlation with PLC \((r = .21)\), nor was there a statistically significant difference between middle and high school means. Faculty trust was the only component of academic optimism not to show that difference. In this case, there was apparently no difference between how middle school teachers and high school teachers trust their colleagues. These findings are contradictory to much of the previous research on trust. Further study would be suggested to explore possible reasons for that contradiction.
Academic Emphasis. There was a positive, significant correlation between academic emphasis and perceptions of PLCs ($r = .42; p < .01$). As found with PLCs and the complete construct of academic optimism, t-tests showed a statistically significant difference between the levels of collective efficacy at middle school and high school ($r = .44, p < .05$) although, again, when means were compared, the difference between the two was small, with the middle school mean at 2.94 and the high school mean at 2.76 on a 4-point scale, indicating only a slightly higher perception of academic emphasis at the middle school level.

Hoy, Tarter, and Kottkamp (1991) related academic emphasis to student achievement in high schools, and Goddard, Sweetland, and Hoy (2000) found similar results in their study of mathematics and reading achievement in elementary schools. When academic emphasis was correlated with student achievement using a Pearson correlation, this study confirmed the previous research. Academic emphasis had a moderate to strong correlation ($r = .47, p < .01$) with student achievement. As with collective efficacy and faculty trust, when student achievement was regressed on academic emphasis, the subscale component was not found to be significant in explaining achievement. Again, however, there was a positive, significant correlation in previous bivariate correlations, and academic emphasis does contribute to the total construct of academic optimism, which was a predictor of student achievement.

The findings of this study as they pertain to academic optimism generally confirm previous research which determined that academic optimism is a predictor of student achievement. When the three subscales of academic optimism were tested independently, however, there was no significant relationship between trust and student achievement in the regression analysis. Nevertheless, there was a correlation between the two, and the other subscales also confirmed prior research about academic optimism and student achievement.
As a result of the findings of this study, the initial model (Figure 1) needed to be modified. Figure 3 represents the model that reflects the relationship among the variables as determined by study results. Professional learning communities and academic optimism have a significant correlation between them. In addition, academic optimism and student achievement were found to be significantly related. The relationship between perceptions of PLCs and student achievement is most likely indirect. By increasing academic optimism as a result of the implementation of professional learning communities, school leaders may anticipate an improvement in student achievement resulting from the increase in academic optimism, thus creating an indirect relationship between perceptions of PLCs and student achievement as reflected in the new model (Figure 3).

![Figure 3. Relationships among perceptions of professional learning communities, academic optimism, and student achievement.](image)

**Study Limitations**

There were certain limitations of this study. First, because the population of the study was focused on schools only in the state of Alabama, and the sample was a convenience sample, results may not necessarily be generalized to other states or across the state of Alabama. In addition, although a relatively wide range of grade configurations was used, results may not be generalized to schools that do not fall within those configurations. This is a cross-sectional study; therefore, results may be limited as opposed to a study done using longitudinal data.
Another limitation to the study was that it used self-reported data from principals and teachers, which could not be independently verified. Responses were taken at face value as being honestly reported. Data relied on teachers’ and principals’ voluntary responses and perceptions of the variables, the fact of which needs to be included in the considerations of the instruments’ reliability and validity. There was an attempt to control for SES in this study, but other school variables that were not controlled for may have had an impact on respondents’ perceptions, as well.

The student achievement measure for this study was one section of a state-mandated standardized test. Although the state has determined this to be the measure of success of a school and the students of that school, there are many other methods of measuring achievement. Also, student achievement was taken at one point in time instead of longitudinally which does not enable the establishment of whether PLCs contribute to higher achievement over time or whether student achievement over time contributes to higher levels of PLC.

Finally, the measurements of trust reflected in the literature review and discussions of this study do not represent the entire field but that of a limited area in the field of organizational theory. If further study in trust were pursued, a broader and deeper review of the literature would be needed.

**Implications for Practice**

Results from this study confirm the previous research showing a positive, significant relationship between academic optimism and student achievement. Knowing that there is an impact on student achievement, school leaders may want to focus on those components that have been shown to make a difference.
In addition, the correlation between perceptions of PLCs and academic optimism provides further evidence of how learning communities that emphasize shared and supportive leadership, shared beliefs, values and vision, collective learning and application, shared personal practice, and supportive conditions may affect the components of academic optimism, which have been directly related to student achievement. Data suggest a possible indirect relationship between perceptions of PLCs and student achievement as a result of their mutual relationships with academic optimism. Fostering academic optimism and PLCs in schools could strengthen those characteristics of each that had been previously connected with achievement, as well as those correlations identified in this study.

T-Tests results, indicting slightly higher middle school scores than high school scores for PLC, academic optimism, and two of the AO components, imply that vertical teaming between middle and high schools might be beneficial. Perhaps such collaboration would improve understanding of what makes a PLC effective. In addition, it may promote professional discussions and group sharing and reflecting, enhancing teachers’ effectiveness as professionals.

Although no measure of leadership was included in this study, research into both professional learning communities and academic optimism connect those constructs with leadership. Harris and Willover (1998) determined that teachers’ perceptions about their principals’ optimism were related to their own perceptions about school effectiveness. McGuigan and Hoy (2006) examined the principal’s role in cultivating academic optimism in middle and high schools, determining that effective leaders facilitated the vital work on the school and created a culture of optimism.

Trust enables teacher buy-in and collaboration, which occurs more readily in schools with strong relational trust. Principal leadership plays a key role in developing and sustaining
trust, thus contributing to the academic optimism of the school. Smylie, Mayrowetz, Murphy, and Seashore Louis (2007) determined that principal leadership and the trust relationship between principal and teachers were especially important to distributed leadership development, which Johnson (2009) identified it as one possible characteristic defining a PLC. Although this study did not show a correlation between trust and PLCs, previous research established that trust is an essential component of PLC; therefore, it is expected that future research will document this effect.

Alig-Mielcarek and Hoy (2005) determined that academic emphasis of the school had the most impact on student achievement along with the influence of instructional leadership. A great deal of similarly important research has already confirmed that school leadership plays a key role in PLC success (Clausen, Aquino, & Wideman, 2009; Scribner, Cockrell, Cockrell, & Valentine, 1999; Thompson, Gregg, & Niska, 2004). Participative leadership is believed to empower and create “a climate of freedom in the organization” (Gill, 2006, p. 216).

School leaders may use this study, as well as previous research, to building professional learning communities in order to increase academic optimism, which in turn may improve student achievement. Through PLCs, school leaders may enable more collaborative and collegial communities of teachers, providing motivation for making better curricular and pedagogical decisions to improve student learning (Supovitz, 2002). Numerous strategies might be employed to develop what Gronn (2003) called “communities of practice” (p. 433). One of the first steps for principals is to embrace a leadership style that empowers teachers and enables collaboration, which is the most important part of distributive education, since it is based on a collective undertaking toward change (Harris, 2004). As Burns (1978) noted, when both the leader and the
followers raise each other’s motivation and sense of higher purpose, leadership is more productive.

Another step principals may take toward a learning community is through teacher and staff capacity and relationships. To nurture human capacities, principals may use social activities to help staff get to know each other on a personal level and to create a caring environment (Hord & Sommers, 2007). In addition, effective principals may sustain high levels of capacity by creating structures that promote teacher learning (Youngs & King, 2002). This includes modeling in which teachers promote academic optimism and contribute to the organizational culture of the school.

Specific actions that principals may take for creating an environment that supports professional learning communities include providing time for staffs to meet embedded within the instructional day, as well as early releases for professional development. Boyd (1992) and Louis and Kruse (1995) suggested that a variety of factors should be present, including schedules that reduce isolation, policies that provide greater autonomy and foster collaboration and communication, time to meet and talk, interdependent teaching roles, and teacher empowerment. Teachers learn by observing other teachers. In turn, schools and systems learn by observing other schools and systems (Huber, 1996).

With the emerging evidence connecting professional learning communities to the components of academic optimism, school leaders may use PLCs to improve the collective efficacy of their staff and increase the academic emphasis, leading to collaboration, unity of vision, and a more focused approach to meeting their goals. The ultimate result may be increased student achievement.
Recommendations for Further Research

Although not all of the hypotheses were supported in this study, results provided confirmation of prior research results as well as evidence to support new relationships. As already shown in various research, including that of Hoy et al. (2006) and Smith and Hoy (2007), academic optimism has a positive, significant relationship with student achievement. This study corroborates those findings and adds data from middle schools to that already established from elementary and high school levels.

Another contribution of this study to the research literature is the evidence of a correlation between perceptions of PLCs and academic optimism. Since academic optimism has been shown to improve student achievement, a direct relationship between that construct and PLCs could suggest a method by which academic optimism can be increased. Developing a professional learning community may be a viable strategy for increasing academic optimism.

Although this study was focused on quantitative methodology for determining relationships among professional learning communities, academic optimism, and student achievement, there were additional possibilities for research that developed during the course of the study that could add to the previously established research as well as the findings of this study.

First, by adding a qualitative aspect to the research, including interview and focus groups, there could be a discussion of more depth into the understanding of PLCs. This might enable researchers to clarify how teachers perceive their participation in a PLC and perhaps explain the lack of correlation from this study between PLCs and student achievement.

Second, the inclusion of a leadership measure into the comparisons might look at the impact the principal and/or teacher leaders have on perceptions of PLCs. There has been research
into PLCs and leadership to improve climate, as well as studies of academic optimism and leadership. By combining PLCs, academic optimism, and leadership, researchers can expand the influences and open up a broader field of study for impact on student achievement.

Since there are other methods of measuring student learning other than standardized tests, further studies should include a broader range of achievement measures, such as ACT scores, graduation rate, and the number of students enrolling in post-secondary institutions, as well as cultural measures like discipline referrals and extracurricular participation. Also, student achievement data collected over time, instead of through a simple cross-sectional collection, may enable researchers to determine the long-term effects of PLCs on achievement.

Because of the unexpected lack of correlation between trust and almost all of the other variables, future studies might extend the research review to consider more in-depth research that stretches across a wider portion of the field of study. In addition, there could be further investigation into the findings of this study in regard to trust and possible causes of the lack of correlations, which conflicted with some previous studies.

Finally, a study exploring the indirect relationship between perceptions of PLCs and student achievement, based on the PLC-academic optimism correlation and the academic optimism-student achievement relationship, would be helpful in further confirming or possibly rejecting the unsupported fourth hypothesis in this study. In addition, a path analysis using the components of PLCs as determined by the subscales of the SPSLCQ could further explore correlations with student achievement and other variables.

**Summary**

Four hundred years after Donne penned his famous meditation, interaction and collaboration remain essential to human relationships and success. Both prior research and this study have found that professional learning communities may promote that interaction and
collaboration. Extensive research in several of the variables supporting this study, as well as relatively new research in some of the constructs created from these variables, contributed to this research design. Although not all hypotheses were supported, findings both confirmed and expanded prior research. There is a significant relationship between perceptions of professional learning communities and academic optimism; therefore, developing and expanding PLCs may increase the level of academic optimism in schools. With the previously-established relationship between academic optimism and student achievement, which was further confirmed with this study, an indirect connection between perceptions of PLCs and student achievement may exist. Considering the significant correlation between PLCs and academic optimism, and the relationship between academic optimism and student achievement, school leaders and researchers may look to the development of PLCs for greater collaboration that can increase academic optimism, which in turn may improve student achievement.
REFERENCES

Alabama Department of Education. (2010-2011). Accountability Documents and Reports. (http://www.alsde.edu/Accountability/Accountability.asp)


Boyd, V. (1992). School context: Bridge or barrier to change? Austin, TX: Southwest Educational Development Laboratory.


Clausen, K.W., Aquino, A., & Wideman, R. (2009). Bridging the real and ideal: a comparison between learning community characteristics and a school-based case study. Teaching and Teacher Education, 25, 444-452


Hord, S. M. (1996). *School professional staff as learning community questionnaire*. Austin, TX: Southwest Educational Development Laboratory.


APPENDIX A

SUPERINTENDENT REQUEST LETTER
Dear [Superintendent’s Name],

My name is Amanda Cassity, and I am Director of Secondary Instruction for the Tuscaloosa County School System. Having completed all requirements for doctoral course work in Educational Administration at The University of Alabama, I am in the dissertation stage and seeking assistance from Alabama public middle and high schools to complete my research.

The focus of my research will be on the relationship among professional learning communities, the construct of academic optimism, and student achievement in public secondary schools. This study involves surveys given to principals and teachers from public middle, and high schools measuring their perceptions of the degree of school academic optimism and their perceptions of the level of professional learning community implementation.

Professional Learning Community is defined as group of people that have shared beliefs, values, and vision, shared and supportive leadership, collective learning, supportive conditions, and shared personal practices. Academic optimism consists of three components: collective efficacy, academic emphasis, and faculty trust. Collective efficacy is defined as the judgment of teachers on how the faculty as a group organizes and carries out plans to have a positive impact on students. Academic emphasis is defined by high academic goals, orderly learning environment, and student respect for academic achievement. Finally, faculty trust indicates how much the faculty feels that students and parents are acting in their best interest. Studies have found that academic optimism is a school characteristic that predicts student achievement.

By measuring the correlation between the level of professional learning communities in schools and the level of academic optimism, school leaders can identify strategies to increase academic optimism, which has been linked to increases in student achievement.

Data collection is to be completed in spring of 2012 and involves staff members in middle and high schools completing two different surveys administered online. Copies of the survey instruments are enclosed. The process should take approximately 15 minutes. Participation would be strictly voluntary, and results specific to individuals or specific schools would be confidential. Schools selected from your school district include [schools identified]. I will be happy to share results obtained from my overall findings, which could be valuable to your system and schools as comparative data to indicate levels of collaboration, empowerment, trust, efficacy, and academic emphasis.

I respectfully request permission to contact the principal(s) at the aforementioned school(s) about surveying staff members for this research effort. Each school principal may accept or decline the opportunity for teachers at their school to participate. The principal will also be asked to complete an online consent form and survey. I hope you will grant me permission to contact principals of the sample schools in your district about participating in this study.
If there is anything about this study or your participation that is unclear or that you do not understand, or if you have questions or wish to report a research related problem, you may contact Amanda Cassity at 205-342-2899 or ahcassity@crimson.ua.edu. If you have questions about your rights as a person taking part in a research study, make suggestions or file complaints and concerns, you may call Ms. Tanta Myles, the Research Compliance Officer of the University at (205)-348-8461 or toll-free at 1-877-820-3066. You may also ask questions, make suggestions, or file complaints and concerns through the IRB Outreach Website at http://osp.ua.edu/site/PRCO_Welcome.html. You may email us at participantoutreach@bama.ua.edu.

I am extremely appreciative of your assistance and look forward to hearing from you.

Sincerely,

Amanda H. Cassity  
Doctoral Candidate  
Educational Leadership, Policy, and Technology Studies  
ahcassity@crimson.ua.edu  
The University of Alabama

Enclosures:  
Samples of surveys to be administered  
IRB Approval
APPENDIX B

PRINCIPAL REQUEST LETTER
Dear (Principal’s Name),

My name is Amanda Cassity, and I am Director of Secondary Instruction for the Tuscaloosa County School System. Having completed all requirements for doctoral course work in Educational Administration at The University of Alabama, I am in the dissertation stage and seeking assistance from Alabama public middle and high schools to complete my research.

The focus of my research will be on the relationship among professional learning communities, the construct of academic optimism, and student achievement in public secondary schools. This study involves surveys given to principals and teachers from public middle and high schools measuring their perceptions of the degree of school academic optimism and their perceptions of the level of professional learning community implementation.

Professional Learning Community is defined as group of people that have shared beliefs, values, and vision, shared and supportive leadership, collective learning, supportive conditions, and shared personal practices. Academic optimism consists of three components: collective efficacy, academic emphasis, and faculty trust. Collective efficacy is defined as the judgment of teachers on how the faculty as a group organizes and carries out plans to have a positive impact on students. Academic emphasis is defined by high academic goals, orderly learning environment, and student respect for academic achievement. Finally, faculty trust indicates how much the faculty feels that students and parents are acting in their best interest. Studies have found that academic optimism is a school characteristic that predicts student achievement.

By measuring the correlation between the level of professional learning communities in schools and the level of academic optimism, school leaders can identify strategies to increase academic optimism, which has been linked to increases in student achievement. It follows that professional learning communities might also correlate with achievement, and that fostering learning communities and increasing academic optimism could improve achievement.

If you choose to allow your teachers to participate, a link for the surveys will be emailed to you to share with them, or, if you prefer, I will deliver hard copies to be administered during a faculty meeting and then pick them up at your convenience. The process should take approximately 15 minutes. Participation is strictly voluntary, and results specific to individuals or specific schools are confidential.

Your school superintendent has given me permission to contact you about the possibility of your school participating in this study. I am respectfully requesting for your assistance in helping me complete this research. Your school’s input is vital to the success of this research project.
If there is anything about this study or your participation that is unclear or that you do not understand, or if you have questions or wish to report a research related problem, you may contact Amanda Cassity at 205-342-2899 or ahcassity@crimson.ua.edu. If you have questions about your rights as a person taking part in a research study, make suggestions or file complaints and concerns, you may call Ms. Tanta Myles, the Research Compliance Officer of the University at (205)-348-8461 or toll-free at 1-877-820-3066. You may also ask questions, make suggestions, or file complaints and concerns through the IRB Outreach Website at http://osp.ua.edu/site/PRCO_Welcome.html. You may email us at participantoutreach@bama.ua.edu.

I am extremely appreciative of your assistance and look forward to hearing from you.

Sincerely,

Amanda H. Cassity
Doctoral Candidate
Educational Leadership, Policy, and Technology Studies
ahcassity@crimson.ua.edu
The University of Alabama
APPENDIX C

PARTICIPANT INFORMED CONSENT LETTER
Dear Colleague:

My name is Amanda Cassity, and I am Director of Secondary Instruction for the Tuscaloosa County School System. Having completed all requirements for doctoral coursework in Educational Administration at The University of Alabama, I am in the dissertation stage and seeking assistance from Alabama public middle and high schools to complete my research.

As the principal investigator from the University of Alabama, I am conducting a research study called Relationships among Professional Learning Communities, School Academic Optimism, and Student Achievement in Alabama Middle and High Schools. I want to find out if there are relationships among professional learning communities (PLCs), the level of academic optimism, and student achievement in public secondary schools in order to help school leaders identify variables that can improve achievement.

Taking part in this study involves completing a web survey that will take about 15 minutes. This survey contains questions about professional learning communities and academic optimism.

We will protect your confidentiality by using QualtricsTM online software program. The survey is anonymous, and you will not be asked for your name or any personally identifiable information. Only Daisy Arredondo Rucinski and I will have access to the data. The data are password protected via QualtricsTM. Only summarized data will be presented at meetings or in publications.

Although there will be no direct benefits to you, the findings will be useful to school leaders and educational researchers for determining methods of improving professional learning community implementation, school academic optimism and student achievement.

The chief risk is that you may be hesitant to respond to some questions. You may skip any questions you do not want to answer. Please do not include your name or any identifying information on the survey.

If you have questions about this study, please contact me at 205-342-2899 or by email at ahcassity@crimson.ua.edu. If you have questions about your rights as a research participant contact Tanta Myles, the Research Compliance Officer of the University at (205) 348-8461 or toll free number: 1-877-820-3066. You may also ask questions, make a suggestion, or file complaints and concerns through the IRB Outreach website at http://osp.ua.edu/site/PRCO_Welcome.html. After you participate, you are encouraged to complete the survey for research participants, which is online there, or you may ask me for a copy of it. You may also email IRB Outreach at participantoutreacher@bama.ua.edu.

YOUR PARTICIPATION IS COMPLETELY VOLUNTARY. You are free not to participate or stop participating any time before you submit your answers.

If you understand the statements above, are at least 19 years old, and freely consent to be in this study, please click on the I CONSENT button to begin.
I am extremely appreciative of your assistance and look forward to hearing from you.

Sincerely,

Amanda H. Cassity
Doctoral Candidate
The University of Alabama
APPENDIX D

PERMISSION TO USE THE SCHOOL PROFESSIONAL STAFF AS LEARNING COMMUNITY QUESTIONNAIRE (SPSLCQ)
SEDL License Agreement

To: Amanda Cassity (Licensee)
6 Forest Lake Drive
Tuscaloosa, AL 35401

From: Nancy Reynolds
Information Associate
SEDL
Information Resource Center—Copyright Permissions
4700 Mueller Blvd.
Austin, TX 78723

Subject: License Agreement to reprint and distribute SEDL materials

Date: March 8, 2011

Thank you for your interest in using SEDL’s School Professional Staff as Learning Community Questionnaire (SPSLCQ) developed by Shirley Hord in 1996. This questionnaire will be referred to as the “work” in this License Agreement.

SEDL is pleased to grant permission to the Licensee to copy and distribute the work at approximately 70 middle and high schools in Alabama and, as a PhD candidate at The University of Alabama, to include the work in her dissertation titled The Relationship Between Professional Learning Communities and School Academic. The following are the terms, conditions, and limitations governing this limited permission to reproduce the work:

1. All reprinting and distribution activities shall be in the medium in which the work has been made available for your use, i.e., PDF document, or can be converted to an online version that can be accessed only by participants in a password protected environment and shall be solely for educational, non-profit use only. Precise compliance with the following terms and conditions shall be required for any permitted reproduction of the work described above.

2. No adaptations, deletions, or changes will be made in the material, with the exception of converting the SPSLCQ into an electronic format, nor shall any derivative work based on or incorporating the work be created, without the prior written consent of SEDL. If the Licensee wants to add any additional questions, they must be clearly differentiated and numbered separately.

3. This permission is non-exclusive, non-transferable, and limited to the one-time use specified herein. This permission is granted solely for the period March 8, 2011 through December 31, 2012, inclusive. SEDL expressly reserves all rights in this material.

Voice: 888-476-6861
Fax: 512-476-2296
www.sedl.org
4700 Mueller Blvd., Austin, TX 78723
1. You must give appropriate credit: "Reprinted by Amanda Cassilly with permission of SEDL," or attribute SEDL as appropriate to the professional style guidelines you are following. All reproductions of the material used by you shall also bear the copyright statement which appears on the work.

2. An exact copy of any reproduction of the work you produce shall be promptly provided to SEDL. All copies of the work produced by you which are not distributed or used shall be destroyed or sent to SEDL, save and except a maximum of three archival copies you are permitted to keep in permanent records of the activity you conducted.

3. This License Agreement to reproduce the work is limited to the terms hereof and is personal to the person and entity to whom it has been granted; and it may not be assigned, given, or transferred to any other person or entity.

4. SEDL is not charging the Licensee a copyright fee to use the work.

I'm e-mailing you a PDF of this License Agreement. Please print and sign one copy below, indicating that you understand and agree to comply with the above terms, conditions and limitations, and send the original back to me. If you wish to keep a copy with original signatures, please print a second copy, and also sign and return it to me and, after I receive and sign it, I'll return it with both of our signatures to you.

Thank you, again, for your interest in SEDL's School Professional Staff as Learning Community Questionnaire. If you have questions about SEDL's License Agreement, please contact me at 800-476-8881, ext. 6548 or 512-391-6548, or by e-mail at nancy.reynolds@sedl.org.

Nancy Reynolds for SEDL

Agreed and accepted:

Signature: ____________________________

Printed Name: ____________________________

Date signed: ____________________________
APPENDIX E

SCHOOL PROFESSIONAL STAFF AS LEARNING COMMUNITY QUESTIONNAIRE

(SPSLCQ)
School Professional Staff as Learning Community Questionnaire

_Directions:_ This questionnaire concerns your perceptions about your school staff as a learning organization. There are no right or wrong responses. Please consider where you believe your school is in the development of each of the five numbered descriptors shown in bold-faced 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.

1. School administrators participate democratically with teachers: sharing power, authority, and decision making.
   - 5
   - 4
   - 3
   - 2
   - 1
   - Although there are some legal and fiscal decisions required of the principal, school administrators consistently involve the staff in discussing and making decisions about school issues.
   - Administrators invite advice and counsel from staff and then make decisions themselves.
   - Administrators never share information with the staff nor provide opportunities to be involved in decision making.

2. The staff shares visions for school improvement that have an undeviating focus on student learning, and these visions are consistently referenced in the staff’s work.
   - 5
   - 4
   - 3
   - 2
   - 1
   - Visions for improvement are discussed by the entire staff such that consensus and a shared vision result.
   - Visions for improvement are not thoroughly explored; some staff members agree and others do not.
   - Visions for improvement held by the staff members are widely divergent.

3. Visions for improvement are always focused on students, teaching, and learning.
   - 5
   - 4
   - 3
   - 2
   - 1
   - Visions for improvement are sometimes focused on students, teaching, and learning.
   - Visions for improvement do not target students, teaching, and learning.

4. Visions for improvement target high-quality learning experiences for all students.
   - 5
   - 4
   - 3
   - 2
   - 1
   - Visions for improvement address quality learning experiences in terms of students’ abilities.
   - Visions for improvement do not include concerns about the quality of learning experiences.

---

Copyright © 1996 by Southwest Educational Development Laboratory.
3. The staff's collective learning and application of the learnings (taking action) create high intellectual learning tasks and solutions to address student needs.

3a. The entire staff meet to discuss issues, share information, and learn with and from one another.

3b. The staff meet regularly and frequently on substantive student-centered educational issues.

3c. The staff discuss the quality of their teaching and students' learning.

3d. The staff, based on their learnings, make and implement plans that address students' needs, more effective teaching, and more successful student learning.

3e. The staff debrief and assess the impact of their actions and make revisions.

4. Peers review and give feedback based on observing one another's classroom behavior in order to increase individual and organizational capacity.

4a. Staff members regularly and frequently visit and observe one another's classroom teaching.

4b. Staff members provide feedback to one another about teaching and learning based on their classroom observations.
5. School conditions and capacities support the staff’s arrangement as a professional learning organization.

5a. 1 4 3 2 1
Time is arranged and committed for whole staff interactions.
Time is arranged but frequently the staff fail to meet.
Staff cannot arrange time for interacting.

5b. 5 4 3 2 1
The size, structure, and arrangements of the school facilitate staff proximity and interaction.
Considering the size, structure, and arrangements of the school, the staff are working to maximize interaction.
The staff take no action to manage the facility and personnel for interaction.

5c. 1 4 3 2 1
A variety of processes and procedures are used to encourage staff communication.
A single communication method exists and is sometimes used to share information.
Communication devices are not given attention.

5d. 5 4 3 2 1
Trust and openness characterize all of the staff members.
Some of the staff members are trusting and open.
Trust and openness do not exist among the staff members.

5e. 5 4 3 2 1
Caring, collaborative, and productive relationships exist among all staff members.
Caring and collaboration are inconsistently demonstrated among the staff members.
Staff members are isolated and work alone at their task.


Available by permission from:
SEDL
Information Resource Center-Copyright Permissions
4700 Musaller Blvd.
Austin, TX 78723
www.sedl.org/about/copyright_request.html

Copyright © 1996 by Southwest Educational Development Laboratory.
# SAOS

**Directions:** Please indicate your degree of with each of the statements about your school from strongly disagree to strongly agree. Your answers are confidential.

<table>
<thead>
<tr>
<th></th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Somewhat Disagree</th>
<th>Agree</th>
<th>Somewhat Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Directions:** Please indicate the degree to which the following statements characterize your school from Rarely Occurs to Very Often Occurs. Your answers are confidential.

<table>
<thead>
<tr>
<th></th>
<th>Rarely</th>
<th>Somewhat</th>
<th>Often</th>
<th>Very Often</th>
</tr>
</thead>
<tbody>
<tr>
<td>23.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>24.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>26.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>27.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>28.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>29.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*(Copyright © Hoy 2005)*
Please check the following information regarding your demographics:

1. What is your total number of years’ experience?
   - □ 0-5 years
   - □ 6-10 years
   - □ 11-15 years
   - □ 16-20 years
   - □ 20 or more years

2. How many years have you worked in this school?
   - □ 0-5 years
   - □ 6-10 years
   - □ 11-15 years
   - □ 16-20 years
   - □ 20 or more years

3. What is your gender?
   - □ Male
   - □ Female

4. What is your ethnicity?
   - □ African American
   - □ Asian
   - □ Hispanic
   - □ Native American
   - □ White
   - □ Other

5. What is your highest degree earned?
   - □ Bachelors
   - □ Masters
   - □ Education Specialist
   - □ Ed.D. or Ph.D.

Thank you so much for taking the time to participate!
APPENDIX H

LIST OF SCHOOLS PARTICIPATING IN THE RESEARCH
<table>
<thead>
<tr>
<th>Aliceville High School</th>
<th>Hueytown High School</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aliceville Middle School</td>
<td>Irondale Middle School</td>
</tr>
<tr>
<td>Beverlye Middle School</td>
<td>Leeds Middle School</td>
</tr>
<tr>
<td>Brooks High School</td>
<td>Liberty Middle School</td>
</tr>
<tr>
<td>Brookwood High School</td>
<td>Montevallo High School</td>
</tr>
<tr>
<td>Brookwood Middle School</td>
<td>Moody Junior High School</td>
</tr>
<tr>
<td>Central High School - Lauderdale County</td>
<td>Northridge High School</td>
</tr>
<tr>
<td>Central High School - Tuscaloosa City</td>
<td>Northside High School</td>
</tr>
<tr>
<td>Chelsea Middle School</td>
<td>Northside Middle School</td>
</tr>
<tr>
<td>Choctaw County High School</td>
<td>Paul W. Bryant High School</td>
</tr>
<tr>
<td>Collins-Riverside Middle School</td>
<td>Pelham High School</td>
</tr>
<tr>
<td>Columbiana Middle School</td>
<td>Rainbow Middle School</td>
</tr>
<tr>
<td>Cullman High School</td>
<td>Riverchase Middle School</td>
</tr>
<tr>
<td>Davis-Emerson Middle School</td>
<td>Rock Quarry Middle School</td>
</tr>
<tr>
<td>Discovery Middle School</td>
<td>Russellville High School</td>
</tr>
<tr>
<td>Duncanville Middle School</td>
<td>Russellville Middle School</td>
</tr>
<tr>
<td>Eastwood Middle School</td>
<td>Shades Valley High School</td>
</tr>
<tr>
<td>Echols Middle School</td>
<td>Sipsey Valley High School</td>
</tr>
<tr>
<td>Fairview High School</td>
<td>Sipsey Valley Middle School</td>
</tr>
<tr>
<td>Fayette County High School</td>
<td>Southview Middle School</td>
</tr>
<tr>
<td>Fayette County Middle School</td>
<td>Thompson Middle School</td>
</tr>
<tr>
<td>Gardendale High School</td>
<td>Tuscaloosa County High School</td>
</tr>
<tr>
<td>Glencoe Middle School</td>
<td>Tuscaloosa Magnet Middle School</td>
</tr>
<tr>
<td>Hanceville High School</td>
<td>University Place Middle School</td>
</tr>
<tr>
<td>Hewitt-Trussville High School</td>
<td>Vinemont High School</td>
</tr>
<tr>
<td>Hillcrest High School</td>
<td>West Morgan Middle School</td>
</tr>
<tr>
<td>Hillcrest Middle School</td>
<td>West Point High School</td>
</tr>
<tr>
<td>Hokes Bluff Middle School</td>
<td>Westlawn Middle School</td>
</tr>
<tr>
<td>Holly Pond Middle School</td>
<td>Winfield High School</td>
</tr>
<tr>
<td>Holt High School</td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX I

IRB APPROVAL
December 9, 2011

Amanda Cassity
ELPTS
College of Education
Box 870302

Re: IRB # 11-OR-357, "Relationships among Professional Learning Communities, School Academic Optimism, and Student Achievement in Alabama Middle and High Schools"

Dear Ms. Cassity:

The University of Alabama Institutional Review Board has granted approval for your proposed research.

Your application has been given expedited approval according to 45 CFR part 46. Approval has been given under expedited review category 7 as outlined below:

(7) Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies.

Your application will expire on December 8, 2012. If the study continues beyond that date, you must complete the IRB Renewal Application. If you modify the application, please complete the Modification of an Approved Protocol form. Changes in this study cannot be initiated without IRB approval, except when necessary to eliminate apparent immediate hazards to participants. When the study closes, please complete the Request for Study Closure form.

Should you need to submit any further correspondence regarding this application, please include the assigned IRB application number.

Good luck with your research.

Sincerely,

[Signature]

Carpentaro T. Myles, MSM, CIM
Director & Research Compliance Officer
Office for Research Compliance
The University of Alabama
UNIVERSITY OF ALABAMA
INSTITUTIONAL REVIEW BOARD FOR THE PROTECTION OF HUMAN SUBJECTS
REQUEST FOR APPROVAL OF RESEARCH INVOLVING HUMAN SUBJECTS

I. Identifying information

Principal Investigator: Amanda Cassity
Second Investigator: Daisy Arredondo-Rucinski
Third Investigator:

Department: ELPTS
College: Education
University: The University of Alabama
Address: 10689 Mallard Lake Lane, Cottondale, AL 35453
Telephone: 205-792-0783
FAX: 205-342-2875
E-mail: ahcassity@crimson.ua.edu

Department: ELPTS
College: Education
University: The University of Alabama
Address: P.O. Box 870302, Tuscaloosa, AL 35487
Telephone: 205-348-7826
FAX: 205-348-2161
E-mail: darredo@bamaed.ua.edu

Title of Research Project:
"Relationships among Professional Learning Communities, School Academic Optimism, and Student Achievement in Alabama Middle and High Schools"

Date Submitted: 10/17/11
Funding Source: N/A

Type of Proposal: ☒ New □ Revision □ Renewal □ Completed □ Exempt

Please attach a renewal application
Please enter the original IRB # at the top of the page

UA faculty or staff member signature:

II. NOTIFICATION OF IRB ACTION (to be completed by IRB):
Type of Review: ☒ Full board □ Expedited

IRB Action:
☒ Approved-this proposal complies with University and federal regulations for the protection of human subjects.

Approval is effective until the following date: 12/8/12

Items approved: ☒ Research protocol (dated 12/9/11)
☒ Informed consent (dated 12/9/11)

Approval signature: ____________________________ Date: 12/9/2011
AAHRPP Document # 119

THE UNIVERSITY OF ALABAMA
HUMAN RESEARCH PROTECTIONS PROGRAM

Informed Consent for Dissertation Research using Web Surveys

Dear Colleague:

Amanda H. Cassity, principal investigator from the University of Alabama, is conducting a research study called Relationships among Professional Learning Communities, School Academic Optimism, and Student Achievement in Alabama Middle and High Schools. She wishes to find out if there are relationships among professional learning communities (PLCs), the level of academic optimism, and student achievement in public secondary schools in order to help school leaders identify variables that can improve achievement.

Taking part in this study involves completing a web survey that will take about 15 minutes. This survey contains questions about professional learning communities and academic optimism.

We will protect your confidentiality by using Qualtrics™ online software program. The survey is anonymous, and you will not be asked for your name or any personally identifiable information. Only Amanda Cassity and Dr. Daisy Arredondo-Rucinski will have access to the data. The data are password protected via Qualtrics™. Only summarized data will be presented at meetings or in publications.

Although there will be no direct benefits to you, the findings will be useful to school leaders and educational researchers for determining methods of improving professional learning community implementation, school academic optimism and student achievement.

The chief risk is that you may be hesitant to respond to some question. You may skip any questions you do not want to answer. Please do not include your name or any identifying information on the survey.

If you have questions about this study, please contact Amanda Cassity at 205-342-2899 or by email at ahcassity@crimson.ua.edu. If you have questions about your rights as a research participant contact Tanta Myles, the Research Compliance Officer of the University at (205) 348-8461 or toll free number: 1-877-820-3066. You may also ask questions, make a suggestion, or file complaints and concerns through the IRB Outreach website at http://osp.ua.edu/site/PRCO_Welcome.html. After you participate, you are encouraged to complete the survey for research participants, which is online there, or you may ask Amanda Cassity for a copy of it. You may also email us at participantoutreacher@bama.ua.edu.

YOUR PARTICIPATION IS COMPLETELY VOLUNTARY. You are free not to participate or stop participating any time before you submit your answers.

If you understand the statements above, are at least 19 years old, and freely consent to be in this study, please click on the I CONSENT button to begin.