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The Relationship between Secondary Schools' PLC Characteristics and Literacy Achievement

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THE RELATIONSHIP BETWEEN SECONDARY SCHOOLS' PLC
CHARACTERISTICS AND LITERACY ACHIEVEMENT

by

JENNIFER C. TOPPER

(Under the Direction of Jason LaFrance)

ABSTRACT

This quantitative, non-experimental, correlational study examined the relationship between secondary school staff perceptions of their school's effectiveness and the change in student literacy over a one year period. The staff perception data was elicited through an anonymous, electronically administered survey, the SEDL's School Professional Staff as Learning Community Questionnaire (SPSLCQ) (Hord, 1996). Perceptions were gathered and measured based on the responses to descriptors in the five PLC domains of shared and supportive leadership; shared vision and values; collective learning and application of learning; supportive conditions; and shared personal practice. The populations whose perceptions were measured were the staffs of middle and high schools in a large, urban school district in the south-central region of the United States. The staff perceptions of each responding school were correlated with that school's change in student literacy data, as measured by normalized gain score representative of the difference in the percentage of the first-time tester student cohort who achieved the 2016 passing standard on the Grade 8 Reading exam (sixth-eighth grade schools) and the 2016 passing standard on the English 2 EOC exam (sixth-12th grade schools and ninth- 12th grade schools) in spring 2015 and in spring 2016.

This study was grounded conceptually in the five components of a school operating as a PLC, as defined by Hord (1996, 2004) and expounded upon by Hipp and Huffman (2003). The angle of this research was based theoretically in the principal-agent theory (Bannock, Baxter, & Davis, 1992; Barney & Hesterly, 1996) and distributive leadership theory (McLaughlin & Talbert, 2007).

The purpose of the study was to determine how the relationships between the perception data of the staff as a whole and of the distinct groups of administrators and teachers within a secondary school were correlated with changes in student literacy, and how differences in the perception data between the two distinct groups were correlated with changes in student literacy. This study contributes to the existing body of research by providing correlational data on which components of a PLC are the most highly correlated with changes in adolescent literacy in an urban school district in America.

INDEX WORDS: Adolescent literacy, Professional Learning Community, SPSLCQ, Comparative growth, staff perceptions

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TABLE OF CONTENTS

ACKNOWLEDGEMENTS	2
LIST OF TABLES	7
CHAPTER	
1 INTRODUCTION	8
Background.....	10
The Need to Improve Student Literacy at the Secondary School Level ..	10
The Impact of PLCs on Student Achievement.....	11
Factors that Limit the Impact of PLCs on Student Achievement	12
The Role of School Leadership in Effective PLC Implementation.....	13
Research Design	14
Theoretical Framework.....	14
Conceptual Framework.....	16
Problem Statement.....	17
Purpose of the Study	18
Research Questions.....	19
Significance of the Study	22
Limitations	23
Delimitations.....	24
Assumptions.....	25

Organization of the Study	26
Definition of Terms	27
2 REVIEW OF RELEVANT LITERATURE AND RESEARCH	30
Challenge of Adolescent Literacy in the United States.....	31
Approaches to Impact Adolescent Literacy Levels.....	32
Theoretical Basis for Correlating PLC Characteristics with Literacy Levels.....	34
Principal-Agent Theory	34
Distributed Leadership Theory	35
Professional Learning Communities	37
Characteristics Inherent to Effective Professional Learning Communities	38
Processes Used to Build Sustainable Professional Learning Communities	41
Utilization of Professional Learning Communities to Increase Student Achievement	43
Impact of PLCs on Student Achievement.....	45
Gap in Research on Utilizing PLCs to Impact Student Achievement	47
Conclusions	48
3 METHODOLOGY.....	50
Research Design.....	50
Population and Sample.....	52
Instrumentation.....	53

Reliability	53
Validity	54
Data Collection.....	56
Data Analysis	57
Variables of Interest	58
Independent variables.....	58
Dependent variables	59
Data Analysis Procedures.....	62
4 DATA ANALYSIS	66
Response Rate	67
Demographic Data.....	68
Summary of the Findings for Research Questions	69
Summary of the Findings for Research Question One	69
Summary of the Findings for Research Question Two.	71
Summary of the Findings for Research Question Three	74
Summary of the Findings for Research Question Four.....	75
Summary of the Patterns that Emerged in the Findings	78
5 SUMMARY, CONCLUSIONS, DISCUSSION, AND RECOMMENDATIONS	80
Purpose of the Study.....	80

Literature Review	81
Methodology	83
Findings	86
Conclusions	88
Discussion	90
Recommendations	92
Recommendations for Practice.....	92
Recommendations for Further Study	92
REFERENCES.....	94
APPENDICES.....	104
A: Survey Instrument	104
B: Cover Letter/Informed Consent.....	108
C: Follow up Email for Administrators and Teachers.....	110
D: Student Cohort and Staff Demographics.....	111
E: Licensing Agreement to Use SEDL Instrument	112

LIST OF TABLES

	Page
1. District Istation results September 2015.....	57
2. Correlations between PLC ratings and achievement change	60
3. Summary of “small” correlations	66

CHAPTER 1

INTRODUCTION

The gap between the literacy requirements of college and careers and the reading levels of American adolescents is a major concern for the United States of America. The Alliance for Excellent Education (2015) released a report and recommendations concerning the reading levels of middle and high school students across the country based the National Assessment of Educational Progress (NAEP).

NAEP results reveal that almost half of students of color and students from low-income families enter fifth grade with skills below the basic level on NAEP. These outcomes mean that millions of young people lack the rudimentary reading skills to locate relevant information, make simple inferences, or use details from text to support a conclusion. In urban areas, only an estimated 20 percent of students are reading at grade level and prepared to master high school level content.

Multiple national studies convey the far reaching consequences of failing to effectively address the adolescent literacy crisis. There is a positive correlation between low literacy levels and both unemployment and low income levels (Kutner et al., 2007). Furthermore, a survey of adults in prison found 56 percent of inmates function at the two lowest levels of prose literacy (Greenberg et al., 2007). Students with low literacy skills are the most likely to drop out of high school, “contributing to the sizable portion of the nearly 7,000 students who drop out of high school every day” (Alliance for Excellent Education, 2011).

School leaders that positively impact the lives of the students they serve not only

understand and align school practices with required accountability measures, but also embrace the higher order thinking and practices of “responsibility.” An effective principal embodies responsibility, always putting the student at the heart of the educational process, and continuously gauging success by evidence of authentic student learning (Shapiro & Stefkovich, 2005). Ensuring that the structures within the school effectively monitor and address the literacy levels of students may not be specified in the spectrum of a secondary school principal’s responsibilities, but failing to address students’ literacy skills has the potential of reducing students’ college and career options.

Given the magnitude and diversity of literacy development needs across middle and high schools, a strategy that mobilizes all forces toward the common goal is worthy of exploration. “The most promising strategy for sustained, substantive school improvement is developing the ability of school personnel to function as professional learning communities” (Loertscher, DuFour, DuFour, & Eaker, 2010, p. 1). A school that is operating as a professional learning community (PLC) embodies the characteristics that research have repeatedly shown to be integral to PLC effectiveness; a collaborative culture, a focus on examining outcomes to improve student learning, shared and supportive leadership, and shared practice (Center for Comprehensive School Reform and Improvement, 2009). There have been a multitude of research studies focused on the correlation between effectively implemented PLCs within a content area at the secondary school level and the change in student achievement within that content area.

However, a gap in the research base exists in understanding the correlation between the perceived effectiveness of a secondary school as a PLC and the change in

student literacy levels during that year. Exploring the correlation between the perceived degree to which a middle or high school was operating as a professional learning community (PLC) and the growth or decline in the school's literacy assessment scores over a year's time would lay the groundwork for impacting adolescent literacy through improving the effectiveness of the middle and high school PLCs, and would add to the growing body of research on PLCs and academic achievement.

Background

The Need to Improve Student Literacy at the Secondary School Level

The National Governors Association Center for Best Practices (NGA Center) 2009 report captured the urgency of the adolescent literacy crisis in America, citing studies that correlated low adolescent literacy levels with unemployment, low civic engagement, and incarceration (Kirsh et al., 2007; Kutner et al., 2007; Greenberg et al., 2007 as cited in NGA Center, 2009). An essential component of the NGA Center's recommended plan was to "build educators' capacity to provide adolescent literacy instruction" (NGA Center for Best Practices, 2009, p. 1). While it was noted that students reading significantly below grade level require the assistance of trained literacy interventionists to make the needed gains, the study supported the value of cross-curricular literacy training and collaboration.

There were philosophical and structural differences between primary and secondary schools in America in regards to the organization and focus of the curriculum and the teaching staff. Addressing adolescent literacy required the intentional development of structures within a secondary school to purposefully

address literacy with the level of effectiveness that it was addressed with at the primary level (Biancarosa & Snow, 2006; O'Brien, Steward, & Moje, 1995).

Despite the inherent challenges in addressing adolescent literacy, there have been examples of impacting the literacy levels of middle and high school students by purposefully leveraging Professional Learning Communities (PLCs). Common elements across these studies included the use of PLC planning time to structure the integration of literacy strategies into all content area instruction (Biancarosa & Snow, 2006; Brettschneider, 2009; Wood & Burz, 2013).

The Impact of PLCs on Student Achievement

There has been an abundance of information to support a positive correlation between the effectiveness of PLC implementation and student achievement. Vescio, Ross, and Adam (2008) analyzed the results of eight studies (Berry et al., 2005; Bolam et al., 2005; Hollins et al., 2004; Louis & Marks, 1998; Phillips, 2003; Strahan, 2003; Supovitz, 2002; Supovitz & Christman, 2003), and substantiated a correlation between teachers' participation in effective PLCs and student achievement. An extensive literature review of the use of formative assessment data analysis to target instruction and improve student achievement revealed a positive correlation between the presence of effective professional learning communities within the school structure and increases in student achievement attributed to the teachers' practice of cyclical data analysis and planning (Young & Kim, 2010).

There appeared to be consensus in the research community that effective professional learning communities place student learning at the forefront of all

professional conversation and focus on impacting student achievement through a culture of collaboration (Hipp et al., 2003; DuFour, R., 2014; Smith, Johnson, & Thompson, 2012; Vescio et al., 2008; Williams, 2013). A study of a Virginia district's high schools examined the correlation between the level of effectiveness at which teachers perceived their PLC to be operating, a teacher efficacy score, and student achievement. The results denoted a strong correlation between PLC and teacher efficacy, and found PLC effectiveness ratings to be a more accurate predictor of student achievement than teacher efficacy scores at the high school level (Brooks, 2013).

While there is research to support the connection between “effective” professional learning communities and gains in student achievement, there is also a research base to support that factors that hinder PLC effectiveness also detract from the impact of PLCs on student achievement.

Factors that Limit the Impact of PLCs on Student Achievement

The limitations of PLCs in their impact on student achievement have been well documented. The loose interpretation of the term itself has been a threat to the ability of a “PLC” to impact student achievement; DuFour (2004) noted that groups of teachers that regularly meet often call themselves PLCs, even when the group's focus has not been on improving student learning.

Fullan (2004) echoed this concern, and cited a fragmentation of purpose and structure as a deterrent to PLC effectiveness. A PLC has been limited in its impact if there is a lack of *program coherence*, defined by Newmann et al. (2000, p. 5, as cited by Fullan, 2004) as “the extent to which the school's programs for student

and staff learning are coordinated, focused on clear learning goals, and sustained over time.” In order for PLCs to realize their full potential, they must continuously focus on the changing of teaching practices to improve student learning (Vescio et al., 2006).

Lieberman and Miller (2011) cited PLC norms that conflict with school norms, administrative resistance to releasing control, limited or misdirected time, and a lack of authentic voice in school decision making processes as barriers to effective PLC implementation. According to Fullan (2000), successful change in large secondary schools as a result of authentic PLC implementation can take up to six years. A substantial research base has supported the significance of the impact that school leadership has in PLC effectiveness.

The Role of School Leadership in Effective PLC Implementation

The focus of the school’s leaders on creating and supporting the conditions essential to effective PLCs has been integral to connecting PLC implementation to improved student achievement. “If you take the principal and other key building leaders out of the picture as a committed and skillful force for these qualities, then no successful professional learning community will form. The possibilities of all other forces combined...to raise student achievement are fatally weakened” (Saphier, 2005, p. 38).

DuFour, DuFour, and Eaker (2008) asserted that school leaders that are striving to run their schools as impactful PLCs must be clear that their primary responsibility is to “create the conditions that help the adults in this building continually improve upon their collective capacity to ensure all students acquire the

knowledge, skills, and dispositions essential to their success” (p. 309). While strategically dispersing leadership responsibilities throughout the school, the effective leaders of a PLC school also “bring coherence to the complexities of schooling by aligning the structure and culture of the school with its core purpose” (p. 308).

With an administrative focus on establishing a common vision, aligning the structures and practices of the school to advance the school toward the common vision, and intentionally empowering leaders throughout the school, it followed theoretically that a synergy among the official school leaders and the empowered, vision-led teachers would emerge.

Research Design

Theoretical Framework

The theoretical framework of this research was grounded in two branches of leadership theory; principal-agent theory and distributed leadership theory. The basis for the analyses conducted in this study was the desire to explore the relationships between the perceptions of two distinct groups, administrators, or “leaders,” and teachers, or “agents,” and achievement of the shared goal of increased student achievement. The principal-agent theory (PAT) was the theoretical basis for this aspect of the study, and for the exploration of the correlations within the three hypotheses. Bannock, Baxter, and Davis (1992), and Barney and Hesterly (1996) synthesized the research surrounding the issues that come from the delegation of authority by outlining how problems occur because the interests of the leader and the agent are different, the leader does not effectively

monitor the agent's actions, and/or the leader does not gain access to the information held by the agency.

Components of distributed leadership theory were mirrored in the components gaged by the School Professional Staff as Learning Community Questionnaire (SPSLQ) (Hord, 1996), which was the instrument used in this study to gage the perceived "effectiveness" of the school as a PLC. In their extensive research on impacting student achievement at the secondary school level, McLaughlin and Talbert (2007) concluded as a result of their research that the high schools which experienced sustained academic growth in their students utilized a true distributive leadership model, which directly impacted the ability of their PLCs to impact student achievement.

While aspects of the SPSLCQ instrument reflected a theoretical grounding in distributed leadership theory, the components that the instrument's creator, Dr. Shirley Hord, specifically defined as creating the framework of an effective PLC also formed the conceptual framework for this study.

Conceptual Framework

This study was conceptually grounded in the components that Hord (1997, 2004, and 2008) defined and other research substantiated as integral to the effective operation of a school as a PLC. Hord's (1997) review of the literature on PLCs found "five key attributes or dimensions emerged from the literature: (a) supportive and shared leadership capacity, (b) shared values and mission, (c) collective learning and application of learning, (d) shared personal practice and (e) supportive conditions" (pp. 13, 14).

Hipp and Huffman's (2002) three-year, in-depth study of schools across nine states examined Hord's theory in practice. The findings further defined and provided substantiation for the critical attributes within each of Hord's five PLC dimensions that conceptually grounded this study:

1. *Shared and supportive leadership.* Administrators operate their school democratically. They share decision making authority with the teachers, and make a concerted effort to nurture authentic teacher leadership.

2. *Shared vision and values.* The staff as a whole has a common vision of how to improve their school based on an undeviating focus on student learning. These shared values form the basis for behavioral norms, which consistently guide decisions about teaching and learning.

3. *Collective learning and application of learning.* Staff works across content areas and grade levels to share information, collaboratively plan, and improve student learning opportunities across the school.

4. *Supportive conditions.* Structures include both physical and relationship conditions. Physical conditions include the protected time and space to consistently meet as a PLC, and relational conditions include a shared respect and trust among staff and students.

5. *Shared personal practice.* Teachers observe one another's teaching and talk with each other about their teaching and planning in a united effort to increase student achievement and increase each other's capacity (Hipp & Huffman, 2002, Appendix A).

Problem Statement

How to effectively addressing the literacy deficiencies of America's secondary school students is one of the most urgent charges put upon today's secondary school instructional teams. The typical secondary school instructional schedule exposes students to multiple teachers daily, and the impact of rotating students with low literacy levels through teachers that are neither equipped nor invested in the united purpose of increasing their students' literacy levels has had dire consequences for American youth, and particularly for those in urban schools.

In May of 2016, the Alliance for Excellent Education reported that more than 60 percent of eighth grade students and 60 percent of twelfth grade students attending America's schools were not proficient readers according to the National Assessment of Educational Progress (NAEP), also known as "The Nation's Report Card." The statistics are even bleaker among urban populations, as NAEP results show that almost half of

American students of color as well as almost half of students from low income families enter fifth grade reading below the level of basic proficiency (Alliance for Excellent Education, 2016). The implications of these low reading scores are that millions of American students, particularly those in our urban communities, are lacking the skills they need to function in society. “Without essential literacy skills, students are more likely to be retained in school, drop out of high school, become teen parents, or enter the juvenile justice system.” (Alliance for Excellent Education, 2016, p. 1).

Despite the urgency of effectively addressing adolescent literacy, there is not a definitive research base addressing the relationship between how well a secondary school instructional team is working together toward a common goal through established structures and their ability to increase the percentage of students passing the school’s culminating standardized literacy exam. This study focused on gaging the correlations between staff perceptions of their school’s effectiveness as a professional learning community and the growth in student literacy levels within that secondary school.

Purpose of the Study

The purpose of this study was to determine if there were significant correlations between staff perceptions of a school’s effectiveness as a PLC and the change in the school’s literacy assessment scores within one calendar year. The relationships between the entire staff’s, the administrators’, and the teachers’ perceptions of their school’s effectiveness as a PLC and the change in student cohort literacy levels over a one-year period were explored. The relationship between the gap in administrators’ and teachers’ perceptions of their school’s effectiveness as a PLC and the change in student literacy levels over a one-year period was also examined.

In addition, this researcher investigated the correlations between the individual dimensions of PLC implementation and the normalized gain score representing the change in the literacy levels of eighth and 10th-grade student cohorts from the 2014-2015 school year to the 2015-2016 school year as measured by the spring administrations of the Grade 8 Reading and English 2 EOC exams. Again, if a school housed both an eighth and 10th-grade student body, the study focused on the English 2 EOC exam results. The instrument used to measure staff perceptions of the school's effectiveness as a PLC was an electronic version of the SPSLCQ (Appendix A), and the perceptions that were surveyed and correlated through the dimensions of the questionnaire included shared and supportive leadership, shared values and vision, collective learning and application, shared personal practice, supportive conditions-relationships, and supportive conditions-structures.

The populations that were explored in this study were the staff and students of secondary schools in a large urban school district in a south-central region of the United States of America. Through analysis of the correlations of the staff survey results and student assessment data, the study shed light on which areas of focus within a secondary school's culture were most aligned with changes in student literacy exam results.

Research Questions

Four research questions guided this study, and within each research question the correlations between the normalized gain score representative of each school's change in literacy achievement and the staff survey results for each of the five aspects of the PLC were explored as subcomponents of the overall survey score correlations. For the purpose of these correlations, the "change in the student achievement" was defined as the normalized gain score representative of the increase or decrease in the percentage of that

school year's cohort of first time testers that achieved the spring 2016 Level 2 standard on the Grade 8 Reading exam or the English 2 EOC exam from spring 2015 to spring 2016. In schools that served both eighth and 10th grade students, the results of the English 2 EOC exam were the measure of literacy for that school.

The first research question set the premise for exploring the correlation between the perceptions of the staff as a whole and student achievement. For the purpose of this study, the "secondary school staff" will include every person who is employed at the school in both an instructional and non-instructional capacity, and is assigned specifically to the school in the district's email system. The "secondary school staff" will include a full spectrum of job titles, including administrators, teachers, tutors, and clerical staff.

The first research question is: What is the relationship between the extent to which the secondary school staff believes their school demonstrates each of the five components of an effective PLC (shared and supportive leadership, shared vision and values, collective learning and application of learning, supportive conditions, and shared personal practice), as measured by the SPSLCQ, and the change in student achievement? Exploring this question added to the research base about the correlation between a school's effectiveness at increasing student achievement, specifically student literacy, and the staff's perceptions of the school's effectiveness as a PLC in general as well as within the specific PLC components.

The second research question established one distinct population of the study: What is the relationship between the extent to which secondary school administrators believe their school demonstrates each of the five components of an effective PLC (shared and supportive leadership, shared vision and values, collective learning and

application of learning, supportive conditions, and shared personal practice), as measured by the SPSLCQ, and the change in student achievement? Exploring this question added to the research base about the correlation between a school's effectiveness at increasing student achievement, specifically student literacy, and the administrators' perceptions of the school's effectiveness as a PLC in general as well as within the specific PLC components.

The third research question set the basis for exploring another distinct population: What is the relationship between the extent to which secondary school teachers believe their school demonstrates each of the five components of an effective PLC (shared and supportive leadership, shared vision and values, collective learning and application of learning, supportive conditions, and shared personal practice), as measured by the SPSLCQ, and the change in student achievement? Exploring this question added to the research base about the correlation between a school's effectiveness at increasing student achievement, specifically student literacy, and the teachers' perceptions of the school's effectiveness as a PLC in general as well as within the specific PLC components.

The fourth research question established the grounds for researching the relationship between two distinct populations: What is the relationship between the difference in the ratings assigned by a secondary school's administrators and a secondary school's teachers to each of the five components of an effective PLC (shared and supportive leadership, shared vision and values, collective learning and application of learning, supportive conditions, and shared personal practice), as measured by the SPSLCQ, and the change in student achievement? This area of exploration was grounded in the idea that a gap between what administrators perceive to be occurring and

what teachers perceive to be occurring is indicative of a gap in perception and reality.

Researchers have acknowledged this gap's detrimental impact on student achievement of this disconnect, and challenged educators to close the "knowing-doing" gap (Schmoker, 2006; DuFour et al., 2006; DuFour & DuFour, 2007).

Significance of the Study

A gap in the current research base exists in understanding the correlation between the degree to which a secondary school is perceived by its staff to function as an effective PLC and changes in secondary student literacy. If the school staff's perception of the school's effectiveness as a PLC positively correlated with the one-year change in literacy assessment scores at the secondary school level, these results would be added to the growing body of work for the support of incorporating the effective components of PLCs into the arsenal of strategies and structures that could be used to address adolescent literacy.

If the significance of the gap between the average PLC effectiveness scores of the administrators and the average PLC effectiveness scores of the teachers had a correlation with the one-year change in literacy assessment scores, those results could illustrate what relationship, if any, was exhibited between administrative and teaching staff synergy and student academic growth. This study also examines correlations between the staff's perceptions of the school's dimensions of PLC implementation and student growth in literacy levels, and if the relationship between one PLC dimension and academic growth was stronger or weaker than another dimension.

The findings of this research could reveal areas of focus for secondary school staffs intent on improving the literacy levels of their students. As school leaders organize

their planning structures and means of delivering staff development and monitoring student growth, the aspects of perceived PLC effectiveness that most significantly correlate with changes in student literacy levels could serve as areas of focus.

Limitations

Limitations are potential weaknesses in the study that are outside of the researcher's control. They are explicitly outlined so potential researchers can determine if the findings can be generalized to other scenarios (Gay, Mills, & Arisian, 2012). Several limitations arose from the fact that completion of the electronic survey was voluntary, and the quality of the data collected depended on the percentage of recipients who chose to complete the survey (deVaus, 2002). While the email recipients were assured of the anonymity and confidentiality of their individual responses, "...many people are justifiably suspicious about anonymity on the internet..." (deVaus, 2002, p. 140), so the honesty with which participants responded was a limitation of the study.

Participants may also have been limited by their understanding of the concepts on which they were being questioned, and may provide an answer they perceive as "honest," when it is not actually a reflection of the condition the survey is intended to measure. A participant's "honest" response to the questions on the survey (Appendix A) were limited by the participant's personal experiences and perceptions. For example, a teacher who had not spent time in other teachers' classrooms, would generate a low score for question four (Appendix A), would have only his or her own teaching practices to reference in response to question three, designed to gauge staff application of learning. The representativeness of teacher responses to question four would be skewed by low scores to question three.

A limitation on the representativeness of the data generated by this research was the changes that could have occurred in either of the literacy tests themselves, and therefore the degree to which the same test score was actually representative of the same literacy level. It was not possible for the researcher to have controlled for baseline literacy level differences in the two student cohorts that had their end results compared to gauge school impact, so the fact that the growth score was derived from the results of two different student cohorts emerged as a limitation as well. The degree to which correlations in the perceptions of a school's effectiveness as a PLC and changes in that school's student literacy levels were indicative of a causal relationship was limited by changes in extraneous practices within the school environment that could have contributed to changes in student literacy.

While there were limitations to this study over which the researcher had no control, the researcher noted that several delimitations were present as well.

Delimitations

Delimitations were controlled by the researcher before the study even began, and were established in order to limit the scope and define the boundaries of the study (Creswell, 2002). The delimitations that defined the scope and boundaries of this study included the instruments used to gauge staff perceptions and student literacy, and the time span of the assessment results and of the staff perception survey. Other delimitations included the student populations selected for achievement analysis and the correlating staff populations.

Staff perception of the effectiveness of the schools as PLCs was measured using SEDL's School Professional Staff as Learning Community Questionnaire (Hord, 1996).

Student achievement was measured by either the Grade 8 Reading exam or the English 2 EOC exam, depending on the which test was the culminating standardized literacy exam for that secondary school. The change in student achievement was normalized across the two distinct tests by calculating the normalized gain score of the change in the percentage of first-time testing students who passed the a school’s culminating literacy exam by spring 2016 standards between the spring 2015 and spring 2016 administrations. This normalized gain score is explained more thoroughly in the dependent variable section, and was calculated for each school using the formula:

$$g = \frac{2016 \text{ percent passed} - 2015 \text{ percent passed at } 2016 \text{ cut score}}{100 - 2015 \text{ percent passed at } 2016 \text{ cut score}}$$

Staff perception data was gathered during a two-week window in spring 2016 prior to the administration of the standardized literacy exams. The population that received the electronic survey was the entirety of the staffs of secondary schools in an urban Texas school district. Only the student test scores of the schools for which completed staff surveys were submitted were analyzed as a further delimitation of the study.

Assumptions

For the purpose of this study, several assumptions, or assertions “presumed to be true but not actually verified” (Gay, Mills, & Airasian, 2012, p. 115) were necessary. The researcher assumed that all responses given by the participants were accurate reflections of their perceptions, as the survey was administered electronically and anonymously, which had the benefit of providing more honest responses than other survey methods (deVaus, 2002).

The results of the SEDL survey were assumed to be reflective of that school's perceived level of PLC effectiveness based on the reliability and validity statistics of this survey as shared in this report. The results of the Grade 8 Reading exam or English 2 EOC exam were assumed to be a representative gage of students' literacy levels based on the test information as shared in this report.

The assumption was made that the responses of the participating staff members were a sample representative of that school's staff population. The assumption was also made that the staff, administrators, and teachers of each school wanted the Grade 8 Reading exam or English 2 EOC exam scores to increase from the spring 2015 to the spring 2016 test administrations.

Organization of the Study

Chapter 1 has provided an overview of the foundation upon which this study was built. Included in Chapter 1 have been the introduction, statements of both the problem and the significance of this study, the research questions that were explored, definitions of relevant terms, and the limitations, delimitations, and assumptions of this study.

In Chapter 2, the literature review will be presented to provide a conceptually organized overview of the seminal and relevant studies in the areas of adolescent literacy, leadership theory, and PLCs. Chapter 3 will depict the methodology and procedures utilized within this research study, including relevant population and sample information and descriptions of the reliability and validity measures associated with the testing instrument. Chapter 4 will report the results of the data analyses and the findings of the research, and Chapter 5 will discuss the conclusions drawn from the study and make recommendations based on the study.

Definition of Terms

The following terms were operationally in this study, and for the purpose of this dissertation will be defined as follows:

Administrators: Deans, assistant principals, magnet coordinators, instructional specialists, curriculum specialists, and principals.

Collaboration: "... systematic process in which teams work together to analyze and Impact professional practice in order to improve individual and collective results" (DuFour, 2003, p. 2).

End of Course (EOC) Exam: The EOC exam taken by Texas high school students after completing a specific content area course (Texas Education Agency (TEA), 2015). This study will focus on the results of the EOC exams administered at completion of the eighth grade reading course and the English 2 course.

Level 2 Standard: The cut score that is in place for achieving a Level 2 (Satisfactory) that is in place beginning with a specific student cohort. For the purpose of this study, the Level 2 Standard that is in place for the spring 2016 testing cohort will be applied to both the spring 2015 and spring 2016 testing cohorts. For the Grade 8 Reading exam the Level 2 standard has a cut score of 1587, and for the English 2 EOC exam the Level 2 standard has a cut score of 3775.

Normalized gain score: Utilized as the dependent variable, the normalized gain score represented the proportionate progress that the school made in closing the gap between their 2015 percent passed at the 2016 cut score and 100%. It was calculated through this formula:

$$G = \frac{2016 \text{ percent passed} - 2015 \text{ percent passed at 2016 cut score}}{100 - 2015 \text{ percent passed at 2016 cut score}}$$

Professional learning community (PLC): A school of educators engaged in the collaborative process of inquiry to achieve better academic achievement for the students they serve (DuFour, DuFour, Eaker, & Many, 2006).

Southwest Educational Development Laboratory (SEDL): A nonprofit organization whose core mission is to gather and disseminate research, tool, and strategies to effect school improvement (<http://www.sedl.org/about/>).

Staff: For the purpose of the study, “staff” will be used to reference the people who are assigned to work in the school and are specifically designated to the school in the district email system.

State of Texas Assessments of Academic Readiness (STAAR): Texas public high school students are required to pass five STAAR End of Course (EOC) exams in order to receive a high school diploma. The exams are administered to every Texas public high school student following completion of the following required courses: Biology, US History, Algebra 1, English 1, and English 2. This study will focus on the results of the English 2 STAAR EOC exam. Additional information about these tests is provided on this site: <http://tea.texas.gov/staar/rpt/sum/>

STAAR Performance Standards: Align levels of STAAR test performance with the expectations defined in the TEKS (state-mandated curriculum standards known as the Texas Essential Knowledge and Skills). Cut scores established by the agency distinguish between performance levels, or categories. The process of establishing cut scores that define performance levels for an assessment is standard setting. Standard setting is also used to classify students into an appropriate performance

category. The performance categories are: Level I: Unsatisfactory Academic Performance, Level II: Satisfactory Academic Performance, Level III: Advanced Academic Performance. Additional information about STAAR Performance Standards is available on this site:

<http://tea.texas.gov/student.assessment/staar/performance-standards/>

Student cohort: A student cohort is a group of students who began a program or grade level together. In this study, the group of students who are enrolled in the eighth grade reading or English 2 course in spring 2015 and take the Grade 8 Reading or English 2 EOC exam for the first time in spring 2015 will be referred to as the spring 2015 cohort. The group of students who are enrolled in the eighth grade reading or English 2 course in spring 2016 and take the Grade 8 Reading or English 2 EOC exam for the first time in spring 2016 will be referred to as the spring 2016 cohort.

Texas Education Agency (TEA): the state agency that oversees primary and secondary public education in the state of Texas

[\(http://tea.texas.gov/About_TEA/Welcome_and_Overview/\)](http://tea.texas.gov/About_TEA/Welcome_and_Overview/)

Texas Essential Knowledge and Skills (TEKS): The Texas state standards for what students should know and be able to do as they complete each course in the state approved curriculum (<http://tea.texas.gov/curriculum/teks/>).

CHAPTER 2

REVIEW OF RELEVANT LITERATURE AND RESEARCH

This chapter contains an extensive review of the literature and research related to both adolescent literacy and the implementation of professional learning communities (PLCs) to impact student achievement. The chapter is divided into sections that include (a) the challenge of adolescent literacy in the United States, (b) leadership theories that form the theoretical basis for this study, (c) studies on the correlation between PLCs and changes in student achievement, and (d) current research base on the correlation between PLC perceived effectiveness and changes in adolescent literacy levels.

The foundation for correlating effective PLC implementation with changes in adolescent literacy levels will be established through a sequential review of relevant literature and research. Chapter 2 will be divided into the following sections and subsections:

- I. Challenge of Adolescent Literacy in United States
 - A. Current status of adolescent literacy
 - B. Impact of not effectively addressing low adolescent literacy levels
 - C. Approaches Used to Impact Adolescent Literacy Levels
 - D. Theoretical Basis for Correlating PLC Effectiveness with Changes in Adolescent Literacy Levels
 - E. Principal-agent theory
 - F. Distributed leadership theory
- II. Professional Learning Communities
 - A. Characteristics inherent to effective PLCs

- B. Processes used to implement effective and sustainable PLCs
- C. Research base for correlating PLC effectiveness with changes in student achievement

Challenge of Adolescent Literacy in the United States

In 2009, the National Governors Association Center for Best Practices (NGA Center) released a report and recommendations based on the reading levels of high school students across the country based on a nationally normed assessment. On page one of the issue brief, the foundational research sources were cited:

Positions that require college and higher level literacy skills will generate about 46 percent of all job growth between 2004 and 2014 (Kirsh et al., 2007), yet, in 2007, only 31 percent of eighth-graders performed at proficiency on the National Assessment of Education Progress (NAEP), and score gaps between white and minority students have not budged since 2005 (Lee, Grigg, & Donahue, 2007).

When compared with their more literate peers, adults with lower literacy levels are more likely to be unemployed or to earn a lower income, and are less likely to vote or help their children with their homework, and are more likely to be incarcerated (Kutner et al., 2007, and Greenberg et al., 2007, as cited in NGA Center, 2009).

While still in school, adolescents with lower literacy levels will struggle across content areas, as understanding text that becomes more challenging within a course sequence is integral to the curriculum of every secondary school content area (Biancarosa, 2012). A shift from “learning to read” to “reading to learn” must happen when students move from elementary to secondary school in order to keep up with the demands of secondary school curriculum (Lee & Spratley, 2010). The need to develop

literacy for increasingly complex text within every content area brings to the surface the approaches which utilize teachers across content areas to support literacy instruction.

Approaches to Impact Adolescent Literacy Levels

“Content area teachers should be supported in learning literacy strategies that will help students master the material in their courses” (NGA Center for Best Practices, 2009, p. 9). While it is a commonly established practice for all classroom teachers in an elementary school to utilize a common literacy pedagogical framework, such as a structured guided reading approach, it is common for a secondary instructional coach to struggle to convince a high school’s content area teachers that literacy not only exists within their discipline, but that they share in the school- wide responsibility of scaffolding that literacy development for the students they teach (O’Brien, Steward, & Moje, 1995).

One dissertation (Wilder, 2013) utilized a multi-case study design to analyze the impact and challenges of addressing literacy through an instructional coach that works with multiple content area teachers through the “heavy coaching” model. An impact on teacher practices was evidenced through a layered analysis of units of coach/teacher discourse, teacher interviews and observations, and the barriers to continuously impacting student achievement through sole reliance on this approach come down to the limitations on capacity and momentum that occur when attempting to effect school wide change through the efforts of one person. Within the analysis of the theoretical basis for utilizing coaching as a vehicle for school wide change, Wilder (2013) asserted that the “collaborative structures” (p. 33) within the school needed to be addressed in order to successfully coach the teaching staff in holistically changing their teaching practices.

Despite the inherent challenges in addressing adolescent literacy, there are examples of impacting the literacy levels of high school students by purposefully leveraging PLCs. During the 2011-2012 school year, a Michigan high school that was at the state's bottom fifth percentile in student achievement committed to a PLC approach to focus non-ELA content area teachers on integrating literacy strategies into their content area instruction and rose to the 55th percentile in student achievement after one year. Core elements of this approach included a commitment to focusing on one impactful literacy strategy across content areas (summarization), and the use of PLC time to review student work products and calibrate rubric scoring of student work products. In addition to the substantial gains in student achievement, the study cited these benefits to the PLC approach to effecting cross-content literacy strategy implementation: Wood & Burz (2013) found the following:

Staff is working collaboratively, professional development is focused on student achievement, and literacy is a common conversation in all departments. Students can discuss the impact of summarization in their learning and how writing is improved through working with a clearly defined process. The school is becoming a community of learners (p. 41).

The practice of leveraging common instructional practices across content areas to address adolescent literacy can be viewed through the lens of the structures that support the sharing of practices. The rationale for utilizing PLC structures to impact changes in adolescent literacy was grounded in two branches of leadership theory.

Theoretical Basis for Correlating PLC Characteristics with Literacy Levels

The idea that the degree to which a secondary school was effective at increasing the literacy scores of its students was correlated with the degree to which that school's staff perceives the school to be functioning as an effective PLC was theoretically grounded in both the principal-agent theory and in the distributed leadership theory.

Principal-Agent Theory

The principal-agent theory focuses on the "agency problem" (Vanhuysee & Sulitzeanu-Kenan, 2007, p. 5), which occurs whenever one party (the principal) delegates the authority to another party (the agent) and the welfare of the first is affected by the choices of the second (Arrow, 1985; Eisenhardt, 1989; Scott, 1998). The school's teachers are the agents, and are most directly accountable for impacting changes in student performance. The school's administrators are the principals, and have delegated the authority to impact student performance to the teachers, although the effectiveness of both the administrators and the teachers is gaged by student performance.

The principal-agent theory is central to the research question "What is the relationship between the difference in the ratings assigned by a secondary school's administrators and a secondary school's teachers to each of the five components of an effective PLC (shared and supportive leadership, shared vision and values, collective learning and application of learning, supportive conditions, and shared personal practice), as measured by the SPSLQ, and the change in student achievement?" Based on the principal-agent theory, the size of the gap between the perceptions of the principals (administrators) and agents (teachers) is indicative of the degree of disconnect between those who have delegated a responsibility and those who are carrying out that

responsibility, which would theoretically lead to a diminished ability to achieve the shared goal of increasing student performance.

Bannock, Baxter, and Davis, (1992) and Barney and Hesterly, (1996) explained that the delegation of decision-making authority from the principal to the agent becomes problematic for multiple reasons, including: 1) principal and agent interests differ; 2) principal cannot effectively monitor agent actions; and 3) principal cannot gain access to information available or held by the agent. One of the core assumptions of this study was that both the administrators and teachers have the goal of increasing student performance, so this theoretical lens was applied to ground the comparison of the size of each school's gap in the principal-agent perceptions and the school's ability to achieve the mutually desired goal of increasing student performance.

While the principal-agent theory was the theoretical basis for the aspect of this study that addressed the administrator-teacher gap and its impact on student performance, the distributed leadership theory was the theoretical basis for gaging the effectiveness of the school as a PLC. The idea that the degree to which leadership was genuinely shared across the school staff correlated with how effective the staff was in achieving its primary goal, increasing student achievement, was central to this study.

Distributed Leadership Theory

Jones, Lefoe, Harvey, and Ryland (2012) defined distributed leadership as “a form of shared leadership that is underpinned by a more collective and inclusive philosophy than traditional leadership theory that focuses on skills, traits, and behaviors of individual leaders” (p. 71). In an extensive review of distributed leadership research, Bolden (2011) noted that there was research supporting the premise of a positive correlation between the

degree with which the official school leaders (administrators) shared both their authority and responsibility with those team members who were most closely connected to the daily operations (teachers), and changes in both student achievement and teachers' organizational commitment. Bolden (2011) recommended further reflection on how to "mobilize collective engagement" (p. 251).

Through the Distributed Leadership Study, Spillane et al. (2004) fleshed out years of research into distributive leadership practices and outcomes and defined the "distributed leadership framework" as a web of interactions between "leaders, followers, and situation" (p. 7). In this framework, activities were "stretched" over people. Given the activity of analyzing student data to determine how to increase student performance, distributed leadership research supported creating a situation in which administrators and teachers analyzed the data at a level that was relevant to their role in improving achievement, the administrators at the macro-level and the teachers at the micro-level. "Boundary-spanning" by a "middle manager" or "teacher leader" would bring both levels of expertise together to guide both teachers and administrators in making wholly informed, purposeful next steps possible (Spillane et al., 2004).

The PLC dimension of "supportive conditions," as measured by the SPSLCQ instrument, was theoretically supported by a statement of endorsement for shared (distributed) leadership:

If professional learning communities provide the best hope for sustained school improvement, and shared leadership is a critical component of successful professional learning communities, then principals must be both willing to share

leadership and able to develop conditions and communicate expectations that will advance shared leadership among school professionals (Hord, 2004, p. 140).

Hord's literature chronicled the actions of each school principal "establishing structures and processes for shared decision-making" (2004, p. 47) as they advanced their schools' ability to function as PLCs by embracing the distributed leadership philosophy. Foundational research on the essential characteristics and purposeful implementation of professional learning communities further established the foundation of this study.

Professional Learning Communities

Research conducted in American schools over the past 25 years has suggested that Professional Learning Communities (PLCs), when implemented purposefully, are a foundational mechanism for an effectively run school. PLCs are defined in the following manner:

...educators committed to working collaboratively in ongoing processes of collective and action research to achieve better results for the students they serve. Professional learning communities operate under the assumption that the key to improved learning for students is continuous, job-embedded learning for educators (DuFour, DuFour, Eaker, & Many, 2006, p. 14).

PLCs have been credited with transforming school climates and student learning outcomes across entire school districts in America (DuFour, 2012; Hoffman, Dahlman, & Zierdt, 2009; Stoll, Bolam, McMahon, Wallace, & Thomas, 2006; Wells & Feun, 2013; Williams, 2013). The transformation of the school climate through effective PLC implementation has been documented through school climate studies, which have

substantiated the claim that teachers are more committed to serving their schools following PLC implementation as evidenced by increased teacher satisfaction and decreased teacher turnover data (Stoll & Louis, 2007; Wynn, Carboni, & Patall, 2007; Giles & Hargreaves, 2006; Hirsch & Hord, 2008; Tobia & Hord, 2012). As school culture is transformed and teacher investment improves, it follows that a substantial data base supports the claim that student achievement data improves following effective PLC implementation (Smith, Johnson, & Thompson, 2012; Blank, 2013; DuFour, 2014).

The concept of PLCs evolved from the shift within the American educational system that occurred in the 1980s. The common practice of single teachers operating in isolated classrooms shifted to team teaching and open classrooms, which provided teachers the space and impetus to function as collaborative learners and workers (Hord, 2008). Rosenholtz (1989) investigated the impact of teacher networking on changes in practice and reduced turnover, and McLaughlin and Talbert (1993) confirmed the positive impact of teacher collaboration. The shared attributes inherent to effective PLCs were substantiated by Darling-Hammond (1996).

Characteristics Inherent to Effective Professional Learning Communities

The term “Professional Learning Community” has become a common descriptor for groups of educators who meet regularly, but the inherent characteristics of effective PLCs have not been as commonplace. In order to support learning for the educators as well as for their students, a PLC must meet key criteria in five research-based dimensions: “shared and supportive leadership; a shared vision; supportive structural and relational conditions; intentional, collegial learning; and shared practice” (Hirsh & Hord, 2008, p. 27).

Presence of the “shared and supportive leadership” component means that, while the principal sets the tone and parameters for the school’s PLCs, the principal supports and develops the leadership within the school and guides the PLC toward self-governance (Hord & Hirsh, 2009). The principal needs a heightened social perceptiveness, an “insight and awareness into how others in the organization function” (Northouse, 2010, p. 46), in order to understand the PLC participants’ needs and viewpoints. A socially perceptive principal is well-equipped to create a vision for PLCs that the participants will see as desirable and worth working for, to recognize and consistently support the contributions of the PLCs as integral to the school’s decision making process, and to authentically support the shift to teacher leadership within the PLCs.

A shared vision is a critical element of an effective PLC. There have been numerous examples of school districts organizing their improvement efforts around a shared vision, thereby transforming both their efforts and their outcomes. Sanger Unified School District in Central California moved from being a low performing district to consistently being one of the highest performing districts in the state following a vision and process overhaul. The district leadership team determined three guiding principles that represented the district’s core beliefs, and then conducted an extensive data review that gave the district their starting points and their touchstone. The guiding principles became their beacon- every school and district decision was to be aligned with the guiding principles (Smith, Johnson, & Thompson, 2012).

Supportive conditions, both structural and relational, have been determined to be imperative for the success and sustainability of a PLC. In a three-year study of five PLCs

that met regularly and all made significant progress toward their goals, the element that members overwhelmingly cited as most integral to their PLC's progress and effectiveness was the consistent implementation of supportive conditions. The structural support included having the PLC meetings pre-scheduled and established as a priority, and having a facilitator responsible for all organizational details including preparing the room, agenda, and instructional materials as well as following up on any issues. Relational support was also established by the facilitator, who communicated and enforced the ground rule that every voice would be heard and every participant treated with respect (Hoffman, Dahlman, & Zierdt, 2009).

Intentional, collegial learning has been established as a defining characteristic of an effective PLC. Darling-Hammond (as cited in Hord, 2004, p. 13) stated "Evidence exists that schools in which teachers act in collaborative settings to deeply examine teaching and learning, and then discuss effective instructional practices, show academic results for students more quickly than schools that do not." The data must remain at the forefront, and it is the principal's role to ensure that current, relevant data is accessible and that the educators have been trained on interpreting the data as well as in the most current research on effective instructional strategies (Hord & Hirsh, 2009).

The "learning culture" that supports effective and sustainable PLCs includes shared practice. In addition to spending time together analyzing the results of common assessments, staying current on effective practice research, and planning lessons, educators in effective PLCs observe each other implementing instructional strategies and have dialogue about how the strategies are impacting student learning (Kinzer & Taft, 2012). The leader needs to take time to build trust among the teachers and between the

faculty and the principal, and needs to give the teachers guiding practice on how to have helpful conversations about observed teaching practices that will move the school forward as a learning community (Hord & Hirsh, 2009).

The leader's role in the shared practice implementation process is to facilitate and support the "open door" concept, guiding this practice into being an integral part of how the school functions. At one elementary school that consistently outperformed demographically similar schools in its region, the teachers worked collaboratively with administrators to determine the focus area for unannounced walk-throughs throughout the month, and the observational data was analyzed alongside the student achievement data during PLC meetings (Kinzer & Taft, 2012).

Processes Used to Build Sustainable Professional Learning Communities

Leclerc, Moreau, Dumoucel, and Sallafranque-St. Louis (2012) noted that seven factors emerge from the PLC literature base as being key indicators of the maturational progression of a PLC. The factors that can be gaged as indicators are as follows:

1. The school's vision
2. The physical and human conditions that encourage teachers to cooperate, learn, and share together
3. The cooperative culture of the school
4. The manifestation of leadership from both the teachers and the principal
5. The dissemination of expertise and shared leadership
6. The topics addressed based on concerns related to shared learning
7. Decision making based on shared data

(Cate, Vaughn, & O’Hair, 2006; Dibbon, 2000; DuFour & Eaker, 2004; Hord, 1997; Huffman & Hipp, 2003; Leclerc et Moreau, 2009; Miller, 2005; Roy & Hord, 2006; Schussler, 2003; Stoll & Temperley, 2009, as cited in Leclerc, Moreau, Dumouchel, & Sallafranque-St. Louis, 2012).

This research allowed for the development of the Observation Grid for the Progression of Schools as Professional Learning Communities (PLCOG), which utilizes defining components of the seven key indicators to define a PLC at one of three stages; the initiation stage (level 1), the implementation stage (level 2), or at the integration stage (level 3). At the integration stage, a PLC is a mature, sustainable entity that scores at high levels on all seven indicators (Leclerc, Moreau, Dumouchel, & Sallafranque-St. Louis, 2012).

A substantial research base has supported the presence of several factors as critical in progressing a PLC through the stages of maturation to the sustainable integration stage. Supporting structures within the school environment must be present, including consistent time set aside during the school day for collaborative meetings and training, as well as consistently providing the needed physical resources and technical support (Huffman, 2003; Leclerc, Moreau, & Leclerc-Morin, 2007; Leonard & Leonard, 2003; Wenger, 1998 as cited in Leclerc, Moreau, Dumouchel, & Sallafranque-St. Louis, 2012). Other critical school environment factors include clearly communicated expectations for academic success and a collaborative, mutually supportive relationship among colleagues (Cibulka, Coursey, & Nakayama, 2000).

The principal plays a key role in the progression of a PLC and on its impact within the school. The principal must maintain that PLC meetings are a priority on the school calendar, and must support and follow up with the outcomes of PLCs as integral to the school's decision making process (Lieberman, 1999). Researchers have recognized that a shared leadership model in which team members other than the principal are genuinely empowered in school leadership is an integral component of a sustainable effective schools model (Leithwood & Jantzi, 2000; Devos, Van den Brock, & Vanderheyden, 1998, as cited in Leclerc, Moreau, Dumoucel, & Sallafranque-St. Louis, 2012).

Utilization of Professional Learning Communities to Increase Student Achievement

The leadership strategy of implementing and supporting PLCs that align with the five components of effectiveness and have matured to the integration stage has been supported by decades of research as a means of reaching the established goals (Wells & Feun, 2012). The path-goal theory of leadership can be used to break down the process a leader uses in forming and monitoring an effective PLC from the initiation stage through the sustainable integration stage. The role of the leader as described in this theory is to define goals, clarify the path, remove obstacles, and provide support, thereby increasing employee performance and satisfaction (Northouse, 2012).

DuFour (2012) outlined his personal findings based on a decade of consulting work focused on PLC implementation with school districts across America. Based on his observations, DuFour determined that a superintendent must specify the goals for the principals in order for the successful process of PLC implementation to begin. Educators must be provided with time and support to meet regularly in teams and achieve goals for which they are held mutually accountable (DuFour, 2012).

The teams must spend time creating “guaranteed and viable curriculum for all students, unit by unit” (DuFour, 2012, p. 28), developing common formative assessments, and analyzing the assessment results. Based on the ongoing analysis of the assessment results, the team needs to be supported in delivering timely and data-guided interventions to students (DuFour, 2012).

After the goals have been established and the path to achieve those goals has been defined, the building leader needs to anticipate and remove obstacles for successful PLC implementation and progression to the stage where PLCs are integrated into the school culture. Hord and Hirsh (2009) discussed common barriers to effective PLC implementation and how to plan for and overcome these barriers.

A lack of time for meeting is a common barrier, and can be addressed by prioritizing PLC meetings in the scheduling of the master calendar. A lack of trust among teachers and/or toward administration is a barrier to honest sharing and communication, and needs to be addressed by earning staff trust and by leading guided practices in conducting supportive, productive conversations that move PLC work forward. Another common barrier, the inability to access and/or utilize data effectively, needs to be anticipated and addressed by ensuring that the full array of needed data is easily accessible and that data interpretation training is offered. “It is the deliberate and intentional act of collaborating to analyze student achievement that makes a difference in PLC work” (Wells & Feun, 2013, p. 236).

The final step a leader must take when aligning with the path-goal theory of leadership is the providing of support. As PLCs are formed, it is the principal’s role to arrange for the needed level of support in the form of garnering needed resources, holding

PLC meeting times sacred, and empowering PLC members with decision-making authority and access to needed data and resources. The long-term goal of an effective PLC is to be self-governing, and through the progression of PLC development the “support” role becomes increasingly ingrained in the school culture, to the point where the dialogue and practices within the school as well as within the PLC are reflective of one of the goals of the PLC; peers supporting peers (Hord & Hirsh, 2009).

Impact of PLCs on Student Achievement

There has been an abundance of information to support the impact that effectively implemented PLCs can have on student achievement. Vescio, Ross, and Adam (2008) analyzed the results of eight studies (Berry et al., 2005; Bolam et al., 2005; Hollins et al., 2004; Louis & Marks, 1998; Phillips, 2003; Strahan, 2003; Supovitz, 2002; Supovitz & Christman, 2003) that examined the relationship between teachers’ participation in effective PLCs and student achievement. Through the analysis, the researchers concluded that the “unequivocal answer to the question about whether the literature supports the assumption that student learning increases when teachers participate in PLCs...is a resounding and encouraging yes” (p. 87).

An extensive literature review of the use of formative assessment data analysis to target instruction and improve student achievement links the presence of effective professional learning communities within the school structure to the ability of teachers to improve student achievement through cyclical data analysis and planning (Young & Kim, 2010).

There has appeared to be consensus in the research community that effective professional learning communities place student learning at the forefront of all

professional conversation and focus on impacting student achievement through a culture of collaboration (Hipp et al., 2003; DuFour, R., 2014; Smith, Johnson, & Thompson, 2012; Vescio et al., 2008). Lieberman and Miller (2011) detailed the findings from five research studies spanning a variety of grade levels, content areas, and geographic regions, in which PLCs are used as a professional development tool and are correlated with improved student achievement.

Kinzer and Taft (2012) used scenarios, exemplars, achievement data, and protocol descriptions from Monte Vista Elementary School to describe how a Professional Learning Community organizational structure in a school can contribute to sustained academic achievement and positive school culture. The authors detailed the school's demographics and challenges, laid out the protocols and governing ideals employed by the school, then compared the school's superior academic results with those of demographically similar elementary schools in its region.

Williams (2013) used data from Texas Assessment of Knowledge and Skills (TAKS) reading pass rates to compare student achievement before, during and after Professional Learning Community (PLC) implementation across 200 urban Texas schools. The average pass rates for elementary, middle and high schools all increased during the five-year implementation span.

A study of a Virginia district's high schools examined the correlation between the level of effectiveness at which teachers perceived their PLC to be operating, a teacher efficacy score, and student achievement. The results denoted a strong correlation between PLC and teacher efficacy, and found PLC effectiveness ratings to be a more

accurate predictor of student achievement than teacher efficacy scores at the high school level (Brooks, 2013).

Blank (2013) provided an overview of a meta-analysis of 400 studies on professional development conducted since 1990, and delved further into the sixteen studies which documented a significant connection between the teachers' professional development and improved student academic achievement. Professional development programs that were effective in impacting student achievement included the key PLC element of collective participation by teachers. The other common elements can be integrated into purposeful PLCs as well: content focus, more time for professional learning, longer duration of professional learning, multiple professional learning activities and active learning methods, and learning goals in professional learning design (Blank, 2013).

Gap in Research on Utilizing PLCs to Impact Student Achievement

A "Google Scholar" search limited to research published since 2012 yielded 4130 results using the search indicators of "research," "Professional Learning Community," and "student achievement." When the indicators shifted to "research," "Professional Learning Community," and "literacy," the number of results fell to 3730, and with the indicators of "research," "Professional Learning Community," and "adolescent literacy," the results plummeted to 143. A "Google Scholar" search replacing the search term "research" with "dissertation" and limited to text published since 2012 revealed a similar trend; the first set of search indicators yielded 1910 results, the second set of indicators yielded 1470 results, and the third set yielded 75 results. Of the research and dissertations yielded by the "adolescent literacy" indicator, none of the literature was

focused on the correlations between a secondary school's perceived effectiveness as a professional learning community and its ability to impact student literacy, and the bulk of the studies focused on the impact of using literacy coaches at the secondary school level.

As there was a large database to support the impact of leveraging PLCs to impact student achievement, there appeared to be a theoretical basis for exploring the correlation between a secondary school's perceived effectiveness as a PLC and the degree to which the school was successful in impacting student literacy levels.

Conclusions

A substantial research base has supported the assertion that effectively implemented PLCs can positively impact student academic performance. Numerous studies have documented the components necessary to progress a PLC through the stages of development to the integration stage, in which it is a sustainable mechanism for continuous student academic growth within that school.

Professional learning communities (PLCs) can be utilized through the path-goal leadership model as a means of addressing an area of needed academic growth, and the implications of not effectively addressing the plague of low literacy levels among our middle and high school students are alarming. The commonly applied approach to school wide literacy development has relied on a coaching model structure, through which an instructional coach shares and models literacy expertise and methodology to impact the practices of the teachers and therefore the achievement of the students that the teachers' serve.

There has been a wide-ranging research base that substantiates what works in leveraging PLCs to impact student achievement, extensive evidence of the need to

effectively address adolescent literacy, and numerous studies that validate the impact of growing the expertise of teachers through a coaching model. The gap in the research has been in the area of the correlation between a secondary school's perceived effectiveness as a PLC and its ability to improve student literacy. This research focused on exploring the correlations between the perceptions that secondary school staffs hold of their schools' PLC characteristics and the degree to which the schools impacted student literacy scores within one calendar year.

CHAPTER 3

METHODOLOGY

Research Design

This was a quantitative, non-experimental, correlational study. A quantitative approach was used because it involved collecting numerical data to test hypotheses, and the two variables of interest (staff perceptions and student achievement data) were effectively depicted in numerical form. A non-experimental approach was appropriate because no variables were manipulated, but rather the existing conditions of staff perceptions and student achievement were examined. This study was correlational in that it analyzed the relationships of changes in each variable of interest with changes in other variables of interest (Gay, Mills, & Airasian, 2012).

The research was guided by four research questions, each aligned with the same theoretical question but indicative of different population samples. Each of the four research questions was addressed with correlations of each school's overall survey score for that population and the normalized gain score representative of the corresponding school's change in student achievement.

Within the context of each research question, the representative population sample's survey results for each of the five aspects of the PLC were explored as subcomponents of the overall survey score correlations. The staff perceptions of each responding school were correlated with that school's change in student literacy data, as measured by normalized gain score representative of the difference in the percentage of the first-time tester student cohort who achieved the 2016 passing standard on the Grade 8 Reading exam (sixth-eighth grade schools) and the 2016 passing standard on the English 2 EOC exam (sixth-12th grade schools and ninth- 12th grade schools) in spring

2015 and in spring 2016. The exam used per grade level span was the culminating standardized literacy exam for that grade level span.

Grade Span	Exam Results Used
6-8	Reading 8
6-12	English 2 EOC
9-12	English 2 EOC

The research questions were as follows:

- What is the relationship between the extent to which secondary school staffs believe their school demonstrates each of the five components of an effective PLC (shared and supportive leadership, shared vision and values, collective learning and application of learning, supportive conditions, and shared personal practice), as measured by the SPSLQ, and the change in student achievement?
- What is the relationship between the extent to which secondary school administrators believe their school demonstrates each of the five components of an effective PLC (shared and supportive leadership, shared vision and values, collective learning and application of learning, supportive conditions, and shared personal practice), as measured by the SPSLQ, and the change in student achievement?
- What is the relationship between the extent to which secondary school teachers believe their school demonstrates each of the five components of an effective PLC (shared and supportive leadership, shared vision and values, collective learning and application of learning, supportive conditions, and shared personal practice), as measured by the SPSLQ, and the change in student achievement?

- What is the relationship between the extent to which secondary school teachers believe their school demonstrates the five components of an effective PLC (shared and supportive leadership, shared vision and values, collective learning and application of learning, supportive conditions, and shared personal practice), as measured by the SPSLQ, and the change in student achievement?

Research questions were addressed by correlating the data representative of the sample student and staff populations in each of this urban district's participating secondary schools. Further exploration of the population and sample will provide the context within which the research questions were investigated.

Population and Sample

The populations being explored were the staffs and students of the 81 secondary schools in a large, urban school district in the south-central portion of the United States. The student population included in this study was this school district's spring 2015 and spring 2016 cohorts of eighth and tenth grade students. The correlations were done utilizing aggregate scores, and the demographics of the school district's relevant cohorts are charted in Appendix D.

The demographics of the population of the secondary school staffs are charted in Appendix D. The goal for the proportionate sample of this district's secondary school staffs was a survey response rate of a minimum of 10% for each of the population samples surveyed (whole staff, administrators, teachers). Within the 81 schools, staff membership ranged from 10 to 285, administrator membership ranged from one to 22, and teacher membership ranged from five to 184.

Instrumentation

The instrument that was used to gather staff perceptions of their school's effectiveness as a PLC was an electronic version of the SEDL's School Professional Staff as Learning Community Questionnaire (SPSLCQ) (Hord, 1996). This Likert-type instrument consisted of 17 descriptors, and generated a numeric score representative of that staff member's perception of the school's effectiveness in each of the five PLC dimensions: shared and supportive leadership; shared vision and values; collective learning and application of learning; supportive conditions; and shared personal practice. The descriptors were designed as a series of three sentences ordered from left to right on a five point range that reflects a mature practice of the descriptor, for a score of five, to less mature practice, for a score of one (Hord, 1999). An electronic version of this survey instrument was developed for this study, and is represented in Appendix A.

Reliability

The degree to which the SPSLCQ is reliable, or the proportion of observed score to "true score" (Sprinthall, 1997), has been both pilot tested and field tested. In the pilot study involving 28 participants, 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 (Hord et al., 1999).

A subsequent field test involving 690 teachers across 21 schools, including six elementary, six middle/junior high, and nine high schools, generated a Cronbach's Alpha reliability score of .9389 for the entire instrument across all 690 respondents. The instrument's alpha reliabilities were then computed for each of the 21 individual schools

in the field test, and those reliability scores ranged from .62 to .95, with the majority of the scores in the .80s and .90s. In this field test, all measures of internal reliability were found to be significant at the .0001 level (Meehan et al., 1997).

The stability reliability coefficient score of .6147 was calculated based on a subset of fifty-eight teachers that participated in a test-retest administration sequence.

Meehan et al. (1997) 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. The researchers attributed the marginal test-retest reliability to the reduced sample size, which was attributed to the complexity of aligning retest results on an anonymously administered survey.

Validity

The degree to which SPSLCQ is valid, or the degree to which it measures what it is claimed to measure (Sprinthall, 1997), was determined to be at acceptable levels through both pilot and field testing (Meehan et al., 1997). The SEDL instrument was designed to measure the perceptions of a staff of their school's maturity as a PLC, and the 1997 field test involving 690 teachers yielded results validating that "the instrument did differentiate the faculties in terms of their maturity as learning communities, and that these differences were evident across elementary, middle/junior high, and high school levels" (Meehan et al., 1997, p. 1).

Content validity was accounted for through a three-tiered, collaborative vetting process of constructing, analyzing, and making adjustments to the instrument to ensure alignment of the word choices with the intent of the questions prior to field testing the questionnaire. The concurrent validity of the questionnaire used in the field test was

determined by conducting correlations between the scores that 114 subjects received on the field test and the scores they received on a questionnaire that was intended to measure the same constructs. The correlation between the scores generated by field test instrument and the validity check instrument, the 10-item “School Climate Questionnaire” developed by Manning, Curtis, and McMillen (1996), was .7489, which was significant at the .001 level (Meehan et al., 1997).

Construct validity was measured by both the “known group” method and through exploratory factor analysis. Researcher Dr. Shirley Hord administered the questionnaire to a “known group,” a school staff that she had observed closely for several years and determined to meet the characteristics of a highly mature professional learning community. The difference in the mean scores of the known group and of the full field test group were statistically significant within all five dimensions and for the total instrument, indicative of a significant difference in scores for less mature and more mature professional learning communities (Meehan et al., 1997).

While the known group method indicated construct validity for both the entire instrument and the separate components of the field test instrument, the exploratory factor analysis only lent strong support to the construct validity as a unitary measure of PLC maturity, with less significant differences between the five components of the instrument that previous reliability and validity tests had supported as significantly distinct (Meehan et al., 1997).

Based on the validity and reliability tests conducted during the SPSLCQ field testing, Meehan et al. (1997) concluded that the “instrument is very useful as a screening, filtering, or measuring device to assess the maturity of a school's professional staff as a learning community, especially when the total instrument score is used. We conclude that

the five dimensions, as presently constructed are useful for descriptive purposes in comparing different school faculties, but they do not possess sufficient evidence now to be labeled legitimately as factors or subscales” (p. 46). Within the current study, correlations were conducted utilizing the total instrument score, based on the assessment that this measure was both a valid and reliable measuring device for the school’s PLC maturity. Correlations of the dimensions with student results were also provided as a segue for further studies through which reliability and validity of the subscales could continue to be explored.

Data Collection

The researcher utilized the Dillman Tailored Design method for online surveys (Dillman, 2009) to guide the use of font, formatting, and word selection. The protocol for maximizing emailed survey responses (Schaefer & Dillman, 1998) was followed, and all communication was done through email utilizing the school district’s email system. In their research, Schaefer and Dillman (1998) cited studies that showed “the average response rate for e-mail surveys with a single contact is 28.5%, compared with 41% for two contacts and 57% for three or more contacts” (p. 2).

On Sunday, April 10, 2016, the first day of the two-week survey window, every member of the school district’s secondary schools’ staffs received an email that included a cover letter (Appendix B) describing the intent of the study and notification of the importance of completing and returning the linked questionnaire. On Sunday, April 17, 2016, the targeted subgroups, secondary schools’ administrators and teachers, received a second email (Appendix C) with wording specific to their particular schools requesting a response to the survey if one had not already been completed. More personalized

communication that does not compromise the anonymity of the respondent has shown promise with yielding increased response rates in electronic survey platforms (Heerwegh et al., 2005).

Sunday, April 24, 2016 marked the end of the established two-week online survey window. The survey was then closed, the staff response rates per school were calculated, and the PLC perception data was analyzed in preparation for the administration of the exams through which correlational data would be extracted.

Data Analysis

The results of the SPSLCQ administration as well as the results of the spring 2015 and spring 2016 Grade 8 Reading exam or English 2 EOC exam at each of the district's participating secondary schools were analyzed. The descriptive statistics provided useful in determining the representativeness of the study's population. The results of the SPSLCQ administration were substantiated by analyzing the representativeness of the return rates across the population samples. Charting the number of survey respondents within the staff, administrator, and teacher categories in each analyzed school alongside the number of staff, administrators, and teachers in that school, revealed the percentages of respondents within each category. The descriptive statistics relevant to the student assessment data were substantiated by a side-by-side depiction of the demographics of the relevant 2015 and 2016 testing cohorts (Appendix D).

The analysis of the components of each school's survey results and student achievement data unearthed relationships between data sets. Differences in correlations between data sets and themes across data sets provided the information needed to determine if there is a relationship between the degree to which the staffs perceive their

school to be functioning as an effective PLC and changes in student achievement. Correlations within and between data sets also provided the information needed to determine which group's perceptions were more closely correlated with changes in student achievement, and if the differences between administrator and teacher perception data had any correlation with changes in student achievement.

Variables of Interest

Independent variables. The independent variables in this study were the position of the staff member and the staff member's perceptions of the school's level of effectiveness as a PLC. Position was defined in terms of four subcategories of staff: administrator, which included deans, assistant principals, magnet coordinators, instructional specialists, curriculum specialists, and principals; teacher, which included district employees who are directly accountable for teaching students and serve full-time at one school; instructional support staff which included librarian, tutor, teacher assistant, dedicated associate teacher, or hourly lecturer; and "other" which included any position assigned to the school that does not fit one of the other classifications.

The electronic survey was emailed to all secondary school staff members in the first email, and only to those who fit into the administrator or teacher job descriptions in the second email, as job codes were included in the district's email system and the recipients could be filtered through the job codes. When completing the survey, a person needed to indicate whether in which job category he or she served in order to submit the survey. The responses from all staff categories were used in determining the survey scores for Research Question 1, the responses from the administrator category were used in determining the survey scores for Research Question 2, the responses for the teacher

category were used in determining the survey scores for Research Question 3, and the difference between the administrator and teacher scores were used in determining the scores for Research Question 4.

The perception that each staff member had of the degree to which the school was functioning as an effective PLC was measured using an electronic version of the School Professional Staff as Learning Community Questionnaire (SPSLCQ), developed by the Southwest Educational Development Laboratory (SEDL) (Hord, 1996). This instrument utilized a Likert-type scale, and consisted of seventeen descriptors grouped into five PLC dimensions: shared and supportive leadership; shared vision and values; collective learning and application of learning; supportive conditions; and shared personal practice.

The completion of the survey generated a scale score for each of the five PLC dimensions representative of that staff member's perception of the level at which the school was representative of that indicator. The scores for the five dimensions were averaged to determine the "survey score," which was indicative of that staff member's perception of the level at which the school was representative of an effective Professional Learning Community. The reliability and validity tests performed on the SPSLCQ instrument indicated that the higher the overall score was on the instrument, the higher the maturity level of the school as a PLC. The scores generated by the staff of a school represented that school's independent variables, which were then correlated with that school's corresponding dependent variable.

Dependent variables. The dependent variables of this study were the change in student achievement per school. The student achievement data in this study was challenging to compare for multiple reasons. Each school's dependent variable needed to

reflect the change in the percentage of students who tested at the proficiency level on the culminating standardized literacy exam in spring 2016 as compared with the percentage of students who tested as proficient on the same exam in spring 2015. The first challenge was that the cut score used to determine proficiency increased in spring 2016, so both sets of student scores needed to be gaged at the spring 2016 cut score to compare like data sets representative of student literacy proficiency.

Secondly, to make data comparable across two tests, the Grade 8 Reading Exam (the culminating standardized literacy exam in 6th-8th grade schools) and the English 2 EOC exam (the culminating standardized literacy exam in 6th-12th and 9th-12th grade schools), normalized gain scores were used. The normalized gain score formula provided by Bao (2006) was:

$$g = \frac{\text{Posttest score} - \text{Pretest score}}{\text{Maximum score} - \text{Pretest score}}$$

In this study, normalized gain was calculated from percentage scores, so the formula presented by Coletta and Phillips (2005) was used as a basis:

$$g = \frac{\text{Posttest\%} - \text{Pretest\%}}{100\% - \text{Pretest\%}}$$

In the above formula, “posttest %” and “pretest %” are reflective of the percentage correct on the posttest and on the pretest.

Normalized gain, symbolized by g , represents the proportion of the improvement that was made from pretest to posttest in relation to the improvement that could have been made. For example, suppose a student scores 50 out of 100 correct on the pretest and 75 out of 100 correct on the post test. The possible improvement from the pretest score is $100 - 50 = 50$, and the increase from pretest to posttest is 25 points. The 25 point

gain represents a 50% increase over the pretest score in terms of what could be gained, i.e., gain of 25 divided by the possible gain of 50 is

$$25/50 = .50 \text{ or } 50\%.$$

Using the Coletta and Phillips (2005) formula as a basis, the normalized gain score formula used to derive the dependent variable for every secondary school in this study was developed:

$$g = \frac{2016 \text{ percent passed} - 2015 \text{ percent passed at 2016 cut score}}{100 - 2015 \text{ percent passed at 2016 cut score}}$$

The normalized gain score was utilized as the dependent variable because it was a number that represented the proportionate change in student achievement regardless of which of the two literacy assessments were being used, and regardless of the change in cut scores between the two testing cohorts. The normalized gain score represented the proportionate progress that the school made in closing the gap between their 2015 percent passed at the 2016 cut score and 100%.

The examination results used in calculating the dependent variable for each of the middle schools (sixth through eighth grade) were the results of each school's Grade 8 Reading exam, as this was the culminating literacy test for schools that cover this grade span, and all eighth grade students took this standardized exam during a regulated testing window every year.

The change in the student achievement for schools culminating in an eighth grade was calculated by comparing the percentage of the school's first time testing students who earned a score of 1587 or above on the Grade 8 Reading exam in the spring 2015 administration with the corresponding percentage in the spring 2016 administration. The 1587 cut score separated students who did or did not pass beginning with the spring 2016

administration, so this cut score was applied to both student cohorts so the generated student percentages would be representative of the same gage of success.

The examination results used in calculating the dependent variable for each of the sixth through 12th grade schools and high schools (ninth through 12th grade) were the results of each school's English 2 EOC exam. This was the culminating literacy test for schools that covered these grade spans, and all tenth grade students took this standardized exam during a regulated testing window every year.

The change in the student achievement for schools that included a tenth grade was calculated by comparing the percentage of the school's first-time testing students who earned a score of 3775 or above on the English 2 EOC exam in the spring 2015 administration with the corresponding percentage in the spring 2016 administration. The 3775 cut score separated students who did or did not pass during the spring 2016 administration, so the same cut score was applied to both student cohorts and the generated student percentages were representative of the same gage of success. The normalized gain score was then calculated to determine the dependent variable for each school.

Data Analysis Procedures

As recommended by deVaus (2002), the researcher prepared the variables for analysis by calculating descriptive statistics for each comparison group and organizing the groupings in order to calculate inferential statistics. Pearson correlation procedures were used to test the strength of the linear relationship between the two variables in each of the first, second, and third hypotheses, as these data sets met the core requirement of being reflected in interval form and representing a normal distribution. The first

hypothesis was that there would be a significant correlation between the independent and dependent variables, namely the staff's overall SPSLCQ score and the normalized gain score for the school's culminating literacy exam.

The second hypothesis was that there would be a significant correlation between the independent and dependent variables, namely the administrators' overall SPSLCQ score and the normalized gain score for the school's culminating literacy exam. The third hypothesis was that there would be a significant correlation between the independent and dependent variables, namely the teachers' overall SPSLCQ score and the normalized gain score for the school's culminating literacy exam. A nonparametric Spearman correlation does not require that the variables be normally distributed, so this procedure would have been used if a case in which there was not a normal distribution had emerged (Sprinthall, 1997).

Pearson correlation procedures were then used to test the strength of the linear relationship between the interval representation of each of the five components of the staff's perception survey and the interval representation of change in student achievement for each represented school, and the process was repeated for the subgroups of the administrators' and teachers' perception surveys. If there had been a case in which a normal distribution was not present, a nonparametric Spearman correlation would have been utilized.

A multi-tiered approach was used to respond to the fourth hypothesis, which was that there would be a significant correlation between the difference in the administrators' and teachers' SPSLCQ scores for a school and the normalized gain score for the school's culminating literacy exam. First, the researcher conducted a school-by-school analysis to

determine if the administrators' and teachers' survey scores were normally distributed in both the overall rating and in each survey component and determined whether a parametric or non-parametric test would be used for differential analysis. A Kolmogorov-Smirnov (KS) test was used, with the null hypothesis that the data would have a normal distribution (Gall et al., 2006).

The null hypothesis was not rejected, therefore a *t* test, which requires a normal distribution, was used to determine the significance of the difference between the two sets of survey scores. The first score in the *t* test was consistently the administrators' average score and the second score was consistently the teachers' average score, so the resulting scores fell into one of two categories; if the administrator rating was higher, a positive score was obtained, and if the teacher rating was higher a negative score was the result.

If the null hypothesis had been rejected for a data set, the non-parametric Mann-Whitney U test, which does not require a normal distribution, would have been used to determine the significance of the differences between the average survey responses in a school's teachers' and administrators' groups. The data generated through the *t* test and Mann-Whitney U test would have been comparable (Gall et al., 2006).

Normalized gain scores were used to depict changes in achievement. A correlation matrix of Pearson's *r* scores was presented for the scores representative of the staff's overall survey score and for the scores generated by the questions representative of each of the five dimensions of the PLC and that school's normalized gain score.

The process presented above was repeated for analyzing the perception data gathered for administrators to determine if there are any significant correlations between school administrators' PLC ratings and those schools' normalized changes in student

achievement. The process was repeated for analyzing the perception data gathered for teachers to determine if there are any significant correlations between teachers' PLC ratings and those schools' normalized changes in student achievement. Lastly, the analyses noted above was replicated again, with the difference between each school's average administrator and teacher rating per component being correlated with the change in student achievement to determine the level of significance of these correlations.

The quantifiable perception data generated through the SPSLCQ administration to the staffs of secondary schools across this large urban school district were correlated with the normalized gain scores representative of changes in student achievement in the year of the survey administration. Through section by section analyses of the survey correlations, and by differentiating between the administrator and teacher correlations, this research explored which aspects of staff perception were most aligned with changes in a secondary school's student achievement.

In Chapter 4, the numerical data gathered through the SPSLCQ administration to secondary school staffs will be correlated with the corresponding schools' normalized gain scores' representative of the changes in the results of their culminating standardized literacy exam from the spring 2015 to the spring 2016 administration. The significance of these correlations will have contributed to the generalized knowledge base of the correlations between PLCs and student achievement.

CHAPTER 4

DATA ANALYSIS

Institutions of secondary education are charged with graduating students who are prepared for college, career, and life, regardless of the level of preparedness those students exhibit upon enrollment. Nationwide, almost half of students of color and students from low income families enter fifth grade reading below grade level (Alliance for Excellent Education, 2016). In the year of the study, the 2015-2016 school year, the urban district in which this study took place served a student population that included 86% students of color and 76% students from low income families. As shown in Table 1, only 58% of students entered the sixth grade and 40% of students entered 9th grade were reading at or above grade level. Twenty-two percent of incoming sixth graders and 37% of incoming 9th graders had tier three assessment scores, indicative of a reading level two or more years behind their grade level (Istation results, September 2015).

Table 1: District Istation Results September 2015

Grade	Istation: Tier 1 RI: Adv & Prof	Istation: Tier 2 RI: Basic	Istation: Tier 3 RI: Below Basic
6	58%	20%	22%
9	40%	23%	37%

It is critical that secondary schools continually improve their effectiveness at increasing their students' literacy, and one of the school improvement efforts that has been explored is Professional Learning Communities (PLCs). The purpose of this study was to explore the relationship between the degree to which a school functions as an effective PLC and student achievement on the culminating literacy exam. The study focused specifically on the schools that serve students only in the sixth through 12th grade in an

urban school district in the southeastern United States, with grade spans of sixth through eighth, sixth through 12th, and ninth through 12th.

This study explored the relationship between each school's student achievement and the perceptions of three clusters within that school's staff; the school staff as a whole, the administrators, and the teachers. The difference between the administrators' and teachers' perception scores was also correlated with the school's student achievement to see if any significant relationships emerged. This study was done as a single-phase study in which the data for both variables was collected in the second semester of the 2015-2016 school year, and quantitative methods were used to determine if significant linear relationships existed between the independent and dependent variables across the district's secondary schools.

This chapter begins with an analysis overview of the quantitative data collected from the district's 81 secondary schools, which host a total of 6963 staff members, 4163 of which are teachers and 524 of which are administrators. The teacher and administrator data are both reflected in the "staff" data, which also includes any other person who works at that school and is assigned to the school through the district's email system.

The analysis overview will include the analysis procedures as well as the demographic depiction of the district's secondary school student body, the district's secondary school staff and staff subgroups, and the percentages of participation across school staffs and staff subgroups. Chapter 4 will culminate with a summary of the data findings specifically in response to the research questions.

Response Rate

On April 10, 2016, the SPSLCQ survey was emailed to the entire staff of all

schools in the school district that had the grade span of 6-8, 6-12, or 9-12. The total number of survey recipients, equivalent to the number of secondary school staff members in this large, urban school district, was 6963. During the subsequent two-week survey window, 1168 surveys were completed and submitted, yielding a 17% survey response rate for the district's secondary school staff population.

Included within the district's staff numbers were 524 secondary school administrators, and 180 of those administrators completed and submitted the survey, which yielded a 34% response rate for the district's secondary school administrator population. Also included within the district's staff numbers were 4163 secondary school teachers, and 840 of those teachers completed and submitted the survey, which yielded a 20% response rate for the district's secondary school teacher population.

Every staff member of the district's 81 secondary schools was emailed the survey through the district's email system, and 79 schools (98%) had staff members that submitted at least one completed survey. Of the district's secondary schools, 74 schools (91%) had a whole staff survey response rate of at least 10%, 61 schools (75%) had an administrator response rate of at least 10%, and 75 schools (93%) had a teacher response rate of at least 10%. Fifty-eight schools (72%) had both administrator and teacher response rates of at least 10%. The survey response rates per school are charted in Appendix D.

Demographic Data

To ensure anonymity of survey respondents, the only identifying information provided by each respondent was the name of the respondent's school and the respondent's job category. The demographics of the population of this district's

secondary school staffs during the span of the survey administration are charted in Appendix E.

The dependent variable in this study was the normalized gain score representative of the difference in the culminating literacy exam scores of two distinct student cohorts. The comparative demographics for these populations are presented by a chart in Appendix E that depicts the entire district's spring 2015 and spring 2016 testing cohorts for both the Reading 8 and the English 2 exams.

Summary of the Findings for Research Questions

The analyses performed in this study and reflected in Table 2 revealed no correlations that were significant at the .05 level, although several patterns indicative of “small” (Cohen, 1988) positive associations between survey results and student achievement data did emerge.

Table 2.

Correlations between PLC ratings and Achievement Change

	Staff ^{RQ1}	Admin ^{RQ2}	Teacher ^{RQ3}
PLC Scale 1	.04	.07	-.05
PLC Scale 2	.12	.17	.03
PLC Scale 3	.09	.11	.01
PLC Scale 4	.04	.04	-.02
PLC Scale 5	.10	.08	.05
PLC Overall	.08	.11	.003

Note: RQ1 n = 79, RQ2 n = 61, RQ3 n = 79.

*p < .05

Summary of the Findings for Research Question One.

The first research question was: What is the relationship between the extent to which the secondary school staff believes their school demonstrates each of the five components of an effective PLC (shared and supportive leadership, shared vision and

values, collective learning and application of learning, supportive conditions, and shared personal practice), as measured by the SPSLQ, and the change in student achievement? To address this research question, descriptive statistics were calculated for each school in which there were staff members that completed and submitted the survey.

Staff members of 79 schools responded to the survey about their school's maturity of a PLC thereby generating an overall survey score for the school ($M=3.4$, $SD=.48$). For those same schools, normalized gain scores were calculated to represent the change in the percentage of students who met the 2016 cut score on the culminating standardized literacy test score between the spring 2015 and spring 2016 student cohorts ($M=23$, $SD=28$)

Pearson Correlation Analyses were run on the staff survey statistics and the associated school's normalized gain score utilizing Stata Statistical Software (2013). The Pearson results revealed a slight positive correlation that was not significant at the .05 level [$r=.08$, $n=79$, $p>.05$]. There was not a significant relationship between the staff's perception of the school's level of maturity as a PLC and the change in student literacy scores.

The Pearson correlation coefficient (r) was then calculated to analyze the strength of the relationship between schools' average staff survey score for each of the survey's five question categories, representative of the following PLC characteristics: 1) shared and supportive leadership; 2) shared vision and values; 3) collective learning and application of learning; 4) supportive conditions; and 5) shared personal practice, and the associated schools' normalized gain scores.

The 79 school staffs who responded to question number two designed to gauge shared vision and values ($M= 3.61$, $SD=.53$) and the corresponding schools' normalized

gain scores ($M=23$, $SD=28$) yielded the highest correlation with a weak or “small” correlation, defined by Cohen (1988) as $.1 < |r| < .3$. The “small” correlation emerged at the .12 level, [$r=.12$, $n=79$, $p>.05$]. There is not a statistically significant relationship between these variables, but the pattern of responses suggests that there is a “small” chance that there is a positive relationship between the degree to which a school staff shares a common vision and value set and the degree to which they increased their student literacy scores over the 2016-2017 school year.

In summary, there was not a significant relationship established between the perception of the school’s staffs of the level of PLC maturity at which their schools were functioning and the change in their school’s culminating literacy score in that calendar year. The degree to which the school staff perceived their school to be functioning within one PLC component, namely shared vision and values, yielded a small but statistically insignificant correlation [$r=.12$, $n=79$, $p>.05$] with student achievement when assessed separately, and the remaining four PLC components yielded statistically insignificant correlation coefficients below .1.

Statistically, the null hypothesis held true as the data analyzed in response to RQ1 revealed no significant relationship between the independent and dependent variables. Even though none of the correlations were statistically significant, there was a consistent pattern suggestive of a small positive relationship between the staff’s score in the SPSLCQ shared vision and values section and the school’s normalized gain score.

Summary of the Findings for Research Question Two.

The second research question was: What is the relationship between the extent to which the secondary school administrators believe their school demonstrates each of

the five components of an effective PLC (shared and supportive leadership, shared vision and values, collective learning and application of learning, supportive conditions, and shared personal practice), as measured by the SPSLQ, and the change in student achievement? To address this research question, descriptive statistics were calculated for each school in which there were administrators that submitted a completed survey. Administrators of 61 schools submitted a completed SPSLCQ survey, and generated an overall administrator survey score for their school ($M=3.78$, $SD=.61$). For those same schools, normalized gain scores were calculated to represent the change in the percentage of students who met the 2016 cut score on the culminating standardized literacy test score between the spring 2015 and spring 2016 student cohorts ($M=23$, $SD=27$).

Pearson Correlation Analyses were run on the administrators' survey statistics and associated normalized gain scores utilizing Stata Statistical Software (2013). The Pearson results did not yield a statistically significant correlation at the .05 level, but a consistent pattern in the data suggested a "small" (Cohen, 1988) positive correlation that was not significant at the .05 level [$r=.11$, $n=59$, $p>.05$]. There was a small but non-significant relationship between the degree to which the school's administrators believed the school was exhibiting the characteristics of a mature PLC and the change in student literacy scores.

The Pearson correlation coefficient (r) was then calculated to analyze the strength of the relationship between each school's average administrator SPSLCQ survey score for each of the five question categories, representative of the following PLC characteristics: 1) shared and supportive leadership; 2) shared vision and values; 3)

collective learning and application of learning; 4) supportive conditions; and 5) shared personal practice, and the associated normalized gain score.

No statistically significant relationships emerged from these Pearson analyses. While not statistically significant at a 5% level, two patterns of data did emerge. A “small” (Cohen, 1988) but statistically insignificant positive correlation occurred in the area of shared vision and values, [$r = .17, n=61, p >.05$]; schools in which the administrators perceived all staff members to be united in their beliefs about the values and direction of their school were more likely to experience growth in their student literacy scores. A “small” but statistically insignificant positive correlation also occurred in the area of collective learning and application of learning, [$r = .11, n=59, p >.05$]; schools in which administrators perceived all staff members to share information with one another and to apply what they learned from one another in their own instructional practices were more likely to increase student literacy achievement.

In summary, the null hypothesis held true as the data analyzed in response to RQ2 revealed no statistically significant relationship between the independent and dependent variables. Patterns in the correlational data did emerge that was suggestive of “small” (Cohen, 1988) positive correlations between the independent and dependent variables in three of this question’s datasets.

Statistically, the null hypothesis held true as the data analyzed in response to RQ2 revealed no significant relationship between the independent and dependent variables. Even though none of the correlations were statistically significant, were patterns in the data suggestive of a small positive relationships between the administrators’ overall survey score and the school’s normalized gain score, the administrators’ shared vision and

values score and the school's normalized gain score, and the administrators' collective learning and application of learning score and the school's normalized gain score.

Summary of the Findings for Research Question Three.

The third research question was: What is the relationship between the extent to which the secondary school teachers believe their school demonstrates each of the five components of an effective PLC (shared and supportive leadership, shared vision and values, collective learning and application of learning, supportive conditions, and shared personal practice), as measured by the SPSLQ, and the change in student achievement? To address this research question, descriptive statistics were calculated for each school in which there were teachers who submitted the completed survey. The teacher survey statistics reflected that 79 schools that had teachers that generated an overall survey score ($M=3.27$, $SD= .46$). For those same schools, normalized gain scores were calculated to represent the change in the percentage of students who met the 2016 cut score on the culminating standardized literacy test score between the spring 2015 and spring 2016 student cohorts ($M=23$, $SD=28$).

Pearson correlation analyses were run on the secondary school teachers' SPSLCQ survey statistics and associated normalized gain scores utilizing Stata Statistical Software (2013). The analyses revealed a statistically insignificant, negligible relationship between the average SPSLCQ survey score for schools' teaching staffs and the corresponding student normalized gain scores [$r=.003$, $n=79$, $p>.05$], and it is 98% likely that this correlation could have emerged by chance assuming the null hypothesis was true and there was no relationship between the teacher perception data and the change in student literacy scores.

The Pearson correlation coefficient (r) was then calculated to analyze the strength of the relationship between each school's average teacher SPSLCQ survey score for each of the five question categories, representative of the following PLC characteristics: 1) shared and supportive leadership; 2) shared vision and values; 3) collective learning and application of learning; 4) supportive conditions; and 5) shared personal practice, and the associated school's normalized gain score.

None of the question categories generated a statistically significant correlation between teacher's perceptions of a school's PLC characteristics and student achievement scores. It is interesting to note that, although the pattern that emerged was very slight and statistically insignificant, a higher teacher score in the area of shared and supportive leadership actually showed a pattern of being associated with a lower impact on student literacy scores [$r = -.05$, $n=78$, $p>.05$]. The same phenomenon of a slight, statistically insignificant negative correlation emerged in the area of supportive conditions [$r = -.02$, $n=78$, $p>.05$].

In summary, the null hypothesis held true as the data analyzed in response to RQ3 revealed no statistically significant relationship between the independent and dependent variables. No patterns indicative of even "small" (Cohen, 1988) correlations emerged from correlating the data sets of teacher perceptions and associated student achievement scores.

Summary of the Findings for Research Question Four.

The fourth research question was: What is the relationship between the difference in the ratings assigned by a secondary school's administrators and a secondary school's teachers to each of the five components of an effective PLC (shared

and supportive leadership, shared vision and values, collective learning and application of learning, supportive conditions, and shared personal practice), as measured by the SPSLQ, and the change in student achievement? To address this research question, a Kolmogorov-Smirnov (KS) test was used, with the null hypothesis that the data would have a normal distribution (Gall et al., 2006).

The null hypothesis held true, so a two-sample *t* test, which requires a normal distribution, was used to determine the significance of the difference between the two sets of survey scores. The correlated *t*-test (Table 2) indicated that there was a statistically significant difference of .51 ($p < .0001$) between the mean survey score for the administrators (3.78) and the mean survey score of the teachers (3.27):

The “difference between teacher and administrator” (DAT) survey statistics reflected that 60 schools that had both administrators and teachers that generated an overall survey score therefore allowing the DAT survey score descriptive statistics to be calculated, ($M = .45$, $SD = .62$). The minimum DAT survey score was -1.92 (indicating that the teachers scored the survey higher than the administrators), and a maximum survey score of 1.92. For the same schools that generated a DAT survey score, normalized gain scores were calculated to represent the change in the percentage of students who met the 2016 cut score on the culminating standardized literacy test score between the spring 2015 and spring 2016 student cohorts ($M = 22$, $SD = 28$).

Pearson correlation analyses were then run on the calculated difference between each school’s administrator and teacher scores, labeled as the difference between each school’s administrator and teacher survey statistic, and associated normalized gain scores utilizing Stata Statistical Software (2013). A statistically significant correlation did not

emerge. While not statistically significant at a 5% level, a pattern of data indicative of “small” (Cohen, 1988) positive correlation emerged between normalized scores and the size of the gap between administrator and teacher perceptions, with administrators awarding higher scores than teachers, as measured by the SPSLCQ survey [$r=.13$, $n=60$, $p>.05$].

The Pearson correlation coefficient (r) was then calculated to analyze the strength of the relationship between each school’s difference between the average administrator and average teacher SPSLCQ survey score for each of the five question categories, representative of the following PLC characteristics: 1) shared and supportive leadership; 2) shared vision and values; 3) collective learning and application of learning; 4) supportive conditions; and 5) shared personal practice, and the associated school’s normalized gain score.

Statistically, the null hypothesis held true for RQ4, as no significant correlations emerged between the variables in any of the category analyses. While not statistically significant at the 5% level, a pattern suggesting a “small” (Cohen, 1988) positive correlation existed between gap between the administrator and teacher perceptions of the school’s level of exhibiting three categories of PLC characteristics and normalized gain values. The small positive correlations occurred in the areas of shared and supportive leadership, [$r= .12$, $n=60$, $p>.05$]; shared vision and values, [$r= .16$, $n=60$, $p >.05$]; and collective learning and application of learning, [$r= .11$, $n=60$, $p>.05$]. The patterns indicated that, although no statistically significant correlations emerged, the higher the administrators’ scores were above the teachers’ scores in these three areas, the higher the growth in student achievement.

Summary of the Patterns that Emerged in the Findings

The null hypotheses held true across all four research questions, as this research revealed no significant correlations between the perceptions of PLC effectiveness held by secondary school staffs and staff subpopulations and their schools' change in student literacy scores in that calendar year. While no correlations were determined to be significant at the .05 level, there were several patterns that emerged in the correlational data that show “small,” or weak, correlations, defined by Cohen (1988) as $.1 < |r| < .3$. The questions on the survey that yielded a “small” correlation between a population sample and student achievement were as follows:

Table 4

Summary of findings of “small” correlations between survey responses and student achievement

Population Sample	Question	PLC Characteristic Measured	<i>r</i>	<i>p</i>
Staff	2	Shared vision and values	.12	.29
Administrators		Overall Score	.11	.41
Administrators	2	Shared vision and values	.17	.2
Administrators	3	Collective learning and application	.11	.4
Administrators-Teachers		Overall Score	.13	.32
Administrators-Teachers	1	Shared and supportive leadership	.12	.36
Administrators-Teachers	2	Shared vision and values	.16	.22
Administrators-Teachers	3	Collective learning and application	.11	.39

While no statistically significant relationships emerged, the administrators' scores have demonstrated a trend in this study of generating the most patterns showing “small”

but statistically insignificant correlations with student achievement gains. The small correlations that emerged in this study of the relationships between staff perceptions and student achievement, while not significant at the 5% level, have opened the door to further opportunities for research. The overview of the study, its implications, and the researcher's recommendations for further research will be articulated in Chapter 5.

CHAPTER 5

SUMMARY, CONCLUSIONS, DISCUSSION, AND RECOMMENDATIONS

Summary

Purpose of the Study

The reading levels of secondary school students in the United States of America have been as a whole significantly below the literacy requirements of the nation's colleges and careers (Alliance for Excellent Education, 2015). This gap, which has been more prominent among students in urban areas, students of color, and those from low-income families, has been connected with unemployment and lower income levels (Kutner et al, 2007), with an increased rate of incarceration (Greenberg et al., 2007), and with dropping out of high school (Alliance for Excellent Education, 2011).

The way a secondary school functions must be intentionally structured in order to strategically and consistently address literacy with the tenacity at which it is addressed at the primary school level (Biancarosa & Snow, 2006; O'Brien, Steward, & Moje, 1995). While addressing literacy within the structure of secondary schools has been challenging, the purposeful leveraging of Professional Learning Communities (PLCs) has shown promise in increasing literacy levels in middle and high school students. The use of the PLCs as a vehicle to structure cross-curricular literacy integration was a common element that emerged among several adolescent literacy studies (Biancarosa & Snow, 2006; Brettschneider, 2009; Wood & Burz, 2013).

Although the urgency of effectively addressing adolescent literacy had been well documented, there had not been a definitive research base established that addressed the relationship between staff perceptions of the school's effectiveness at implementing the

practice of a high-functioning PLC and the growth in student literacy levels within a secondary school. Based theoretically on both the principal-agent theory and distributed leadership theory, this study was conducted to determine if there were significant correlations between staff perceptions of a secondary school's effectiveness as a PLC and the change in the school's culminating standardized literacy assessment scores within one calendar year.

This expansive urban district has a student population largely representative of the demographics targeted nationally for needed literacy improvement; the student population fluctuates slightly from year to year, but has consistently reflected demographics of approximately 60% Hispanic, 25% African American, and 75% Economically Disadvantaged. The relationships between the entire staff's, the administrators', and the teachers' perceptions of their school's effectiveness as a PLC and the change in their school's designated student cohort literacy levels over a one-year period were explored. The relationship between the gap in administrators' and teachers' perceptions of their school's effectiveness as a PLC and the change in student literacy levels over a one-year period was also examined.

Literature Review

The researcher conducted a review of the current research base on both adolescent literacy and PLCs. The literature reviewed focused specifically on the challenge of adolescent literacy in the United States, the leadership theories that form the theoretical basis for this study, studies on the correlation between PLCs and changes in student achievement, and the current research base on the correlation between the perceived effectiveness of secondary schools as PLCs and changes in adolescent literacy levels.

The challenge of adolescent literacy in the United States has been substantiated through multiple national studies chronicling the gap between the literacy requirements of college and careers and the assessed literacy levels of America's secondary school students (Alliance for Excellent Education, 2015; Alliance for NGA Center, 2009). The literacy assessment score gap between white and minority students has been long-standing and well documented (Lee, Grigg, & Donahue, 2007), as has been the literacy gap between the general population and those who are unemployed, lower paid, incarcerated, and/or dropped out of high school (Alliance for Excellent Education, 2011; NGA Center, 2009).

This study was theoretically grounded in both the principal-agent theory and the distributed leadership theory. The principal-agent theory focuses on the "agency problem" (Vanhuysse & Sulitzeanu-Kenan, 2007, p. 5), which occurs whenever one party (the principal) delegates the authority to another party (the agent) and the welfare of the first is affected by the choices of the second (Arrow, 1985; Eisenhardt, 1989; Scott, 1998).

Bannock, Baxter, and Davis (1992), and Barney and Hesterly (1996) synthesized the principal-agent theory research surrounding the issues that come from the delegation of authority. McLaughlin and Talbert (2007) provided a solid research base for distributed leadership theory research; after conducting extensive research on methods of impacting secondary school student achievement, the researchers concluded that high schools which experienced sustained academic growth in their students utilized a true distributive leadership model, which directly impacted the ability of their school structures to impact student achievement.

A substantial research base has supported positive correlations between effective PLC implementation and student achievement (Vescio, Ross, & Adam, 2008; Young & Kim, 2010; Smith, Johnson, & Thompson, 2012; DuFour, R., 2014). In order to support learning for the educators as well as for their students, a PLC must meet key criteria in five research-based dimensions: “shared and supportive leadership; a shared vision; supportive structural and relational conditions; intentional, collegial learning; and shared practice” (Hirsh & Hord, 2008, p. 27). Researchers cited multiple barriers to effective PLC implementation, including lack of adequate meeting time, lack of trust among team members, a lack of clear expectations for team members, and the inability to access and/or utilize relevant data effectively (Cibulka, Coursey, & Nakayama, 2000; Wells & Feun, 2013; and DuFour, R., 2014).

While a substantial research base has supported the relationship between PLCs and student achievement, correlational studies at the secondary school level were primarily focused on the relationship between the practices of a content-area PLC and the student achievement in that content area. The relationship between school wide implementation of the practices that define effective PLCs and literacy levels within secondary schools was missing from the research base at the time of this study.

Methodology

This was a quantitative, non-experimental, correlational study, guided by four research questions. The first research question was “What is the relationship between the extent to which secondary school staffs believe their school demonstrates each of the five components of an effective PLC (shared and supportive leadership, shared vision and values, collective learning and application of learning, supportive conditions, and shared

personal practice), as measured by the SPSLCQ, and the change in student achievement?”

The second and third research questions explored subpopulations of secondary school staffs; the second question replaced “staffs” with “administrators” and the third question replaced “staffs” with “teachers.” The fourth research question, which explored the impact of a perception gap between staff subgroups, was “What is the relationship between the difference in the ratings assigned by a secondary school’s administrators and a secondary school’s teachers to each of the five components of an effective PLC (shared and supportive leadership, shared vision and values, collective learning and application of learning, supportive conditions, and shared personal practice), as measured by the SPSLCQ, and the change in student achievement?”

The researcher examined the perceptions of the staff as a whole as well as of the administrator and teacher subgroups in a large, urban school district in south-central United States. The research questions were addressed by correlating the independent variable, the average score each school’s staff as a whole, then administrators and teachers separately, as entered on an electronic version of the SEDL’s School Professional Staff as Learning Community Questionnaire (SPSLCQ) (Hord, 1996), with the dependent variable, the normalized gain score representative of that school’s change in the percentage of students who passed the culminating standardized literacy exam from spring 2015 to spring 2016. The examination results used in calculating the dependent variable for each of the middle schools (sixth through eighth grade) were the results of each school’s Grade 8 Reading exam, and the examination results used in calculating the dependent variable for each of the sixth through 12th grade schools and

high schools (ninth through 12th grade) were the results of each school's English 2 EOC exam.

As recommended by deVaus (2002), the researcher prepared the variables for analysis by calculating descriptive statistics for each comparison group and organizing the groupings in order to calculate inferential statistics. Pearson correlation procedures were used to test the strength of the linear relationship between the two variables in each of the first, second, and third hypotheses. Pearson correlation procedures were then used to test the strength of the linear relationship between the interval representation of each of the five components of the staff's perception survey and the interval representation of change in student achievement for each represented school. Regression was used to determine correlations between achievement change and each of the five dimension scores as well as the overall score.

A multi-tiered approach was used to respond to the fourth hypothesis, which was that there would be a significant correlation between the difference in the administrative and teaching staff's SPSLCQ scores for a school and the normalized gain score for the school's culminating literacy exam. First, the researcher conducted a school-by-school analysis to determine if the administrators' and teachers' survey scores were normally distributed in both the overall rating and in each survey component and determined whether a parametric or non-parametric test would be used for differential analysis. A Kolmogorov-Smirnov (KS) test was used, with the null hypothesis that the data would have a normal distribution (Gall et al., 2006). The null hypothesis was not rejected, therefore a *t* test, which requires a normal distribution, was used to determine the significance of the difference between the two sets of survey scores. The score

representative of the difference was then used as the independent variable in the correlations performed for the first three research questions.

Findings

The null hypotheses held true across all four research questions, and no statistically significant relationship was found between the perceptions of secondary school staff and staff subpopulations as measured by the SPSLCQ survey and changes in their schools' student achievement. While there were no correlations significant at the .5 level, there were several patterns that emerged indicating "small," or weak, correlations, defined by Cohen (1988) as $.1 < |r| < .3$.

The findings in response to the Research Question 1 "What is the relationship between the extent to which the secondary school staff believes their school demonstrates each of the five components of an effective PLC (shared and supportive leadership, shared vision and values, collective learning and application of learning, supportive conditions, and shared personal practice), as measured by the SPSLCQ, and the change in student achievement?" were all statistically insignificant at the .05 level, and included one pattern indicative of a "small" positive correlation in the area of shared vision and values [$r=.12, n=79, p > .05$]. This pattern of responses indicates a statistically insignificant trend in the degree to which the entire staff believed the school was functioning as an effective PLC having aligned with the degree to which the school's literacy achievement changed over that calendar year.

The findings in response to Research Question 2 "What is the relationship between the extent to which secondary school administrators believe their school demonstrates each of the five components of an effective PLC (shared and supportive

leadership, shared vision and values, collective learning and application of learning, supportive conditions, and shared personal practice), as measured by the SPSLCQ, and the change in student achievement?” were all statistically insignificant at the .05 level, and patterns indicative of three “small” positive correlations emerged.

A “small” but statistically insignificant alignment with the school’s literacy achievement change was discovered in the administrators’ SPSLCQ responses measuring their perception of the school’s overall effectiveness as a PLC [$r=.11$, $n=61$, $p>.05$]; the schools’ level of practicing shared vision and values [$r= .17$, $n=61$, $p>.05$]; and the schools’ practices in the area of collective learning and application of learning [$r= .11$, $n=61$, $p>.05$]. All other administrator scores generated positive, although statistically insignificant, correlations, and the emerging patterns reflected a statistically insignificant trend in which the degree to which the school’s administrators believed the school was functioning as an effective PLC aligned with the degree to which the school’s literacy achievement changed in that school year.

The findings in response to Research Question 3 “What is the relationship between the extent to which secondary school teachers believes their school demonstrates each of the five components of an effective PLC (shared and supportive leadership, shared vision and values, collective learning and application of learning, supportive conditions, and shared personal practice), as measured by the SPSLCQ, and the change in student achievement?” were all statistically insignificant, with no patterns indicative of even “small” correlations emerging. The data examined in this study did not support a relationship between teacher perceptions as measured by the SPSLCQ and changes in student achievement scores.

The findings in response to Research Question 4 “What is the relationship between the difference in the ratings assigned by a secondary school’s administrators and a secondary school’s teachers to each of the five components of an effective PLC (shared and supportive leadership, shared vision and values, collective learning and application of learning, supportive conditions, and shared personal practice), as measured by the SPSLCQ, and the change in student achievement?” were all statistically insignificant at the .05 level, and patterns indicative of four “small” positive correlations emerged.

The degree to which administrators assigned higher scores than teachers did within four areas was weakly aligned with increased student literacy gains in their schools. The size of the gap between administrators’ and teachers’ scores showed “small,” statistically insignificant positive correlations with a change in student achievement in the perception of the school’s overall effectiveness as a PLC, [$r=.13$, $n=60$, $p>.05$]; shared and supportive leadership, [$r= .12$, $n=60$, $p >.05$]; shared vision and values, [$r= .16$, $n=60$, $p >.05$]; and collective learning and application of learning, [$r = .11$, $n=60$, $p >.05$]. All other administrator minus teacher (DAT) gap scores generated positive, although statistically insignificant, correlations. The patterns that emerged from these data sets were not statistically significant, but the “small” correlations reflected a trend that as the gap broadened and administrators assigned higher PLC ratings than their teacher counterparts, the school literacy achievement increased.

Conclusions

The researcher analyzed the findings from this study in the context of the existing research base, theoretical and conceptual foundational research, and study limitations, and came to the following conclusions:

1. A key conclusion based on the findings within Research Question 1 was that the questions that gaged staff perceptions of the school's shared vision and values generated the most correlations with student achievement gains across survey respondent populations, and was the only area to emerge with small correlations from the whole staff population. This finding aligns with the emphasis on common vision within the distributive leadership theory (Spillane, Halverson, & Diamond, 2004). It also aligns with the path-goal approach to changing student outcomes, which stresses the importance of all stakeholders holding a clear "vision" of what success looks like and what the organization stands for (Wells & Feun, 2012; Northouse, 2012), and "There is no more powerful engine driving an organization toward excellence and long-range success than an attractive, worthwhile and achievable vision of the future, widely shared (Nanus, 1992, p. 3 as cited in DuFour, DuFour, and Eaker, 2008)

2. Research Question 2 generated the key conclusion that the perceptions that school administrators hold about their schools' PLC characteristics are more aligned with student literacy gains than are the perceptions of their schools' teachers. The existing research supports the key role of school leaders in creating and sustaining an effective PLC culture (Lieberman, 1999; Hord & Hirsh, 2009; DuFour, 2012; Northouse, 2012; Wells & Feun, 2012). The advantage an administrator has over a teacher is a limitation of this study; an administrator can see what is happening in classes across the school and more accurately answer questions about whole staff practices, whereas a teacher's may be limited by a lack of exposure to other teachers' practices.

3. The findings for Research Question 3 led the researcher to conclude that the degree to which a school's teachers believe their school is engaging in the practices

of an effective PLC is not connected with the school's ability to impact student literacy outcomes. In reviewing the survey instrument, the researcher noted that a teacher may have answered the questions based on what he/she believed the staff as a whole were doing, and depending on the level of exposure to the practices of the staff as a whole, this perception may or may not be connected to the school's reality. In the current research base, multiple studies reveal positive correlations between teachers' ratings of their content area PLC and student achievement in their content area (Vescio et al., 2009; Williams, 2013), but that teacher perception/student achievement correlation did not carry over when the perceptions and student achievement were gaged across the school as a whole.

4. Based on the findings for Research Question 4, the researcher has concluded that the size of the gap between administrator and teacher perception scores aligns with the school's literacy gains. This finding appears to be in conflict with the theoretical foundation for this question, the principal-agent theory, which would support a smaller gap between the administrators ("principals") and teachers ("agents") as indicative of a better ability to achieve the shared goal of increased student performance. The researcher believes that the broader perspective of teacher practices reflective in the administrators' responses and the limitation of the teachers' perspectives affected the administrator/teacher perception gap and negated the impact of the principal-agent theory on the findings.

Discussion

The findings and the researcher's conclusions based on those findings have generated several thoughts that warrant further discussion. The small correlations t

emerged reflected a trend that assigned a greater significance to the perceptions of the administrators than to those of the teachers. In reviewing the survey instrument, the researcher noted that a teacher may have answered the questions based on what he/she believed the staff as a whole were doing, and depending on the level of exposure to the practices of the staff as a whole, this perception may or may not be connected to the school's reality.

It seems that a teacher's responses to the survey question 4A (Appendix A) may be a predictor for how accurately a teacher's responses to 3C and 3D (Appendix A) align to what is actually going on in classrooms across the school. The most direct connection between effective PLCs and increased student achievement is improved teacher practices (Hipp et al., 2003; Vescio et al., 2008; Smith et al., 2012; DuFour, R., 2014), so a question worth exploring is: Would a survey that only considered responses with a high score in question 4A then gaged the responses to questions 3C and 3D as the entire score for a teacher yield a strong positive correlation with the school's change in student achievement?

In this study, the "administrator" title was given to anyone who was in a position that afforded them the right to supervise and/or impact instructional practices throughout the school but not to deliver student instruction themselves. The question elicited through the positive correlation between the size of the administrator/teacher perception gap and student literacy growth was twofold: Did the strong conviction of the administrators in schools that were eliciting high student literacy growth reflect in a repression of the teachers' confidence that their school was on track with the best practices of PLCs? Are administrators'

perceptions the highest leverage perceptions in terms of impacting student growth?

Recommendations

Recommendations for Practice

Based on the data trends unearthed by this study, the researcher recommends that the school principal ensures that any staff member who is in the position to impact school wide instructional practices is trained in how to establish and support shared decision making processes with the teachers they work with, and that they are clear on and driven by the school's mission and values. It is also recommended that the school's instructional leaders be well versed in data-driven collaborative planning and be held accountable for training and supporting the teachers they work with in their planning sessions.

The SPSLCQ instrument has been found to be both valid and reliable for gaging the maturity of a school as a PLC, and the scores of both the staff as a whole and the administrators in particular had small positive correlations with student achievement.

The researcher recommends that school leaders invest in both the administrators' knowledge base regarding effective PLC characteristics and in the supportive school conditions necessary for a PLC culture to mature and sustain.

Recommendations for Further Study

Based on the data sets and small correlations that have emerged through this study, several recommendations for further study have emerged. As the impact of leadership on a staff's perceptions of PLC effectiveness remains an area of interest, an interesting future study may be to include correlations between both staff

perception data and

student achievement data as dependent variables with the number of years (broken into intervals like one to three years, four to seven years, etc.) the current principal had served at the school as the independent variable.

The correlation between a staff's level of perceived effectiveness as a PLC with student achievement data could also be explored both before (as in this study) and after testing to see if there were significant changes in perceived PLC effectiveness that correlated with the direction in which student achievement scores trended.

The normalized gain score approach holds promise for normalizing score results across multiple tests, and with this approach the largest limitation of this study could be addressed in a future study. This study replicated across a larger number of schools has the potential to produce results that are statistically significant at the five percent level. A future study may involve the secondary school students and staffs of multiple large, urban districts, yielding a more robust data set. America's urban secondary school students will benefit from further exploration into the leveraging of each school's staff and structures to maximize student learning outcomes.

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Appendices

APPENDIX A: Survey Instrument

iPad 9:59 AM SurveyMonkey Inc. 73%

Schools as Professional Learning Communities Questionnaire

1. School administrators participate democratically with teachers, sharing power, authority, and decision making.

a.

Administrators never share information or decision making opportunities with the staff.	Administrators invite advice and counsel from staff and then make decisions themselves.	Administrators consistently involve the staff in discussing and making decisions about school issues.
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

b.

Administrators do not involve any staff.	Administrators involve a small committee, council, or team of staff.	Administrators involve the entire staff.
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

3 / 9

Prev Next

iPad 9:59 AM SurveyMonkey Inc. 73%

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.

a.

Visions for improvement held by the staff members are widely divergent.	Visions for improvement are not thoroughly explored; some staff members agree and others do not.	Visions for improvement are discussed by the entire staff. Consensus and a shared vision result.
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

b.

Visions for improvement do not target students, teaching, and learning.	Visions for improvement are sometimes focused on students, teaching, and learning.	Visions for improvements are always focused on students, teaching, and learning.
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

c.

Visions for improvement do not include concerns about the quality of learning experiences.	Visions for improvement address quality learning experiences in terms of students' abilities.	Visions for improvement target high quality learning experiences for all students.
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

10:00 AM 73%

SurveyMonkey Inc.

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

a.

<p>Individuals randomly discuss issues, share information, and learn with and from one another.</p> <p><input type="radio"/></p>	<p>Subgroups of the staff meet to discuss issues, share information, and learn with and from one another.</p> <p><input type="radio"/></p>	<p>The entire staff meets to discuss issues, share information, and learn with and from one another.</p> <p><input type="radio"/></p>
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b.

<p>The staff never meets to consider substantive educational issues.</p> <p><input type="radio"/></p>	<p>The staff meets occasionally on substantive student-centered educational issues.</p> <p><input type="radio"/></p>	<p>The staff meets regularly and frequently on substantive student-centered educational issues.</p> <p><input type="radio"/></p>
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c.

<p>The staff basically discusses non-teaching and non-learning issues.</p> <p><input type="radio"/></p>	<p>The staff does not often discuss their instructional practices nor its influence on student learning.</p> <p><input type="radio"/></p>	<p>The staff, based on their learnings, makes and implements plans that address student needs.</p> <p><input type="radio"/></p>
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10:00 AM 73%

SurveyMonkey Inc.

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

d.

<p>The staff does not act on their learning.</p> <p><input type="radio"/></p>	<p>The staff occasionally acts on their learning and implements plans to improve teaching and learning.</p> <p><input type="radio"/></p>	<p>The staff, based on their learning, makes and implements plans to address student needs & learning.</p> <p><input type="radio"/></p>
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e.

<p>The staff does not assess their work.</p> <p><input type="radio"/></p>	<p>The staff infrequently assesses their actions and seldom makes revisions based on the results.</p> <p><input type="radio"/></p>	<p>The staff debriefs and assesses the impact of their actions and makes revisions.</p> <p><input type="radio"/></p>
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6 / 9

Prev Next

iPad 10:00 AM 72%

SurveyMonkey Inc.

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

a.

Staff members never visit their peers' classrooms.	Staff members occasionally visit one other's classrooms and observe one another's teaching.	Staff members regularly and frequently visit and observe one another's classroom teaching.
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

b.

Staff members do not interact after classroom observations.	Staff members discuss non-teaching issues after classroom observations.	Staff members give feedback to one another about teaching and learning based on class observations.
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

7 / 9

Prev Next

iPad 10:01 AM 72%

SurveyMonkey Inc.

5. School conditions and capacities support the staff's arrangement as a professional learning organization.

a.

Staff cannot arrange time for interacting.	Time is arranged but frequently the staff fails to meet.	Time is arranged and committed for whole staff interactions.
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

b.

The staff takes no action to manage the facility and personnel for interaction.	Considering the school's size, structure & arrangements, staff are working to maximize interaction.	The size, structure, & arrangements of the school facilitate staff proximity and interaction.
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

c.

Communication devices are not given attention.	A single communication method exists and is sometimes used to share information.	A variety of processes and procedures are used to encourage staff.
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

d.

Trust and openness	Some of the staff	Trust and openness
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iPad 10:01 AM 72%

SurveyMonkey Inc.

SurveyMonkey Inc.

c.

Communication devices are not given attention.	A single communication method exists and is sometimes used to share information.	A variety of processes and procedures are used to encourage staff.
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

d.

Trust and openness does not exist among the staff members.	Some of the staff members are trusting and open.	Trust and openness characterize all of the staff members.
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

e.

Staff members are isolated and work alone at their tasks.	Caring and collaboration are inconsistently demonstrated among the staff members.	Caring, collaborative, and productive relationships exist among all staff members.
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

8 / 9

Prev Next

APPENDIX B: Cover Letter/Informed Consent

Organizational Study of the Correlation between School Characteristics and Changes in Student Achievement date

You are being invited to participate in a research study about the correlation between the perceptions of school staff regarding how their school functions and the change in test scores from the spring 2015 to spring 2016 test administrations. This research project is being conducted by Jennifer Topper, a current employee and a doctoral student at Georgia Southern University. The objective of this research project is to attempt to understand what characteristics of a secondary school correlate most closely with the school's ability to impact literacy, as evidenced by either 8th Grade Reading or English 2 EOC scores, depending on the school's grade level makeup.

The survey that will be used to gather information is an electronic version of the School Professional Staff as Learning Community Questionnaire (SPSLCQ) developed by Shirley Hord in 1996 and reprinted by Jennifer Topper with permission from SEDL, an affiliate of American Institutes for Research. This electronic survey will be made available to all current teaching and administrative staff members in all schools that include an eighth and/or a tenth grade student population.

There are no known risks if you decide to participate in this research study, nor are there any costs for participating in the study. The scores you assign to each area will be averaged with other scores you're your school site, and will be correlated with the change in your school's literacy exam scores to provide information about which aspects of school culture most align with impacting student achievement. The information collected may not benefit you directly, but what I learn from this study should provide general benefits to school staffs, students, and researchers.

This survey is anonymous. If you choose to participate, do not provide your name on the questionnaire. No one will be able to identify you, and your scores will be averaged in with other scores before being included in the report. No one will know whether you participated in this study. Nothing you enter in the questionnaire will in any way influence your present or future employment with _____.

Your participation in this study is voluntary. If you choose to participate, please click the "I accept" button at the bottom of this letter, and you will have access to the brief survey. The survey consists entirely of rating school practices on a Likert scale, and should take less than 10 minutes to complete.

If you have any questions or concerns about completing the questionnaire or about having your scores averaged in to your school's response scores, you may contact me at _____

The Georgia Southern University Review Board has reviewed my request to conduct this project. If you have any concerns about your rights in this study, please contact my advisor, Dr. Jason LaFrance, at jlafrance@georgiasouthern.edu.

_____ I am giving my informed consent to participate in this study.

Appendix C: Follow up Email for Administrators and Teachers

Hello, I am a (*name of school district*) employee completing my doctoral dissertation on the impact of secondary school campus culture on student achievement gains. The number of *name of that particular school* teachers and administrators who have completed this short, anonymous survey falls just short of the threshold required for me to correlate the ratings that *name of that particular school* teachers and administrators provide on this survey with the results *name of that particular school* students get on their *English II or Reading 8* exam when the scores are released. If you have not already completed the survey and want your scores to be included in *name of that particular school* survey results, please take 5 minutes to complete this anonymous survey by clicking the link below.

Thank you!

<https://www.surveymonkey.com/r/CorrelatingCultureAndAchievement>

Appendix D: Student Cohort and Staff Demographics

Demographics of Students taking Reading 8 and English 2 Exams in Spring 2015 and Spring 2016				
	Students Who Took Reading 8 Exam		Students Who Took English 2 Exam	
	Spring 2015	Spring 2016	Spring 2015	Spring 2016
Race/Ethnicity				
Asian	3.6%	3.7%	4.2%	4.2%
Black	25.4%	24.2%	24.9%	24.5%
Hispanic	61.4%	62.0%	59.3%	59.7%
American Indian	0.2%	0.2%	0.2%	0.2%
Pac. Islander	0.0%	0.1%	0.1%	0.1%
Two or More	0.9%	0.8%	0.7%	1.0%
White	8.5%	8.8%	10.5%	10.2%
Gender				
Female	49.0%	48.6%	51.3%	51.7%
Male	51.0%	51.4%	48.7%	48.3%
Source: Cognos STAAR All Inclusive Test package, 06/14/2016				
Note: Percentages may not total 100 due to rounding				

Demographics of Secondary School Staff, 2015-2016			
	Grade Span 6-8	Grade Span 6-12	Grade Span 9-12
Race/Ethnicity			
Asian	5.8%	6.6%	7.4%
Black	45.9%	41.1%	37.2%
Hispanic	17.0%	17.4%	17.7%
American Indian	0.1%	0.1%	0.2%
Pac. Islander	0.2%	0.2%	0.3%
Two or More	1.6%	1.9%	2.1%
White	29.4%	32.6%	35.2%
Gender			
Female	67.1%	61.0%	56.1%
Male	32.9%	39.0%	43.9%
Experience in the district			
Less than 1 Year	20.5%	18.6%	16.9%
1-3 Years	34.9%	31.9%	29.6%
4-10 Years	21.2%	22.8%	24.3%
11 Years or more	23.4%	26.6%	29.3%

Sources: PEIMS Staff 2015-2016; Cognos Chancery Ad Hoc, 06/13/2016

Note: Percentages may not total 100 due to rounding

Appendix E: Licensing Agreement to Use SEDL Instrument

AIR License Agreement

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December 21, 2015

To: Jennifer Topper
From: Kim O'Brien Editor
American Institutes for
Research 1120 East Diehl
Road, Suite 200
Naperville, IL 60563-4899

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Kimberly O'Brien
December 21, 2015