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A STUDY OF THE RELATIONSHIP BETWEEN  
CONTINUOUS PROFESSIONAL LEARNING COMMUNITY IMPLEMENTATION  
AND STUDENT ACHIEVEMENT IN A LARGE URBAN SCHOOL DISTRICT

by

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A dissertation submitted in partial fulfillment of the requirements  
for the degree of Doctor of Education  
in the School of Teaching, Learning, and Leadership  
in the College of Education and Human Performance  
at the University of Central Florida  
Orlando, Florida

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## ABSTRACT

The purpose of this causal comparative study was to understand the differences in comparative data across a large urban school district and to examine the continued effects of the PLC model on teacher and leader perception of the model and student achievement as measured by the 2012 and 2014 FCAT 2.0 Reading and Mathematics. The population for this study included all instructional and leadership personnel in schools within the target school district, with a final convenience sample across the two school years of N=5,954.

The research questions for this study focused on (a) the change in teacher's perception of teachers from the 2012 to the 2014 school year, (b) the impact, if any, of teacher and leader perception on student performance for the FCAT, (c) the differences between the perceptions of teachers and leaders. This study added to the findings of Ellis (2010), expanding the understanding of the complexities of collaboration among teachers, administrators, collaboration, and students. Conclusions from the quantitative analysis found a statistically significant difference between how teachers perceived the implementation of collaborative time during both the 2012 and 2014 school years. Further analysis concluded that there was a statistically significant positive relationship between continual PLC implementation and student achievement for Grade 3 Reading and Mathematics. Other grade levels did show educationally significant findings for the impact of continual implementation on student achievement, but the results did not meet the criteria for statistical significance. There was not a statistically significant relationship between any other measure and any of the considered standardized test scores. Statistically significant differences were found between the 2012 and 2014 perceptions of teachers and leaders.

Recommendations from the quantitative analysis include the importance of having collaborative time for teachers. Furthermore, leaders should focus on maximizing the effectiveness of collaborative time by curtailing the amount of required administrative tasks, thereby allowing teachers to focus on designing instructional interventions and analyzing student data through collaboration. This study is an addition to the current literature demonstrating the general perceptions, and impacts of long term implementation of the PLC model, when paired with Ellis' (2010) study it is clear that teachers need continual work within one collaborative model, modeling of collaborative practices by leadership, and support from school leaders for collaborative time to begin positively impacting student achievement.

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## CHAPTER 1 THE PROBLEM AND CLARIFYING COMPONENTS

### Background of the Study

A professional learning community (PLC) is one method which has been widely accepted to support a teacher's professional learning (Doppenberg, Brok, & Bakx, 2012; Erkens & Twadell, 2012; McLaughlin & Talbert, 2006; Stoll & Louis, 2007). Rosenholtz (1991) found that teachers who work in isolation and schools that operate as an isolated unit have teachers who report less confidence in their school's leadership and report lower levels of self-efficacy while working in isolation. New teachers are particularly susceptible to the increased struggles and self-pressure associated with teacher isolation. To combat the risks associated with high levels of teacher isolation, there was an increased focus on teachers' workplaces starting in the 1990s. These initial studies led to the beginning of the design of professional learning communities as one method to increase teacher support and professional learning for teachers.

The work of Senge (1990) and Rosenholtz (1991) provoked interest in both learning organizations and collaboration within the teacher's workplace, collectively blazing a path for collaborative models via the concept of learning organizations which preceded professional learning communities. Professional learning communities were defined by Keenan (2015) as:

...an extended learning opportunity involving a group of colleagues in a particular field or workplace. The group members meet regularly to collaborate (work with one another), share their expertise, learn from experts, and raise the skill and knowledge levels of the whole group. (para. 1)

In addition to teacher learning, professional learning communities have also been seen as key in reaching all students. Wagner (2008) proposed that teacher collaboration was one of the key tools utilized in a 21<sup>st</sup> century classroom to effectively teach every student.

As work continued in regard to teacher collaboration for their learning, clear trends emerged in the development of successful collaborative teams. DuFour & Eaker (1998) outlined three ways in which professional learning communities support teacher learning through collaboration. First, teams of teachers should be comprised of individually competent teachers who (a) take time to reflect on what did and did not work within a given day's lesson and (b) often specifically seek out more experienced and knowledgeable teachers as needed to help identify problems and possible solutions. Through reflection and collaboration, teachers are able to build individual competency. Second, strong professional learning communities share the collective goal of teachers' meeting the learning needs of every one of their students. Third, these collaborative teams are led by administrators who model the ideal reflective practitioner and are capable of providing needed resources; supportive administrators are important in a framework that supports teacher learning.

The present study was based on a previous study by Ellis (2010) that was conducted to examine the relationship between student achievement on the Florida Comprehensive Achievement Test (FCAT 2.0) Mathematics and Reading and the principal's self-reported level of implementation in accordance with professional learning community constructs of (a) collaboration, (b) shared goals and vision, and (c) leadership. The present study was conducted as a follow-up to determine the relationship, if any, between the continuous implementation of professional learning communities from the 2008-2014 school years and student achievement

within participant schools based on teachers' self-reported levels of agreement with the professional learning community constructs in the same urban school district.

### Statement of the Problem

Professional learning communities have been designed to address some of the most critical needs in education. Collaborative communities give teachers of all subject areas, grade levels, and years of experience the opportunity to focus on their own pedagogical practice by deliberately spending collaborative time with their colleagues. Collaborative time structured through the school's professional learning community provide teacher teams time to deliberately focus on their professional practice through reflection and examination of student learning. Dynamic learning communities are often led and supported by relationship-oriented administrators, include collaborative teams that actively address needs in student learning, and share a vision of all students in their care being able to learn (DuFour & Eaker, 1998). The problem is the dearth of research to connect a school's utilization of professional learning communities over a period of time to students' academic outcomes.

### Purpose of the Study

The purpose of this study was to analyze the academic effects of continued implementation of professional learning communities compared to the Ellis' (2010) findings. Ellis examined six professional learning community constructs: (a) focus, (b) lead learner (c) resource provider (d) meeting context (e) collaborative work (f) reflective practitioner. Ellis found that the constructs of focus and reflective practitioner were the most impactful on a student's ability to achieve proficiency on the FCAT 2.0 Reading. This research aimed to

elaborate by focusing on the extent to which professional learning communities have been continuously implemented in the same urban school district in elementary, middle, and high schools from 2008 through 2014. The researcher's goal was to identify the relationship between the continual implementation of PLC constructs and student performance on state assessments. The PLC constructs investigated in this study were: (a) collaboration, (b) shared goals and vision, and (c) leadership. Results were intended to add to the body of research focused on linking a teacher collaboration model and student achievement. By determining if there were extended effects, this study sought to inform educational leaders on research based practices used in implementing and monitoring a professional learning community within a school or school district.

#### Significance of the Study

This study was conducted to determine the impact of a continuous five-year focus during the 2008-2014 school years on the implementation and continuance of professional learning communities and their relationship to student performance in reading and mathematics within a population of schools in a large urban school district. The information discovered in this study should be of particular interest to school or district leaders who are considering pursuing the implementation of a teacher collaboration model of professional learning communities and wish to learn how its continued practice can be expected to impact student learning over years of implementation. Furthermore, this research will also be useful for school based leaders who are seeking to evaluate the progression of their implementation of the professional learning community model of teacher collaboration and its impact on student learning.

## Definitions

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

Collaboration Construct. The team of teachers each share equal responsibility for the success of every student in their care. PLCs meet regularly as a part of their weekly work schedule. Professional development offered by PLC leaders is targeted for the needs of the team and their learners. Individual PLC members actively implement the collective findings from their PLC meetings in their own classrooms. PLC members consistently reflect on their own pedagogy and seek feedback to continually improve their practice. (DuFour & Eaker 1998; Rosenholtz, 1991)

Florida Comprehensive Assessment Test (FCAT 2.0). The FCAT 2.0 served as Florida's statewide education assessment for measuring student achievement from 1997 until the 2013 school year. The test included Grades 3 (reading and mathematics), 4 (reading, writing, and mathematics), 5 (reading, mathematics, and science), 6 (reading and mathematics), 7 (reading and mathematics), 8 (reading, writing, and mathematics), 9 (reading and mathematics), 10 (reading, writing, mathematics), and 11 (science). The test items consisted of multiple-choice, gridded-response, essay, and short and extended response items (Florida Department of Education [FDOE], 2005).

Leadership Construct. PLC leaders are the facilitators of the collaborative process. They provide PLC members with data to make critical decisions about instruction and interventions for students who are striving to reach desired outcomes. Leaders act as model reflective practitioners and collaborative partners. Education leaders act as a part of the professional

learning community and offer opportunities for development that are specific to the needs of each teacher (Erkens & Twadell, 2012; Rosenholtz 1991).

Shared Goals Construct. The collective goal for the PLC centers around the belief that all students can learn and that they can collectively work together to reach their highest capabilities. PLCs share students' work and collectively evaluate it to best understand where students are still struggling; the PLC members then work together to create an action plan for how to reach students who are struggling (Bolam et al., 2005; DuFour & Eaker, 1998; Hord, 2004; Rosenholtz, 1991).

### Conceptual Framework

The conceptual framework for this study was grounded in the literature and research related to teacher collaboration with particular emphasis on professional learning communities as first termed by DuFour and Eaker (1998). Rosenholtz (1991) first provided a significant foundation for the lens of teacher collaboration within the teacher workplace. The basis of making connections within the study was put forth by Rosenholtz as she described in detail the importance of constructs such as teacher collaboration, the PLC focus, and PLC leadership.

Rosenholtz (1991) specifically highlighted differential behaviors observed within different types of schools: low consensus and high consensus schools. She analyzed the behaviors in each school, utilizing survey instruments and observations to accurately identify schools as either a high consensus school or a low consensus school. Those schools with higher consensus were schools where teachers frequently collaborated with one another and utilized each other as resources to continue reflecting on and improving their practice. Collaborative efforts were only possible in schools that had developed a culture of collaboration, and where



collaborative efforts were supported through collaborative leaders (Rosenholtz, 1991).

Rosenholtz provided the basis for this current study: the importance of shared goals, collaborative teams, leaders, and teacher reflection.

Rosenholtz (1991) also found that in high consensus schools, teachers were focused on the instructional goals, and teachers and leaders alike both spoke to the relevance and importance of the shared goals for the whole school. In low consensus schools, it was noted that although teachers may have intermingled, they were clearly participating in parallel teaching, as teachers operated without regard to their colleagues. The presence, definition, and evidence for shared goals among colleagues were critical in differentiating which schools were truly operating as high consensus schools.

### Collaboration

Schools have the power to either create or tear down barriers to teacher collaboration. Rosenholtz (1991) cited the following conditions as those that will encourage teacher collaboration: (a) teacher's certainty of their own pedagogy, (b) shared goals, (c) involvement in schools' technical decision making process, (d) team teaching, (e) school size, and (f) school socioeconomic status (p. 45). She further showed that schools with a clear focus on the school's shared goals allow teachers to begin to move towards true collaboration. Collaborative efforts aligned shared goals has been shown to be effective in promoting student learning (Moolenaar, Slegers, & Daly, 2012).

Rosenholtz (1991) identified that the beliefs held by the teachers about their own learning were mirrored by their workplace. Rosenholtz established that all schools fall somewhere on a spectrum of learning-enriched to learning-impooverished. Learning-enriched schools believed the

professional learning of adults was critically important to their meeting the diverse needs of their students. On the other end of the spectrum were learning-impoverished schools where teachers believed professional learning had a distinct start and stop. Learning-enriched schools, as described by Rosenholtz, offered parallels to the central constructs of PLCs. Rosenholtz found that within learning enriched schools, struggling teachers would work in collaborative partnerships to establish goals that may resolve issues at hand. The collaborative process allows teachers to focus on growth and professional learning through collaboration with the added benefit of teachers within these schools perceiving higher levels of support (Rosenholtz, 1991).

Numerous studies have been conducted that show the positive effects of teacher collaboration on teacher efficacy (Moolenaar et al., 2012; Shachar & Shmuelevitz, 1997). The importance of teacher collaboration is critical. It not only may solve issues surrounding teacher retention, but teacher collaboration has also been shown to positively impact student achievement (Moolenaar et al., 2012). A developing theme among researchers suggests that collaboration is not only important in supporting teachers' professional learning but is also responsible for influencing student achievement (Moolenaar et al. 2012; Shachar & Shmuelevitz, 1997).

### Shared Goals

Shared goals are crucial to the success of any professional learning community. Senge (1990) concluded, "You cannot have a learning organization without a shared vision" (p. 209). Rosenholtz (1991) also demonstrated that focusing teacher talk through shared goals assisted in developing teacher buy-in, as teachers began to feel ownership in all of their community's students and not only their own pupils. Rosenholtz utilized the idea of shared goals to show the

importance of collaborative thinking among teachers regarding their motivation of teaching and student learning.

Bolam et al. (2005) found that the presence of shared goals and vision was one important indicator of an effective PLC. A shared goal can allow teachers to collectively understand the purpose of their collaboration, and has been shown to be of critical importance for a successful professional learning community (Bolam et al., 2005). Hord (2004) further emphasized the importance of the content of shared goals, stating that shared goals should be specifically focused on an unwavering support of all students' learning. The idea of aligning the professional learning community to a shared goal of all students learning allows for the construction of group norms which can initiate the process of professional learning.

Rosenholtz (1991) also stated that the importance of shared goals makes it critical for school leaders to focus their organizations on supporting collaborative efforts. Rosenholtz showed that schools with a clear focus on their shared goals allowed their teachers to begin to move toward true collaboration. Schools with collaborative efforts focused on shared goals have been shown to be effective in promoting student learning (Moolenaar et al., 2012). Teachers who work collaboratively to establish shared goals are more likely to feel invested in every student who is impacted by their team.

### Leadership

In turning her attention to the leaders in high consensus schools and their impact on professional learning communities, Rosenholtz (1991) found that leaders in these schools had a variety of roles. Each, however, had established a culture of collaboration, brought focus to the shared goals of the collaborative teams, and empowered teachers to accomplish their goals. By

specifically looking at leadership and how school leaders impact teachers' collaboration, Rosenholtz found that leaders who focused on establishing a culture of collaboration and specifically allocated time for collaborative efforts created schools with higher consensus. Rosenholtz also determined that educational leaders who provided resources and supports for the collaborative teacher teams had high consensus within those schools.

Rosenholtz' (1991) findings were further corroborated by Erkens and Twadell (2012) whose research focused on leadership within the collaborative framework of PLCs. They found that highly effective PLC leaders focused on building collaborative relationships through a culture of embedded collaboration. They facilitated shared responsibility through clearly defined shared goals for the PLC and empowered PLC members through leadership development of themselves and other PLC members. Erkens & Twadell (2012) and Rosenholtz (1991) also discussed the importance of the teacher or PLC leader to be an available resource for classroom dilemmas and a pillar of support for team members in need.

Rosenholtz (1991) described the work of collaborative principals, specifically those in high consensus schools, to best understand how the culture of collaboration was developed within the workplace to allow teachers to be collegial yet interdependent. Erkens & Twadell (2012) described a similar function of the leader as one who "facilitates shared responsibilities" (p. 18). The idea of leader's function to distribute and monitor the group's shared responsibilities was similar to the idea put forth by Rosenholtz that within the teacher workplace, principals must provide feedback and create opportunities for collaboration. She saw both of these strategies as critical for creating shared power within the workplace, resulting in teachers who were comfortable enough with their practice to seek help as needed.

Rosenholtz (1991) further analyzed the impact of collaborative principals within collaborative and isolated schools. She found that, in collaborative schools, principals and teachers were more empowered, as the principals themselves were also a part of the collaborative process that enabled the teachers to take the lead on important decisions throughout the school. The principals in high consensus schools delegated critical resources and tracked data to equitably distribute available resources. In the isolated school, however, teachers were expected to be entirely self-sufficient. In further contrast to collaborative schools, teachers in isolated schools were often discouraged from attempting to solve school issues or address areas of concern. Lack of participation in school improvement often left teachers feeling disheartened and downtrodden about the conditions in their schools. The principal's need for sole control over the campus discouraged the teachers from collaboration, as the staff believed that solutions to concerns would only come from the principal, and their collaborative attempts were not worth their efforts.

Collectively, the conceptual framework in Rosenholtz's (1991) study provided a link among teacher collaboration, leadership, and student learning. The linkages further indicated a need to examine how to best support teachers through school culture with an emphasis on collaboration. By Rosenholtz (1991) conducting an investigation into the impacts of collaboration, shared goals, teacher efficacy, and student learning, she improved understanding of how school leaders can construct a culture of collaboration in their workplaces.

### Research Questions

The following research questions were utilized to best understand how continuous implementation of PLC constructs impacted students' academic performance on the Florida Comprehensive Assessment Test (FCAT 2.0). Table 1 elaborates on data sources for each research question.

1. What are the perceptions of teachers related to the constructs of collaboration, shared goals and vision, as well as, leadership?
2. What is the difference in reported levels of implementation of professional learning communities from 2012 to 2014?
3. What is the relationship between the reported overall level of implementation of professional learning communities in the 2012 school year and students' performance on the Florida Comprehensive Assessment (FCAT 2.0) in reading and mathematics?
4. What is the relationship between the reported overall level of implementation of professional learning communities in 2014 school year and students' performance on the Florida Comprehensive Assessment (FCAT 2.0) in reading and mathematics?
5. What is the difference between the reported overall level of implementation of professional learning communities as perceived by principals and assistant principals compared to teachers?

Table 1

*Research Questions and Sources of Data*

Research Questions	Data Sources
1. What are the perceptions of teachers related to the constructs of collaboration, shared goals and vision, as well as, leadership?	PLC Survey-Teachers
2. What is the difference in reported levels of implementation of professional learning communities from 2012 to 2014?	PLC Survey-Teachers PLC Survey- Leaders
3. What is the relationship between the reported overall level of implementation of professional learning communities in 2012 school year and students' performance on the Florida Comprehensive Assessment (FCAT 2.0) in reading and mathematics?	PLC Survey-Teachers PLC Survey- Leaders FDOE FCAT 2.0 Interactive Database Student DSS Scores
4. What is the relationship between the reported overall level of implementation of professional learning communities in 2014 school year and students' performance on the Florida Comprehensive Assessment (FCAT 2.0) in reading and mathematics?	PLC Survey-Teachers PLC Survey- Leaders FDOE FCAT 2.0 Interactive Database
5. What is the difference between the reported overall level of implementation of professional learning communities as perceived by principals and assistant principals compared to teachers?	PLC Survey-Teachers PLC Survey-Leaders

Methodology

The researcher utilized quantitative methods to examine the relationship between the reported levels of professional learning community constructs from the 2011-2012 school year to the 2013-2014 school year and the academic performance of students. Archival data had been collected by the school district designee each school year utilizing the Professional Learning

Community (PLC) Survey-Teachers (Appendix A) and the Professional Learning Community (PLC) Survey-Leaders (Appendix B). Quantitative analysis of archival data was utilized to determine the relationship between each school's mean developmental scale scores on FCAT 2.0 Reading and Mathematics as well as school scores on the PLC Survey-Teachers and the PLC Survey-Leaders. The two surveys were scored using a Likert-type scale to determine any possible relationships between a school's mean score on the survey for each PLC construct and for the PLC construct of (a) collaboration, (b) shared goals and vision, and (c) leadership collectively. Teachers and leaders rated statements aligned with each of the constructs with a short statement that corresponded to their level of agreement from Strongly Agree to Strongly Disagree, or Almost Always to Hardly Ever, depending on grammatical necessity. These ratings of: I Strongly Agree, I Agree, I Am Not Sure, I Disagree, and I Strongly Disagree or Almost Always, Most of the Time, Sometimes, Once in a While, and Hardly Ever for the items on the PLC Survey-Teacher and the PLC Survey-Leaders were then correlated to a 1 through 5 numerical value to arrive at the mean PLC construct score for the school.

The scores were also correlated to the student population's mean scores on the FCAT 2.0 Mathematics and Reading. The analysis specifically focused on the relationship, if any, of the professional learning community's construct implementation and students' achievement on the FCAT 2.0 Mathematics and Reading developmental scale scores.

#### Data Analysis Procedures

Archival data accumulated through the PLC Survey-Teachers and PLC Survey-Leaders were used to measure the perceptions of professional learning community implementation at each school as perceived by teachers and leaders at each school site. Findings were utilized to



determine the correlation of variables to the school's mean developmental scale score on the Mathematics and Reading FCAT 2.0 from the 2012 and the 2014 school years. The professional learning community constructs of (a) collaboration, (b) shared goals and vision, and (c) leadership were investigated individually and collectively to determine if a single construct or any combination thereof related to change in student learning. By individually investigating each of the constructs of the PLC model, (i.e., collaboration, shared goals and vision, and leadership), the results demonstrated the collective performance of all 184 schools considered within the target urban school district and showed how each school reported within each of the constructs.

#### Data Collection Procedures

The PLC Survey was distributed to each school every year from 2009-2014. The sample taken from the population was a convenience sample of the schools that had responses for the PLC Survey-Teachers and the PLC Survey-Leaders in both the 2012 and 2014 school years. The sample of participants was evaluated for PLC implementation and adherence to research based constructs of (a) collaboration, (b) shared goals and vision, and (c) leadership according to the PLC Survey-Teachers or the PLC Survey-Leaders.

All FCAT 2.0 data were collected from the publicly available Florida Department of Education website that reports scores for each school.

#### Instrumentation

Two instruments were utilized in the study: The Professional Learning Community (PLC) Survey-Teachers and Professional Learning Community Survey- Leaders. The PLC

Survey-Teachers was developed by the target school district to understand the impact of professional learning on the PLC model implemented at each school. The PLC Survey-Teachers results used two Likert scales for participants to rate their levels of agreement with each item. The two separate Likert scales were necessary to maintain grammatical agreement with the wording of each of the items. The Likert scale for items 1-10 had the following response options: I Strongly Agree (5 points), I Agree (4 points), I Am Not Sure (3 points), I Disagree (2 points), and I Strongly Disagree (1 point). Items 11-14 allowed respondents to choose from: Almost Always (5 points), Most of the Time (4 points), Sometimes (3 points), Once in a While (2 points), and Hardly Ever (1 point). Items in each survey that related to other specific school district initiatives were not analyzed for the purposes of this study. The removal of district-specific initiatives as well as the removal of items that did not directly relate to the PLC Survey-Teachers drastically reduced the number of items on the PLC Survey-Leaders. Items removed were not strongly correlated to the current literature about the central constructs of the PLC collaborative model; therefore, the inclusion of these items may have clouded any possibility of understanding how teachers and leaders were perceiving the central constructs of (a) collaboration, (b) shared goals and vision, and (c) leadership.

The PLC Survey-Leaders was developed to compare the perception of the PLC model from a leadership point of view to the perceptions purported by teachers. The PLC Survey-Leaders also utilized a Likert scale for items 1-4 with the following response options: I Strongly Agree (5 points), I Agree (4 points), I Am Not Sure (3 points), I Disagree (2 points), and I Strongly Disagree (1 point). For this survey, items that did not relate to constructs related to this

study were removed from the survey to provide the clearest possible picture of the leaders' perceptions of the PLC model.

The PLC Survey-Teachers was evaluated for content validity through the use of reflective analysis. The items specifically included for this research were those that aligned with the research based PLC constructs being examined in this study. Table 2 shows the relationship between each of the PLC constructs: (a) collaboration, (b) shared goals and vision, and (c) leadership, and the items included within the survey.

The content validity of the survey was established by relating each item to relevant constructs as determined by the literature reviewed. This process allowed for each of the survey items to be paired with one of the three corresponding PLC constructs: (a) collaboration, (b) shared goals and vision, or (c) leadership. Table 2 establishes the relationships between the survey items and PLC constructs for the PLC Survey-Teachers. Table 3 shows the relationship between survey items and PLC constructs for the PLC Survey-Leaders. The reliability of all survey items was established utilizing Cronbach's alpha.

The internal reliability and content validity of the FCAT 2.0 for the 2012 and 2014 school year was determined by the Florida Department of Education (Florida Department of Education [FDOE], 2005).

### Population and Sample

The population for this study consisted of all instructional personnel and their school based administrators in a large urban school district who serve nearly 200,000 students. During each of considered school years, 2012 and 2014, the two surveys was issued to all instructional and administrative employees within the target school district. From the population, a

convenience sample was taken of those instructional and school based administrators who completed the survey during the years examined.

Table 2

*Professional Learning Community (PLC) Teacher Survey Items and Constructs*

Teacher Survey Items	PLC Constructs
The purpose and goals of our PLC were clearly defined.	Shared goals and vision
Our team developed norms that include how the team will interact, support each other, make sure all voices are heard, and foster an overall feeling of safety and community.	Shared goals and vision
Our collaborative team set specific goals for student learning.	Shared goals and vision
Our PLC has been valuable for investigating solutions to identified student learning problems.	Shared goals and vision
There was sufficient time built into our schedule to have meaningful PLC meetings.	Leadership
I believe that PLC's are contributing to an increasingly positive and professional culture at our school.	Leadership
School administrators provide adequate support of our efforts related to the work in our PLC.	Leadership
I believe that the communication that took place in our collaborative team was open and honest.	Collaboration
Our PLC facilitated healthy and productive professional relationships.	Collaboration
As a collaborative team member, I felt a sense of accomplishment when students of my colleagues were successful.	Collaboration
The insights gained through our collaborative work have been worth the time spent in meetings and on PLC work.	Collaboration
I used ideas that I acquired from collaborative team meetings in my classroom.	Collaboration
I assessed and documented the student learning outcomes of the strategies we talked about in our collaborative team meetings.	Collaboration
I felt comfortable openly sharing my student achievement results with my collaborative team colleagues.	Collaboration

Table 3

*Professional Learning Community (PLC) Leader Survey Items and Constructs*

Leader Survey Items	PLC Constructs
Each PLC at our school has set specific goals.	Shared goals and vision
We have structured our schedule to provide protected time for PLC meetings.	Leadership
I believe that PLC's are contributing to an increasingly positive and professional culture at our school.	Leadership
The leader documents the activities and outcomes of each PLC meeting.	Collaboration

Limitations

The study was designed to evaluate the impact of professional learning communities on a single large urban school district, and this may limit the application of this research in other areas. One limitation of this study was that as of the 2014-2015 school year, Florida had changed its state test to the Florida Standards Assessment (FSA), and this impacted the ability to extrapolate the results to the new assessment.

Another potential limitation of this study was that the survey utilized was created in 2008 without input of the researcher. Therefore, items from the previously administered instrument were selectively utilized to accurately reflect the constructs of professional learning communities. This means that survey items were utilized to most closely reflect the constructs within current literature on professional learning communities of (a) collaboration, (b) shared goals and vision, and (c) leadership. Items that specifically focused on school district initiatives were excluded.

### Organization of the Study

This chapter has provided an overview of the major components of the research and the background of the study. Chapter 2 delineates the conceptual framework through a review of literature on the topic of teacher collaboration, the influence of shared goals and vision and leadership. The third and fourth chapters explain respectively the methodologies utilized in the collection and analysis of the data on which the study's findings were based. Specifically, Chapter 3 details the methods and procedures used to conduct the study. Chapter 4 contains findings regarding the continued implementation of professional learning communities at the observed schools. A summary and discussion of the findings can be found in Chapter 5 along with implications for policy and practice and recommendations for future research.

## CHAPTER 2 REVIEW OF LITERATURE

### Introduction

This chapter was designed to provide background and support for conducting research in the area of teacher collaboration via the professional learning community (PLC) model. The review of literature is introduced with a brief history of teacher collaboration and professional development in the teaching profession. Following is a synthesis of the literature on the PLC model, specifically addressing the constructs outlined within the conceptual framework: collaboration, shared goals and vision, and leadership.

The conceptual framework revealed three primary constructs critical to the professional learning community model: collaboration, leadership, and shared goals. This chapter includes an in-depth synthesis of each of these constructs and establishes the importance of each of these as critical features of the professional learning community model. A comprehensive review of each of these constructs is presented to establish the importance of each of these constructs as critical points of measurement in a professional learning community evaluation. Each construct is examined as a chronology to bring to light the aspects of each of the constructs that have withstood the years of research and have proven to be resilient over time.

The following literature review describes the research relevant to the study of teacher collaboration with a specific focus on the professional learning community model. The conceptual framework for this review of literature was created through extensive searches utilizing several online databases; Dissertation & Theses Full Text, Education Resources Information Center (ERIC), Education Source, PsycInfo, Science Direct, and Web of Science. Keywords utilized during the literature search included: professional learning community,



communities of practice, principal or administrator, teacher collaboration, program implementation, teacher attitudes OR perceptions, administrator attitudes OR perceptions, participative decision making, educational cooperation, and communities of practice AND administrator role. Articles not specifically related to the development of teachers through collaborative practices were excluded as were articles focused on the idea of professional learning networks or other online collaborative efforts. Further information for the review of literature was curated from a collection of relevant books on the subjects of teacher collaboration, learning organizations, and professional learning communities. Chapter 2 is divided in four primary sections: (a) brief history of the professional learning community model, (b) teacher collaboration, (c) shared goals and vision, and (d) leadership.

### Brief History of the Professional Learning Community Model

Many school districts across America have found themselves in a continual cycle of improvement. Particularly in the late 20<sup>th</sup> century, there was an endless cycle of adoption of a reform model, failure of that model, and adoption of a new reform model (Owens & Valesky, 2015). The endless reform cycle process proved to be tiresome for teachers and frustrating for stakeholders seeking improvement in public education. This section of the review of literature aims to place professional learning in a historical research context that supports each of the primary constructs considered within this study: (a) teacher collaboration, (b) shared goals and vision, and (c) leadership.

One particular area of focus beginning in the late 20<sup>th</sup> century was teacher isolation, and teachers were encouraged to use collaborative groups to solve school level issues with solutions specifically crafted for their students. Lortie (1975) demonstrated early on that teachers were

operating in complete isolation. The realization of an endless reform cycle and the prevalence of teacher isolation began the process of understanding the impacts of isolation on student learning and teacher self-efficacy. When Rosenholtz (1991) first described the idea of learning-enriched schools, she characterized these schools by describing their collective commitment to collaboration as a method of improving student learning. Following Rosenholtz' findings was the popularization of Senge's (1990) *The Fifth Discipline* in which the ideology that schools should operate as learning organizations was put forth. This marked the beginning of the idea of communities of practice from which the educational model of the professional learning community was developed. The initial research of Rosenholtz began the shift in the education field away from teacher isolation to the formation of collaborative teams.

In the mid-1990s, Newmann and Wehlage (1995) conducted extensive quantitative research of student test scores, survey results, and in-depth case studies at over 1,200 schools. Newmann and Wehlage set out to understand how school based collaborative practices impacted students' achievement. The research of Newmann and Wehlage began to establish within the education context that the most successful schools functioned as learning organizations, as envisioned by Senge (1990). Newmann and Wehlage also established two key features of professional learning communities that continue to be important today: (a) teachers must establish a shared goal with their professional learning community and (b) the school must establish a collaborative culture that supports teacher learning and development (p. 38).

Darling-Hammond (1996) continued to build on the work of professional learning communities as a viable model for teacher collaboration. She reported that schools providing structured time for collaboration had teachers who were more optimistic about their roles in the

school and their ability to affect student learning. Darling-Hammond (1996) also first highlighted the importance of participative decision making as well as teachers sharing goals and practices.

During this time, DuFour and Eaker (1998) published the first collection of best practices concerning professional learning communities in schools and related them to the potential to impact student achievement. The work of DuFour and Eaker aggregated research for school leaders and teachers seeking to transform their schools into collaborative learning organizations. DuFour and Eaker's publication marked the beginning of the proliferation of the professional learning community model as one for transforming a school into a collaborative learning organization.

In the years following the initial research into schools functioning as learning organizations, consideration of teacher collaborative time and shared decision making as a critical part of school reform was more common than ever before (Archer, 2013). The shift was catalyzed by the work of researchers who described the importance of shared goals and vision in transforming schools into learning organizations (Hord, 2004; Hord & Sommers, 2008; Senge, 2000). Research during this time also continued to establish the importance of school leaders in creating and sustaining collaborative learning organizations (Doerr, 2009; Hord & Sommers, 2008; Waters & Cameron, 2007).

### Teacher Collaboration

Teacher collaboration has been a point of interest in educational research for the past several decades (Darling-Hammond, 1996; DuFour & Eaker, 1998; Rosenholtz 1991). Focus on the collaborative process and its importance to teacher efficacy and resiliency over several

decades has highlighted the importance of the collaborative process in affecting change in teacher practices. Beginning in the early 1990s, researchers focused on the teacher's workplace and how the school and the teachers themselves could more effectively participate in professional learning that would impact not only student performance but also transform the school into a learning organization. Rosenholtz was one of the initial researchers to apply the idea of learning organizations, developed by Senge (1990), to the teacher's workplace, the school. Rosenholtz began studying the teacher workplace to gain a better understanding of exactly how schools could become places of collaboration and what structures needed to be in place to support teacher collaboration.

Even in these early stages, researchers knew the importance of establishing and supporting learning within their organizations. Newmann and Wehlage (1995) noted that, "If schools want to enhance their organizational capacity to boost student learning, they should work on building a professional community that is characterized by shared purpose, collaborative activity, and collective responsibility among staff" (p. 37). School leaders building their organization's capacity for learning should focus their efforts to support teacher collaboration as the foundation of their learning organization (Newmann & Wehlage, 1995).

As research on the topic of teacher collaboration has developed, several key themes have prevailed regardless of the content area, schools, or larger socioeconomic status of the community. The emerging themes that have been consistently woven into the research were: (a) collaboration, (b) shared goals and vision, and (c) leadership. The researchers identified in this section of the review expanded on the initial themes outlined by early researchers such as

Rosenholtz (1991) and Newmann and Wehlage (1995) with a specific focus on teacher collaboration.

Following the initial development of research on teacher collaboration, Brownell, Yeager, Rennells, and Riley (1997) published a comprehensive review of current research on the topic. Even at the early stage of the understanding of the collaborative process, there were key constructs emerging as themes across the work of many researchers. Brownell et al. (1997) wrote that there were already significant data on how collaboration can change teacher behavior in their own classrooms. To truly effect change in teaching practices, there must be an established culture of collaboration across the school starting with clear support from the school's leadership, and there must be clearly identified and shared goals that span across content areas and are agreed upon by all stakeholders in the collaborative process (Brownell et al., 1997).

Following the synthesizing work of Brownell et al. (1997) came research that was more specific on how to build and sustain collaborative communities of teachers. During the decades that followed, teams of teachers were ascribed many names by authors: critical friends groups [CFGs] (Bambino, 2002); teacher learning communities (Kintz, Lane, Gotwals, & Cisterna, 2015); communities of practice (Farley-Ripple & Buttram, 2014); communities of inquiry (Nelson, Slavit, Perkins, & Hathorn, 2008); and professional learning communities. Each of these community structures and names were utilized to support and facilitate teacher collaboration about student learning. Moreover, as each structure was evaluated, there were themes that highlighted the impact any collaborative structure had on the participating members.

Dunne, Nave, and Lewis (2000) found that teachers who participated in the CFGs were more likely to alter their instructional practice, had higher expectations for their students, and perceived more opportunity for professional learning at their workplace. Dunne et al. (2000) further found that these CFGs supported teachers' feelings of support and continual learning. Dunne et al. found three important aspects of the CFGs that teachers cited as important for their engagement in the CFG collaborative process: "It is continual, it is focused on their own teaching and their own student's learning, and it takes place in a small group of supportive and trusted colleagues within their own school" (2000, p. 4). These types of supports mentioned by the members of CFGs highlighted why collaborative efforts were so important to changing instructional practice in the classroom.

Continuing to build on and examine the impacts of different collaborative structures at multiple levels of education and impact of each structure on teacher practice and their student learning, researchers began focusing on the impact of collaborative structures at the school level, and the model's ability to effect change in teacher practices. Strahan (2003) studied the impact of the PLC model of collaboration and how the PLC model influenced teacher practices as they strived to implement reforms at three separate elementary schools. Strahan (2003) continued to build on the idea that these collaborative communities supported teachers in their efforts to change instructional practice and build collective efficacy across the school. Strahan (2003) not only supported the initial findings of prior researchers that shared visions and a collaborative culture must be in place to effect change in the classroom. He expanded on that idea, specifically highlighting how critical collaboration was for the reform process. Strahan further theorized that the collaborative process was a critical part of the "reoccurring spiral of reform

activities” (p. 130) that allows teachers and schools to continually build capacity as a learning organization.

Phillips (2003) further examined the impact of teacher collaborative efforts through a specific study at a middle school by examining how teacher collaboration can be utilized to implement reform efforts meant to change teachers’ classroom practices. Her findings continued to support the developing themes surrounding the collaborative process for teachers. Phillips found that the middle school she studied, “experienced successful outcomes because they shared leadership, focused on specific outcomes, and collaboratively created an authentic learning community” (p. 258). By first outlining key areas of focus during their collaborative time, such as teacher professional learning, teams of teachers developed a shared vision for their time together. Increasing their own professional learning allowed the teachers to begin the reform process with a unified vision, thereby supporting the teachers’ collaborative efforts to build on and improve their practice (Phillips, 2003).

Furthering examination of the possible outcomes of teacher collaboration, researchers such as Goddard, Goddard, and Tschannen-Moran (2007) examined how these collaborative efforts were impacting student achievement. Goddard et al. (2007) supported the idea that though collaboration had a net positive effect, it was more often experienced on the teacher level than demonstrated by the student’s ability to achieve proficiency on state standardized assessments. Although the findings of Goddard et al. (2007) appear meager, showing only 0.1 standard deviation increase on standardized test achievement corresponded to teachers self-reporting one standard deviation in their teacher collaboration ratings, the findings remain critical to best understanding how teacher collaboration impacts student achievement.

Furthermore, Goddard et al. (2007) paved the way for continued research into exactly how collaborative efforts may benefit student learning. They postulated that “Collaboration...encourages teachers to move beyond reliance on their own memories and experiences with schooling and toward engagement with others around important questions of teaching and learning” (p. 892). Goddard et al. (2007) demonstrated that while the benefits for teachers’ collaboration may not be immediately shown in student achievement, they are shown in teacher growth and increased perceptions of self-efficacy by the teachers participating in collaborative efforts.

Continuing the focus on how to structure teacher collaborative time, Nelson et al. (2008) examined how professional learning can be specifically designed to support and encourage teachers in collaborative inquiry about their lessons, students, and results. An important finding in their qualitative analysis of interviews, transcripts, and video or audio recordings or meetings was that leading the PLC from an inquiry stance was crucial to the success of the PLC (Nelson et al., 2008). Their findings also stressed the importance of the inquiry process for teachers and for PLC leaders in fostering a culture of collaboration with the PLC. Nelson et al. (2008) also stressed the importance of establishing collaborative norms as a critical element to any PLC. Specifically, Nelson et al. (2008) reported that, “In addition to intentionally employing collaborative norms, we found that giving attention to the development of a shared vision, consistent and inclusive avenues of communication, and shared leadership were crucial to the functioning of the group” (p. 1298), further developing the theme that there must be specific structures in place to begin, support, and develop teachers’ collaborative capacity. Nelson et al.



(2008) also highlighted that the creation collaborative norms allow teachers to feel more comfortable taking risks as the process builds communal trust within the PLC.

As initial research into the effectiveness and design of the collaborative teams, researchers began to examine the initial creation of collaborative teacher groups in addition to their sustainability and impacts on student learning (Dooner, Mandzuk, & Clifton, 2008; Hallam, Dunlaney, Hite, & Smith, 2014; Vangriekem, Dochy, Raes, & Kyndt, 2015). Dooner et al. (2008) studied the process of how PLCs are formed and sustained at the school level. Dooner et al. (2008) used the model of the four stages of collaboration first developed by Weick (1979), as cited by Dooner et al., to guide their research and understand how the group of teachers initially began their work together and how their collaborative efforts changed over time. Dooner et al. found that the first hurdle for forming the PLC was for the members to find what Weick (1979), as cited by Dooner et al. (2008), termed common ground on which to build their collaborative efforts.

Building on the exposed linkages between collaborative teams or networks and students' achievement, Molenaar et al. (2012) examined the breadth of the collaborative teams or networks and their impact on student achievement. Highlighting the impact of teachers' collaborative networks, Molenaar et al. stated, "Dense networks appear to support and nurture teachers' confidence in the capacity of their team to impact students' learning and achieve school goals" (p. 258). Further developed in research by Molenaar et al. (2012) was the idea that although the breadth or centralization of the network was not predictive of student achievement, both were found to have a positive effect on teacher efficacy (ranging from  $r=.33, p<.05$  to  $r=.42, p<.05$ ), and a statistically significant correlation with student achievement in language at the school level

( $r=.48$ ,  $p<.01$ ). The correlations uncovered by Molenaar et al. revealed that by focusing on building broad and centralized collaborative networks within schools, educational leaders could provide teachers with opportunities to build collective efficacy, thereby increasing student achievement.

Continuing the examination of the secondary effects of collaborative time by teachers, Hallam et al. (2014) examined the factor of trust in teachers' collaborative events and specifically cited them as a key feature in building successful collaborative relationships among teachers. By specifically examining the levels of trust between teachers on collaborative teams, Hallam et al. exposed a few new key themes for the development of teacher collaboration, finding that when teachers were probed about the most effective forms of collaboration they were more likely to cite informal collaboration than structured collaborative time (Hallam et al. Hallam et al. further indicated that there was a distinct difference in teachers' perceptions of collaborative time based on how accountability was linked to the time. Specifically, when teachers were asked if they collaborated, they referenced informal instances of lunchroom conversations and quick hallway exchanges as effective instances of collaboration. The same teachers rated the effectiveness of their structured PLC time at only a 4.58 on a 7-point scale (Hallam et al. Qualitative data revealed that teachers believed the administrative accountability associated with formal collaborative time decreased overall perceptions of effectiveness and trust between the teacher collaborative teams (Hallam et al.

The emergence of common themes in teacher collaborative efforts, such as how teacher practices can be changed through collaboration, has shown that structuring opportunities for teacher collaboration can affect teacher practices in their classrooms (Brownell et al., 1997;

Dunne et al., 2000; Phillips, 2003; Rosenholtz, 1991; Strahan, 2003). Also emerging from the research on teacher collaborative efforts was that all structured, organization-wide learning must be prefaced by two support structures: (a) shared vision among collaborative colleagues (Bolam et al., 2005; Brownell et al., 1997; Hord, 2004; Hord & Sommers, 2008; Newmann & Wehlage, 1995; Rosenholtz, 1991; Senge, 1990) and (b) leadership that focuses on a culture of collaboration within the school (Doerr, 2009; Erkens & Twadell, 2012; Hord & Sommers, 2008; Newmann & Wehlage, 1995; Rosenholtz 1991; Waters & Cameron, 2007). Even with the commonalities mentioned, Hallam et al. (2014) later found that teachers saw accountability as not promoting the real value of collaboration that is authentic and ongoing and, therefore, less valuable to the teachers.

### Shared Vision

Hord (2004) defined a shared vision as, “a particular mental image of what is important to an individual and to an organization; it is a preferred image of the future that compels staff to work toward that image” (p. 8). A central vision of a future organization is key to implementing school-based reforms and improving student achievement (Bolman, 2005; Hord, 2004; Molenaar et al., 2012; Phillips, 2003; Strahan, 2003). For collaborative efforts to be most effective, there must be a common vision of how the school, as a whole, will improve students’ learning.

Since the inception of schools as learning organizations, shared vision has been a key component of organizational learning as a structure to effect organizational change at a school (Hord, 2004; Rosenholtz, 1991; Senge, 2000). Shared vision serves to bolster each teacher collaborative group to embrace a common ideology that guides their time together towards a common purpose (Hord, 2004). Shared vision is therefore an important tool in guiding all

stakeholders in the collaborative process to focus their efforts on one key idea, thereby amplifying the results to the greatest possible magnitude. By collectively agreeing on a shared vision, a collaborative group can focus its collective efforts on a single purpose, a critical component of a successful collaborative team (Bolam et al., 2005; Brownell et al., 1997; Hord, 2004; Hord & Sommers, 2008; Newmann & Wehlage, 1995).

Huffman (2001) set out to understand comprehensively how shared vision influences the development of one specific model of teacher collaborative teams, professional learning communities. Huffman stated that schools must, “understand that the emergence of a strong, shared vision based on collective values provides the foundation for informed leadership, staff commitment, student success, and sustained school growth” (p. 18). The shared vision of the staff underpins the structure of the learning organization as a whole and supports the school’s leadership and stakeholders in aligning their decision-making process to a common vision that supports student learning. One emergent theme from the early work on shared vision was that teachers and leaders must buy into the creation of the shared vision for it to effectively drive change within the organization (Huffman, 2001).

By effectively creating shared goals for the collaborative teams, Strahan (2003) demonstrated that those schools that have been successful in changing teacher behavior and moving student achievement used a shared vision to drive teacher work in their collaborative teams. Strahan (2003) specifically stated that “In successful schools, these shared beliefs are often intertwined with a set of shared practices that the social context, the affective dimensions of learning, with the academic dimensions of performance” (p. 129). A school’s ability to drive

change through shared vision is critical to enhancing student performance while building teacher collective efficacy through collaborative work (Phillips, 2003; Strahan, 2003).

Further development of research around a shared vision showed that schools can utilize the development and implementation of a shared vision as part of a larger organizational reform effort (Phillips, 2003; Strahan, 2003). Phillips (2003) demonstrated that schools with a powerful central and shared vision are more likely to make meaningful reform changes across the school that can significantly impact student achievement. Utilizing a shared vision to build capacity in teacher collaborative groups allows the staff and leadership at the school to craft a vision that fits their specific school and demonstrates a high level of trust in staff to work collaboratively to accomplish the vision. Phillips stated that the school's effectiveness in its reform efforts was determined by its ability to focus on specific outcomes in the context of the specific school. By collaboratively setting forth a vision, a school can effectively raise student achievement.

Previous researchers have described the importance of a shared vision for any learning organization. Hord (2004) outlined the importance of not only having a shared vision and how to specifically craft the vision to generate faculty buy in as well as how to leverage the shared vision of the school to retain, hire, and develop teachers. Although there was not one model of shared vision development that stood out as significantly more effective, Hord found that the most critical features of the shared vision were (a) teacher involvement in the creation of the vision and (b) unwavering support for the vision from the instructional leadership. The development of the shared vision enables instructional leaders at a school to guide professional development and decision making that communicates the school's focus to staff and community stakeholders. Hord specifically cited the importance of vision as one way to demonstrate the

urgency and importance of teachers' collaborative work "Principals utilized the vision as a powerful instrument that communicated the importance of and commitment to teaching and learning" (p. 46). Furthermore, once the shared vision has been developed, principals can utilize the vision as a focal point during the hiring and orientation of new teachers. Hord determined that by opening interviews and orientations with the shared vision for the school, principals were able to find staff who came into the school ready to work toward the vision. The vision-focused hiring process allows the school to continue to expand upon and work towards the collective vision even if there is significant turnover in the faculty.

Lomos, Hofman, and Bosker (2011) completed a meta-analysis examining the links between professional learning and student achievement. Lomos et al. (2011) listed what they referred to as a "shared sense of purpose" (p. 139) as one of five interrelated variables that have been frequently examined as key factors in improving student achievement. By stating the importance of the development and support for a shared vision as a key component to improving the effectiveness of instruction occurring within the organization, Lomos et al. demonstrated how researchers over the past several decades have shown shared goals to be a critical indicator in organizations that desire to improve student achievement.

An important area of need in the research was the impact of a shared vision on the different stages of a school's teacher collaboration implementation schools. Leclerc, Moreau, Dumouchel, and Sallafranque-St.Louis (2012) examined three primary stages of implementation: (a) initiation, (b) implementation, and (c) integration. Within each stage of creating a collaborative environment, the shared vision is a unique way to evaluate the school's progress towards creating a true learning organization. Initially, schools in the initiation stage do not have

a shared vision, as the daily operations of the school are not yet coordinated with the vision. At schools in the initiation stage, the vision is still owned by those responsible for creating it and has not been adequately disseminated to the staff. Leclerc et al. explained that schools in the initiation stage must consciously work towards distributing leadership across the school to share the collective vision for student growth and learning. Those schools, in what Lecerc et al. termed as the implementation and integration stages, are judged to have already accomplished sharing the school's vision for student learning and are differentiated by the vision's permeation into the daily activities and classroom practices of teachers. The differentiation by Lecerc et al. between schools, based on the distribution and acceptance of the shared vision, demonstrates how critical a shared vision is to a school functioning as a collaborative organization with a focus on teacher learning and student achievement.

The most recent research shows that the construct of a shared vision is a principal shared by educators on a global scale (Chen, Lee, Lin, & Zhang, 2016; Wang, 2016; Hallinger & Lu, 2014). Chen et al. (2016) demonstrated that within Taiwanese schools the schools that effectively created a shared vision reported higher levels of collegiality and collaboration. Schools with a common understanding of the school's vision were also more likely to impact teachers' classroom practices (Chen et al.). The researchers specifically cited shared vision as a cornerstone for purposefully building a culture of collaboration:

It takes common ground to uphold the alignment of the pedagogical purpose of PLCs with school improvement trajectories. Shared values and vision become critical for school members to identify with school collective goals and follow the norms to build a culture of collaboration and collegiality. (Chen et al., 2016, p. 253)

Further developing the global theme of the importance of shared vision was Wang's 2016 research and Hallinger and Lu's earlier 2014 investigation. These researchers examined the impact of leadership on professional learning communities in China and Hong Kong. Collectively, the studies put forth the idea that one of the most important functions of leaders in promoting and supporting the collaborative process was to develop and disseminate their shared vision to all levels of leadership and staff at their schools. Specifically focusing on the distribution of the shared vision, Hallinger and Lu (2014) stated, "Leaders representing different departments, grades and functional groups should be better able to align internal processes..., maintain the coherence of programmes across units, and enhance teacher commitment to the school's improvement agenda" (p. 486). Wang advanced the theme of leaders being central to spreading the shared vision by underlining the importance of a shared vision for leaders. Wang found repeated qualitative examples of principals citing their school's shared vision as a key factor in building an inclusive and collaborative school culture with a focus on student learning and well-being.

The collection of research on the topic of shared vision clearly identified the importance of the shared construct as an immutable element that must be present for effective collaboration to occur within a school (Bolman, 2005; Chen et al., 2016; Hallinger & Lu, 2014; Hord, 2004; Molenaar et al., 2012; Phillips, 2003; Strahan, 2003). Without shared vision as a central construct, school or district level leadership cannot implement reform effectively and result in an actual change to teachers' instructional practice within their own classroom (Bolman, 2005; Lecerc et al., 2012; Lomos et al., 2011; Phillips, 2003; Strahan, 2003; Wang, 2016). The illuminating theme within the collective work on shared vision shows that the sharing of a



collectively understood vision by school leadership tends to lead staff actions in a singular direction without constantly managing staff practices. This allows the principal to operate an instructional leader and not simply a staff manager.

### Leadership

The theme that emerged from the research put forth in the areas of collaboration and shared vision focuses on one central construct, leadership, that is necessary to facilitate the creation of a shared vision and develop the collaborative culture of a school (Bolman, 2015; Brownell et al., 1997; DuFour & Eaker, 1998; Erkens & Twadell, 2012; Goddard, Goddard, Eun Sook, & Miller, 2015; Rosenholtz, 1991). Supportive leadership is critical to the start and continuation of any localized school reform effort, particularly one that requires the allocation of important resources such as time. Teacher collaborative efforts require strategic utilization of critical school resources to provide the basic structural components necessary to articulate the shared vision of a collaborative, learning organization.

Rosenholtz (1991) began the process of understanding the teacher workplace as a critical component to increasing student learning. She also established the importance of leaders in the implementation of collaborative models of teacher learning, specifically citing their function as sharing and championing the school's shared vision and providing resources necessary for collaborative efforts to take place. By providing necessary resources for their teachers, leaders take the first step in cultivating a culture of collaboration within their schools. In addition to allocating critical resources, Rosenholtz set forth the function of the instructional leader as someone who brings to light the importance of the shared goals of the school by inducting and involving teachers and stakeholder in the process. Collectively, the behaviors cited by

Rosenholtz allow the instructional leader to influence the culture of the school in a manner that provides teachers opportunities to realize and contribute to the shared goal through the collaborative model. Rosenholtz also demonstrated that the leadership at an individual school plays a vital role in the distribution of shared goals and implementation of collaboration.

Following the emerging themes put forth by the early researchers, Brownell et al. (1997) synthesized the late 20<sup>th</sup> century work on PLCs as a teacher collaborative model. Undergirding their findings was the fact that instructional leadership is of critical importance for an organization hoping to start and sustain a collaborative culture. Brownell et al. (1997) stated that, “Developing a commitment to collaboration especially requires leaders who can initiate, develop, and sustain a vision for teachers working together” (p. 345). Without the leadership at the school providing guidance and sharing their collective vision, the challenge of changing instructional practice or increasing student performance often proved to be insurmountable according to Brownell et al. Schools with leaders in place that champion the shared vision of the school and work diligently to provide the necessary resources for teachers to collaborate in authentic ways were more likely to be successful in changing teachers’ classroom practices (Bolman, 2015; Brownell et al., 1997; Erkens & Twadell, 2012).

Phillips (2003) furthered the emergent theme of leaders being central to the establishment of a learning community within their schools, stating: “School leaders must change organizational structures to create new school cultures that foster experimentation, collaboration, and continuous improvement” (p. 242). Phillips highlighted the importance of the leader as a champion for teacher collaboration and as a model for the growth mindset and unwavering focus on student learning that must underpin teachers’ collaborative efforts. By emulating the

behavior expected from teachers, principals and other instructional leaders demonstrate that they too have actively shifted their own behaviors and actions to align with the organization's shared goal. Leaders who model expected collaborative behavior and serve as a constant example of a true collaborator inspire teachers to more authentically participate in collaborative opportunities (Bolman, 2015; DuFour & Eaker, 1998; Phillips, 2003). Instructional leaders act as models toward which teachers can look when they are unsure of how to meet or move towards the expectations set forth set by the shared goals. A secondary benefit found by Phillips was school leadership modeling the desired behavior and participating in collaboration themselves, thereby releasing the teachers to be accountable for their own learning and progress.

Hipp, Huffman, Pankake, and Olivier (2008) found that all schools were unique in their timeline and pace of increasing student learning through teacher collaboration. They were similar, however, in the necessity of having leadership in place that modeled and supported the shared goal. Another theme highlighting the importance of school leaders was the need for them to not only provide needed resources for collaboration but to execute and trust their teachers to faithfully implement the model to the best of their ability (Bolman 2015; DuFour and Eaker, 1998; Erkens & Twadell, 2012; Hipp et al., 2008). Without trusting teachers to execute the model, leaders are unable to effect real change within the organization, because the power is concentrated within the leader alone and not distributed to empower individual teachers to impact student achievement (Hipp et al., 2008).

Another critical aspect of leadership is their ability to provide important and necessary resources that facilitate teachers' abilities and willingness to collaborate (Bolam, 2015 ; DuFour & Eaker; 1998; Erkens & Twadell, 2012; Nelson et al., 2008). Leaders must provide critical

resources for their teachers if collaborative models, like the professional learning communities examined by Nelson et al. (2008), are expected to produce student learning gains. Nelson et al. stated that, “The type of support reported in the literature is quite varied, but it is clear that specific kinds of support are crucial for allowing teachers the time, place, and intellectual capacity to collaboratively inquire into their practice” (p. 1270). These findings highlight the important role of principals and administrators in providing the basic structural supports so teachers can participate in collaborative efforts to increase their professional learning. Without the structural support from leadership, it is nearly impossible for teachers to collaborate in a manner that results in student growth and learning (Bolam, 2015; Brownell et al., 1997; DuFour & Eaker, 1998; Erkens & Twadell, 2012; Nelson et al., 2008).

Schechter (2012) focused on two key ways that principals and district leaders support effective models of teacher collaboration: culture and resources. Schechter (2012) furthered the idea that principals and leaders must allocate resources and generate a culture of collaboration while examining learning communities in 15 Israeli elementary, middle, and high schools. He determined that leaders who sustain a culture of learning do so in an environment in which they provide themselves and their own learning as an exemplar for the teachers. They utilize their position and authority to provide resources to teachers, allowing those teachers to engage in collaborative work which in turn increases students’ learning (Schechter, 2012). The importance of these functions of school leaders cannot be overstated as they are key to the collaborative culture in the organization. Schechter went so far as to say, “It is the principal who is instrumental in creating the learning community and maintaining it over time, mostly by setting a personal example” (p. 731). Without a principal or leader to champion the culture of collaboration

and facilitate the delivery of necessary resources, teacher collaborative efforts cannot affect student learning or change a teacher's classroom practices in a meaningful way (Schechter, 2012).

Another key feature to consider when implementing collaborative models for teacher learning is to consider how well the leadership within the organization can facilitate the understanding of the culture they are seeking to establish. Farley-Ripple and Buttram (2014) examined interviews of district and school leaders along with documents from PLCs to gain a better understanding of the impact of data-driven PLC practices and the impact of teachers' collaboration in their instructional practices. The researchers found that leaders in the districts and the schools each had different accounts of how teachers were expected to utilize their collaborative time, and this led to varying levels of PLC implementation across the districts. Farley- Ripple and Buttram also found that, "While all recognized the potential for PLCs to improve instruction, district offices and schools adopted differing perspectives on what this meant for teacher collaboration during PLC time" (p. 45). The disjointed understanding of what type of collaborative culture was to be established at the school led to less effective or completely ineffective examples of collaboration (Farley-Ripple & Buttram, 2014). Farley-Ripple and Buttram also found that during their collaborative time teachers did not consistently spend time both analyzing and acting on their data, further indicating the importance of district and school leadership needed to model the expectations for professional learning and collaboration time.

Perceived support from leadership is a critical component of successful teacher collaboration. If teachers do not perceive that their school's instructional leaders support their efforts to improve student learning through collaboration, they are unlikely to continue or even

establish collaborative partnerships (Honingh & Hooge, 2014). Honingh and Hooge articulated the importance of how critical perceived support of leadership is for teachers who undertake collaborative efforts by reporting perceptions from teachers in over 600 Dutch primary and secondary schools who worked collaboratively. Honingh and Hooge stated that leaders are the most critical component to teacher collaboration, “Our research shows that teachers who report receiving support from their school leaders are more likely to engage in collaboration” (p. 91). Teachers when working collaboratively reported perceived school leader support as the most influential factor for primary schools or the only factor in secondary schools that had a direct impact on teacher collaboration (Honingh & Hooge, 2014). Honingh and Hooge also stressed the importance of leaders utilizing themselves as an example to encourage and support teacher collaboration. The function of instructional leaders who wish to steer their organizations in the direction of collaboration must be to support and model collaborative behavior for their teachers (Erkens & Twadell, 2012; Hipp et al., 2008; Honingh & Hooge, 2014; Phillips, 2003).

The importance of the relationship between collaboration and instructional leadership was made clear by Goddard, Goddard et al. (2015): “First, our results showed that the degree to which teachers collaborate to improve instruction was strongly predicted by principal’s instructional leadership” (p. 524). Goddard et al. (2015) clearly demonstrated the relationship between principal leadership and teacher collaboration, finding that the degree of collaboration among teachers also influenced the collective efficacy beliefs of the staff and was also found to be positively correlated with student achievement in Mathematics. The researchers further found that although the body of evidence linking teachers’ collaboration to student achievement was currently expanding, there were still gaps in the research as to the extent to which collaboration

can impact student achievement. Goddard et al. (2015) concluded that school leaders have tremendous potential to impact student achievement through creating a culture of collaboration, but there is a need for more research to determine exactly how collaborative efforts should be structured for maximum student impact.

The emerging theme across the current research reflected the critical role instructional leaders play in successfully engaging teachers in collaborative efforts (Bolman, 2015; Brownell et al., 1997; DuFour & Eaker, 1998; Erkens & Twadell, 2012; Honingh & Hooge, 2014; Goddard et al., 2015; Rosenholtz, 1991). The importance of instructional leaders as resource providers and collaborative role models who support teachers in their efforts is the most consistent indicator of teachers' perceived support for improving their instructional practice through collaboration (Dunne et al., 2000; Honingh & Hooge, 2014; Phillips, 2003). The leader, therefore, becomes a central figure in collaborative process and inextricably links the ideas of teacher collaboration and shared goals. Without strong instructional leadership, it is unlikely that teachers will engage in the collaborative process.

### Student Achievement and Teacher Collaboration

The current literature on the capability of teacher collaboration to improve student achievement is not complete, as there are many gaps in the understanding of exactly how collaborative efforts can be structured to increase student learning (Goddard et al., 2015). Researchers have outlined basic structures that support using collaboration to increase student achievement, but there is not currently a clear picture of the ability of collaboration to directly impact student achievement (Goddard et al., 2007; Goddard et al., 2015; Moolenaar et al., 2012). Despite the dearth of research in the area of direct links between collaboration and student

achievement, there are, however, direct positive impacts on teachers and their self-efficacy as they participate in collaboration (Brownell et al., 1997; Goddard et al., 2007; Moolenaar et al., 2012).

One of the most important effects seen as a result of teacher collaboration is that teachers are more likely to change or adapt their instructional practice after collaborative discussions with colleagues (Goddard et al., 2007). Collaboration may not directly result in immediate increases in how many students are categorized as proficient on standardized tests. Goddard et al. (2007) described the connection as follows: “The relationship between teacher collaboration for instructional improvement and student achievement is likely indirect. That is, the most important outcome of teacher collaboration may be that teachers learn how to improve their instructional practice” (p. 892). The idea of the indirect impact of collaboration shows that the process is designed to improve long term outcomes for schools, not to temporarily inflate student achievement through unsustainable practices. To truly adopt a collaborative culture is about changing the underlying beliefs and practices of all instructional personnel to be focused on the shared goal of student learning.

Even though there is not a complete picture of how student achievement is altered as a result of collaboration, there exists a basic framework of research that suggests positive outcomes for students in schools that have established a collaborative culture (Goddard, 2015; Phillips, 2003; Ronfeldt, Farmer, McQueen, Grissom, 2015; Vescio, Ross, Adams, 2008). Vescio et al. (2008) reviewed current research and found the critical element that must be in place for collaboration to impact student achievement was an unwavering focus on student learning. Vescio et al. offered an unambiguous answer to whether collaboration impacted



student achievement in the five studies included in their analysis, stating, “Although few, the collective results of these studies offer an unequivocal answer to the question about whether the literature supports the assumption that student learning increase when teachers participate in PLCs. The answer is a resounding and encouraging yes” (2008, p. 87). Although the initial results of Vescio et al. (2008) demonstrated the positive impact of teacher collaboration, there is much more to be understood about how leaders can most effectively leverage collaboration to increase student performance using different structures or models.

As school districts begin to push collaboration as a means of increasing student achievement it is important to understand what type of structure needs to be in place to facilitate any positive impact on teachers or students. In examining data from over 9,000 teachers in Miami-Dade County, Ronfeldt et al. (2015) sought to understand the different structures of collaboration in which teachers engage, and if any of those types of collaboration types were consistent predictors of student achievement in mathematics or reading. In looking at two primary forms of collaboration, (a) collaboration that focused on understanding and analysis of student data and (b) collaboration that focused on curriculum and instruction, Ronfeldt et al. found that degree level, gender, and race were all factors in teachers reporting differences in collaborative structures and reported usefulness of collaboration. By focusing on the structure and goal of collaboration between teachers, Ronfeldt et al. (2015) found that “Results...indicate that schools that have instructional teams engaged in better collaboration also have higher achievement gains in both math and reading” (p. 500). Expanding on the link between better collaborative teams and student achievement, when the structural difference findings were paired with student achievement data in reading and mathematics, the results indicated that schools with

teams reporting high levels of collaboration had higher achievement gains in both mathematics and reading. Though the gains were small in regard to the individual findings related to collaboration about instructional practices, the cumulative results of the work of Ronfeldt et al. suggested that each type of collaboration was significant at  $p < .05$  in predicting student performance in mathematics and reading.

Collectively, the review of research showed that though there was a positive trend emerging in regard to the impact of collaboration on student achievement, there was not yet enough research to indicate the extent to which collaboration changed student achievement. The gap in the current literature indicated a need for further research into teacher perceptions of collaboration and the subsequent impact on students' ability to achieve proficiency on state tests. By continuing the line of inquiry the researcher aspired to contribute to a clearer understanding of how to structure collaboration and where to focus limited resources to maximize positive outcomes for students.

### Summary

The literature reviewed in this chapter has established a footing for continued study of how teacher collaboration, shared goals and vision, and leadership coalesce into a strategy for improving student achievement. At the time of the present study, insufficient research had been conducted linking specific collaborative strategies to student achievement. A clearer understanding of teachers' perceptions of collaboration and any possible relationship to students' performance on state assessments could make a significant contribution to the current body of knowledge that is accessible to leaders looking to implement or improve a collaborative program in their organization.

The literature presented in this chapter substantiated collaboration as one method that has shown results in altering teacher instructional practices. There is also a significant body of evidence that demonstrated the importance of shared goals and vision as well as instructional leadership in supporting and developing the collaborative culture necessary to support teachers in their collaborative teams. However, there is insufficient evidence on how to best leverage these constructs to create a collaborative culture that directly and positively impacts student achievement.

The current study has added to the existing research and literature connected to teacher collaboration and the resulting student achievement. In the following three chapters, the methodology utilized in this causal comparative study is detailed, the findings from the data analysis are reported, and the results are discussed. Included in the discussion of results are implications for how the findings relate to practice and recommendations for future research.

## CHAPTER 3 METHODOLOGY

### Introduction

The purpose of this study was to expand upon the current understanding of the impact of continuous implementation of the PLC model by determining the relationship between the perception of the key constructs of (a) teacher collaboration, (b) shared goals and vision, and (c) leadership and student performance on state standardized tests in reading and mathematics. Other supporting research questions examined the changes in teacher and leadership perceptions regarding the ongoing implementation of the professional learning community model as a structure for teacher collaboration. This chapter contains a detailed description of the methods and procedures used to answer each of the research questions which guided the study. The study was initiated only after the approval of the Institutional Review Board of the University of Central Florida (Appendix C) and the school district that was the focus of this study (Appendix D).

### Population

The population for this study included all instructional and leadership personnel in schools within the target school district. The same two surveys were administered to the instructional and leadership staff in the 2012 and 2014 school years, with instructional staff receiving the PLC Survey-Teachers and school leaders receiving the PLC Survey-Leaders. The sample drawn from the larger population consisted of a convenience sample of those teachers and leaders who responded to the instruments in the years considered.

### Sample

A convenience sample of 5,954 teachers and leaders comprised the data set for this study from the 184 elementary, middle, and high schools in the target school district. All schools with at least one respondent for either the 2012 and the 2014 instruments were included in the sample.

The sample was strategically selected to determine the specific respondents who would be included in the final convenience sample. For both instruments, school sites that did not have responses for both years considered were removed. In these cases, removal was due to new schools being opened during the survey period, as these schools did not have responses for each of the years being examined. PLC Survey-Leaders respondents who indicated a job title other than principal or assistant principal were removed, as these respondents were school district or site-based support personnel who did not consistently participate in the PLC process occurring at the school site. There were no further criteria considered when selecting the sample for analysis. The final sample for the study was comprised of 5,954 teachers and leaders.

### Instrumentation

Two surveys were utilized to gather information about the perceptions of teachers and leaders in regards to their participation in and perceptions about their experience with the professional learning community model: PLC Survey-Teachers (Appendix A) and PLC Survey-Leaders (Appendix B). Each survey was developed by the target school district to monitor the perceptions of teachers and leaders as they engaged in the PLC model of collaboration. The researcher did not have input into the creation of the utilized instruments. Instead, she retroactively aligned the utilized survey items to constructs found in the literature of: (a) collaboration, (b) shared goals and vision, and (c) leadership.

Each item utilized Likert-type scales to measure the respondents' levels of agreement with each of the survey items. The Likert scale for the PLC Survey-Teachers was as follows: items 1- 10 had following response options: I Strongly Agree (5), I Agree (4), I Am Not Sure (3), I Disagree (2), and I Strongly Disagree (1), and items 11-14 allowed respondents to choose from: Almost Always (5), Most of the Time (4), Sometimes (3), Once in a While (2), and Hardly Ever (1). The changes made to the base Likert-type scale were needed to ensure grammatical agreement with the prompt while maintaining the neutrality of the prompt itself. The Likert-type scale available to respondents for the PLC Survey-Leaders items 1-4 was as follows: I Strongly Agree (5), I Agree (4), I Am Not Sure (3), I Disagree (2), and I Strongly Disagree (1). For the current study, items on each instrument that only related to current school district initiatives were removed from the data prior to analysis. The PLC Survey-Leaders was strategically limited to only include questions that had a direct relationship with one of the constructs and directly corresponded to the items on the PLC Survey-Teachers instrument.

The reliability of questions and alignment with constructs was completed through reflective analysis. Validity for each survey was established through analysis of each question to determine if the item measured the respondents' perceptions of one of the three literary constructs: (a) collaboration, (b) shared goals and vision, and (c) leadership. Both the PLC Survey-Teachers and the PLC Survey-Leaders were evaluated for reliability in the 2012 and 2014 school years utilizing Cronbach's alpha. The PLC Survey-Teachers consisted of 14 items ( $\alpha = .938$ ) in 2012 and included the same 14 items in 2014 ( $\alpha = .894$ ). The PLC Survey-Leaders contained four items in 2012 and 2014 the Cronbach's alpha for the PLC Survey-Leaders 2012 and 2014 were for .780 and .760 respectively.

### Data Collection

The data for the study were collected by the target school district during the 2011-2012 and the 2013-2014 school years utilizing professional survey software to elicit confidential responses from participants. The instruments were distributed to the specific group, teachers or leaders, by the target school district's professional development department via e-mail during the final quarter of the school year.

### Survey Data Collection

During the 2011-2012 school year, the PLC Survey-Teachers was sent to approximately 12,747 instructional employees, and 454 school level administrators received the PLC Survey-Leaders. In the second round of data collection during the 2013-2014 school year, the PLC Survey-Teachers was sent to approximately 13,084 instructional employees, and the PLC Survey-Leaders was sent to approximately 488 school level administrators. At the time of the closing of the instrument, the 2012 PLC Survey-Teachers had a response rate of 22.75%, and the PLC Survey-Leaders had a response rate of 22.29%. In 2014, the PLC Survey-Teachers had a calculated response rate of 20.98%; the PLC Survey-Leaders had a 21.92% response rate that same year. Due to limitations in recording the individual teachers or administrators who received the e-mail, the exact number of potential respondents was unknown, and this may have resulted in a less than precise response rate.

### FCAT Data Collection

A mean Developmental Scale Score (DSS) was also retrieved from the Florida Department of Education data base for each school. This school-wide mean demonstrates average student achievement on the FCAT 2.0 in both reading and mathematics. Table 3

contains the FCAT 2.0 reading and mathematics DSS scores by grade level. A DSS corresponding to a Level 3 or higher was designated as passing during the two considered school years. Grade 10 took a newly implemented standardized test during the 2014 school year, and these mathematics scores were not included as they could not be correlated to the 2012 school year's FCAT 2.0 scores.

Table 3

*FCAT Reading and Mathematics Developmental Scale Scores (DSS) by Grade Level*

Test Category	Level 1	Level 2	Level 3	Level 4	Level 5
Reading Grade 3	140-181	182-197	198-209	210-226	227-260
Mathematics Grade 3	140-182	183-197	198-213	214-228	229-260
Reading Grade 6	167-206	207-221	222-236	237-251	252-283
Mathematics Grade 6	170-212	213-226	227-239	240-252	253-284
Reading Grade 10	188-227	228-244	245-255	256-270	271-302

*Note.* FCAT = Florida Comprehensive Assessment Test.

### Data Analysis

Responses from the PLC Survey-Teachers and PLC Survey-Leaders were assigned numerical representations from the respondents' Likert ratings before being entered into the Statistical Package for Social Sciences (SPSS) for analysis. The process of assigning numerical values allowed for appropriate analysis of the five research questions using descriptive statistics, independent T-tests, dependent T-tests, and Pearson coefficients. The maximum score average



score a school could receive across the PLC Survey-Teachers and the PLC Survey-Leaders is a 5.0. The maximum score each school can receive for each of the three literary constructs of: (a) Collaboration (b) shared goals and vision and (c) leadership the across the PLC Survey-Teachers and the PLC Survey-Leaders is a 5.0. The range of scores for the PLC Survey-Teachers and the PLC Survey-Leaders is from 1.0 to a 5.0. The statistical treatment that was performed to respond to each of the research questions is explained for each question and is summarized in Table 4 which displays the research questions, the sources of data, and the type of statistics used to analyze the data.

#### Research Question 1

To determine the perceptions of teachers in relation to each of the literary constructs, (a) collaboration, (b) shared goals and vision, and (c) leadership, descriptive statistics were analyzed. Analysis of the descriptive statistics outlined the perceptions of teachers before further analysis was performed on these perceptions and their potential impact upon other variables in the study.

#### Research Question 2

To discover the changes in teachers' and leaders' perceptions of the PLC collaboration between the 2011-2012 and the 2013-2014 school years, an independent t-test was conducted. This statistical analysis was conducted to determine the difference between the teachers' and leaders' perceptions of the PLCs in the 2011-2012 school year compared to their perceptions in the 2013-2014 school year using the mean scores from the PLC Survey-Teachers and the PLC Survey-Leaders.

### Research Question 3

A Pearson product-moment correlation coefficient was calculated to determine the extent, if any, to which there was a relationship between teachers' or leaders' perceptions of their PLC and the students' scores on the FCAT 2.0 reading and mathematics in the 2011-2012 school year. For this analysis, the teachers' and leaders' perceptions were utilized as the independent variable, and the students' FCAT 2.0 scores served as the dependent variable.

### Research Question 4

A Pearson product-moment correlation coefficient was utilized to examine the extent, if any, to which there was a relationship between teachers' or leaders' perceptions of their PLC and the students' performance during the 2013-2014 school year reading and mathematics FCAT 2.0. This analysis used the teachers' or leaders' perception of their PLCs as the independent variable and the students' reading and mathematics FCAT 2.0 scores as the dependent variable.

### Research Question 5

To best understand the difference between the perceptions of leaders and teachers during each of the two survey timeframes, an independent t-test was utilized. This test was performed to understand how the mean of the leaders' perceptions compared to the mean of the teachers' perceptions during the two surveyed school years.

Table 4

*Research Questions, Sources of Data, and Methods of Analysis*

Research Questions	Data Sources	Analyses
1. What are the perceptions of teachers related to the constructs of collaboration, shared goals and vision, as well as, leadership?	PLC Survey-Teachers	Descriptive statistics
What is the difference in reported levels of implementation of professional learning communities from 2012 to 2014?	PLC Survey-Teachers	Independent sample t-test
What is the relationship between the reported overall level of implementation of professional learning communities in 2009 school year and students' performance on the Florida Comprehensive Assessment (FCAT 2.0) in reading and mathematics?	PLC Survey-Teachers FDOE FCAT 2.0 Interactive Database Student DSS Scores	Pearson product-moment correlation
What is the relationship between the reported overall level of implementation of professional learning communities in 2014 school year and students' performance on the Florida Comprehensive Assessment (FCAT 2.0) in reading and mathematics?	PLC Survey-Teachers FDOE FCAT 2.0 Interactive Database	Pearson product-moment correlation
What is the difference between the reported overall level of implementation of professional learning communities as perceived by leaders compared to teachers?	PLC Survey-Teachers PLC Survey-Leaders	Independent sample t-test

### Summary

This chapter included a synopsis of the methods and procedures used for the current study. The population and sample were identified and outlined. All data collection procedures were enumerated and described. The methods for answering each of the five research questions were also defined and justified. The results of the described statistical analysis contained within this chapter are included in Chapter 4.

## CHAPTER 4 RESULTS

### Introduction

The purpose of this study was to expand upon the understanding of how continuous implementation of the professional learning community model impacted the perceptions of teachers and school leaders, and the academic performance of their students. Results from the PLC Survey-Leaders (Appendix A) and PLC Survey-Leader (Appendix B), which were used to understand changes over time in perceptions of the PLC model and uncover possible correlations to student performance, are reported in this chapter. The available data were analyzed utilizing a causal comparative research design model. By first understanding the perceptions of the teachers and leaders participating in and facilitating the PLC model, it was possible to understand the relationship between their perceptions of the model, its three central constructs (a) collaboration, (b) shared goals and vision, and (c) leadership, and student achievement on the Florida Comprehensive Assessment Test.

### Statement of the Problem

The implementation of different collaborative models has been noteworthy across the United States for several decades (Brownell et al., 1997). Collaborative opportunities offer instructional personnel the opportunity to work with other teachers to create solutions for the unique challenges faced within their own classroom. These dynamic communities enable teachers to reflect on their own professional practice while working towards improving learning in the classroom of each community member. These communities are often championed by a relationship-focused leader who supports acting as a knowledge and resource provider. The

problem explored in this study was the dearth of current research describing the connection between a school's continuous implementation of professional learning communities and any possible relationship to students' academic outcomes.

### Purpose of the Study

The purpose of the study was to examine the continued effects of the PLC model compared to the initial effects described by Ellis (2010) during the 2009 school year. This study elaborated on the impacts of continuous implementation of professional learning communities in the same urban school district from 2012-2014. The researcher sought to understand how the professional learning community constructs of (a) collaboration, (b) shared goals and vision, and (c) leadership were currently perceived by teachers and leaders working within professional learning communities and if those perceptions could be linked to student achievement. By determining the presence of any prolonged effects of professional learning communities, the researcher intended to further inform educational leaders on research based strategies utilized in professional learning communities.

### Research Questions

The following research questions were developed to guide the process of understanding teachers' and leaders' perceptions of active professional learning communities within the target school district:

1. What are the perceptions of teachers related to the constructs of collaboration, shared goals and vision, as well as, leadership?

2. What is the difference in reported levels of implementation of professional learning communities from 2012 to 2014?
3. What is the relationship between the reported overall level of implementation of professional learning communities in the 2012 school year and students' performance on the Florida Comprehensive Assessment (FCAT 2.0) in reading and mathematics?
4. What is the relationship between the reported overall level of implementation of professional learning communities in 2014 school year and students' performance on the Florida Comprehensive Assessment (FCAT 2.0) in reading and mathematics?
5. What is the difference between the reported overall level of implementation of professional learning communities as perceived by principals and assistant principals compared to teachers?

### Descriptive Statistics

The PLC Survey-Teachers and the PLC Survey-Leaders were used to collect data on numerous variables. The only variables discussed in this section, however, are those that were utilized in the analysis to respond to the current study's five research questions. The categorical variables consisted of (a) overall perception of teachers, (b) overall perception of leaders, (c) teacher perception of collaboration, (d) teacher perception of shared goals and vision, and (e) teacher perception of leadership. The continuous variables for consideration were (a) FCAT Reading 2.0 Developmental Scale Scores and (b) FCAT Mathematics 2.0 Developmental Scale Scores.

### Categorical Variables

The categorical variables considered for the previously delineated research questions were focused on the perceptions of the 5,954 teachers and leaders who completed the appropriate survey. Those teachers and leaders, (i.e., categorical variables), represented perceptions of professional learning communities within 184 schools in the considered school district.

### Continuous Variables

For the purposes of this study, the continuous variable was student achievement within the target school district, as measured by the Florida Comprehensive Assessment Test (FCAT) for Reading and Mathematics. The Developmental Scale Scores for FCAT Reading and Mathematics at each tested grade level were presented in Chapter 3 (see Table 3).

### Data Analysis for Research Question 1

What are the perceptions of teachers related to the constructs of collaboration, shared goals and vision, as well as, leadership?

The analysis for Research Question 1 was completed using descriptive statistic functions in the Statistical Program for the Social Sciences (SPSS). The first research question was focused on gaining a baseline understanding of the perceptions of teachers in the school district in regard to PLC implementation. Teachers' responses from school sites with and without a corresponding PLC Survey-Leaders response were analyzed separately to compare how leadership involvement altered teacher perceptions of their professional learning community. The responses were also analyzed by school year to determine the influence of continuous implementation on teacher perceptions of their PLC.



Teacher responses for each of the 14 items from the PLC Survey-Teachers were critically reviewed against current literature and evaluated for content validity through reflective analysis. Individual items not entirely aligned with one of the primary constructs of (a) collaboration, (b) shared goals and vision, and (c) leadership were removed from the survey, as these items were in reference to district specific initiatives and did not have any basis in current research. Each item from the PLC Survey-Teachers was then categorized into one of the three central constructs as defined by current literature: (a) collaboration, (b) shared goals and vision, and (c) leadership.

The entirety of the PLC Survey-Teachers, as well as each individual construct, was evaluated for reliability using Cronbach’s Alpha for both the 2012 and the 2014 school years. The overall reliability assessed all 14 survey items in both the 2012 and the 2014 school years. The collaboration construct addressed seven of the survey items; shared goals and vision addressed four of the survey items, and three items were addressed by leadership for the 2012 and 2014 distributions of the survey. Table 5 displays the internal consistency results for each school year for the overall survey and by individual construct.

Table 5

*Internal Consistency ( $\alpha$ ) for PLC Survey-Teachers*

School Year	Overall	Collaboration	Shared Goals and Vision	Leadership
2012	.938	.890	.849	.771
2014	.894	.811	.740	.683

*Note.* PLC = Professional Learning Community.

Table 6, Table 7, Table 8, and Table 9 show the number of respondents for each survey item as well as the percentage of respondents who replied to each of the five available options on the utilized Likert-type scale. The options available to respondents for each item were as follows, and wording of each response was dependent upon the item: I Strongly Agree (5 points), I Agree (4 points), I Am Not Sure (3 points), I Disagree (2 points), and I Strongly Disagree (1 point) for questions 1-10, and Almost Always (5 points), Most of the Time (4 points), Sometimes (3 points), Once in a While (2 points), and Hardly Ever (1 point) for items 11-14. Table 6 displays data for the 2012 school year, and Table 7 contains data for the 2014 school year. Tables 6 and 7 include those teachers whose school site had a corresponding leadership survey completed. Table 8 displays data for the 2012 school year and Table 9 contains data for the 2014 school year for those teachers whose school site did not have a matching leadership survey.

The given responses for Table 6 demonstrated that more teachers were unsure of their school leader's role within their PLC, (i.e., item stems within the leadership construct had the highest number of respondents select the I Am Not Sure response). The data recorded in Table 6 also demonstrates a theme of teachers with leadership matches reporting higher likelihood of their PLCs impacting their teaching practices than teacher without leadership matches in 2012, as shown in Table 8.

Table 6

*PLC Survey-Teachers: 2012 School Year Results by Item for Teachers With Leadership Match (N=2,904)*

Teacher Survey Items	N	Strongly Agree %	Agree %	Not Sure %	Disagree %	Strongly Disagree %
The purpose and goals of our PLC were clearly defined.	2,851	29.6	53.5	8.7	6.4	1.7
Our team developed norms that include how the team will interact, support each other, make sure all voices are heard, and foster an overall feeling of safety and community.	2,904	31.7	45.7	9.8	9.6	3.0
Our collaborative team set specific goals for student learning.	2,904	32.0	50.1	9.3	7.6	1.3
There was sufficient time built into our schedule to have meaningful PLC meetings.	2,904	20.9	43.2	8.3	20.1	7.3
I believe that PLC's are contributing to an increasingly positive and professional culture at our school.	2,904	19.8	67.0	17.5	12.9	5.8
School administrators provide adequate support of our efforts related to the work in our PLC.	2,904	22.6	46.6	14.8	11.3	4.7
I believe that the communication that took place in our collaborative team was open and honest.	2,904	31.5	47.7	10.1	7.9	2.7
Our PLC facilitated healthy and productive professional relationships.	2,904	26.0	44.6	14.0	8.2	3.7

Teacher Survey Items	N	Strongly Agree %	Agree %	Not Sure %	Disagree %	Strongly Disagree %
As a collaborative team member, I felt a sense of accomplishment when students of my colleagues were successful.	2,904	37.4	50.0	7.5	4.1	0.9
The insights gained through our collaborative work have been worth the time spent in meetings and on PLC work.	2,904	20.5	44.6	14.6	14.2	6.0
Our PLC has been valuable for investigating solutions to identified student learning problems.	2,882	22.7	35.3	23.2	10.4	8.2
I used ideas that I acquired from collaborative team meetings in my classroom.	2,871	24.2	32.8	27.0	8.6	21.1
I assessed and documented the student learning outcomes of the strategies we talked about in our collaborative team meetings.	2,904	25.5	35.3	24.1	6.6	8.4
I felt comfortable openly sharing my student achievement results with my collaborative team colleagues.	2,883	51.4	29.9	10.7	3.6	4.4

*Note.* PLC = Professional Learning Community.

Table 7 shows the responses of teachers during the 2014 school year. The results show that there was a notable difference in perception between the school years for teachers with matching leadership responses. The most notable trend for the 2014 teacher perceptions were that, as shown in Table 7, those teachers who had a leadership match at zero respondents

disagreed or strongly disagreed with the majority of items in the instrument. Comparing the results reported in Table 7 for teachers with a leadership match to those teachers without a leadership match, as reported in Table 9, showed how leadership involvement may significantly impact teachers' perception of their professional learning community.

Table 7

*PLC Survey-Teachers: 2014 School Year Results by Item for Teachers With Leadership Match (N=2,745)*

Teacher Survey Items	N	Strongly Agree %	Agree %	Not Sure %	Disagree %	Strongly Disagree %
The purpose and goals of our PLC were clearly defined.	2,696	30.8	61.7	7.4	0.0	0.0
Our team developed norms that include how the team will interact, support each other, make sure all voices are heard, and foster an overall feeling of safety and community.	2,745	34.3	58.2	7.7	0.0	0.0
Our collaborative team set specific goals for student learning.	2,745	33.6	59.2	7.1	0.0	0.0
There was sufficient time built into our schedule to have meaningful PLC meetings.	2,745	21.2	71.4	7.2	0.0	0.0
I believe that PLC's are contributing to an increasingly positive and professional culture at our school.	2,745	22.0	60.1	17.8	0.0	0.0
School administrators provide adequate support of our efforts related to the work in our PLC.	2,745	24.3	63.0	12.6	0.0	0.0
I believe that the communication that took place in our collaborative team was open and honest.	2,745	33.0	59.9	8.2	0.0	0.0
Our PLC facilitated healthy and productive professional relationships.	2,745	29.0	59.8	11.1	0.0	0.0

Teacher Survey Items	N	Strongly Agree %	Agree %	Not Sure %	Disagree %	Strongly Disagree %
As a collaborative team member, I felt a sense of accomplishment when students of my colleagues were successful.	2,745	40.3	53.1	6.5	0.0	0.0
The insights gained through our collaborative work have been worth the time spent in meetings and on PLC work.	2,745	20.8	65.7	13.4	0.0	0.0
Our PLC has been valuable for investigating solutions to identified student learning problems.	2,723	24.1	35.1	25.0	8.5	7.3
I used ideas that I acquired from collaborative team meetings in my classroom.	2,716	28.8	31.6	26.9	8.0	5.6
I assessed and documented the student learning outcomes of the strategies we talked about in our collaborative team meetings.	2,745	27.5	34.3	23.6	7.3	7.1
I felt comfortable openly sharing my student achievement results with my collaborative team colleagues.	2,726	53.0	29.8	9.9	3.1	4.1

*Note.* PLC = Professional Learning Community.

Table 8 reports results for the 2012 school year for teachers without a leadership match. The sample of teachers reported lower levels of perception in every individual category. In addition to lower perceptions for each of the three constructs (a) collaboration, (b) shared goals and vision, and (c) leadership, teachers were also less likely to perceive their PLCs as influencing their instructional practices.

Table 8

*PLC Survey-Teachers: 2012 School Year Results by Item for Teachers Without Leadership Match (N=527)*

Teacher Survey Items	N	Strongly Agree %	Agree %	Not Sure %	Disagree %	Strongly Disagree %
The purpose and goals of our PLC were clearly defined.	513	28.5	64.7	7.4	6.1	2.0
Our team developed norms that include how the team will interact, support each other, make sure all voices are heard, and foster an overall feeling of safety and community.	527	31.9	46.11	10.3	7.8	3.0
Our collaborative team set specific goals for student learning.	527	30.4	52.9	8.9	5.9	1.0
There was sufficient time built into our schedule to have meaningful PLC meetings.	527	17.3	47.4	8.5	19.7	6.1
I believe that PLC's are contributing to an increasingly positive and professional culture at our school.	527	27.5	50.5	11.4	8.2	1.7
School administrators provide adequate support of our efforts related to the work in our PLC.	527	23.5	47.4	14.6	11.2	2.5
I believe that the communication that took place in our collaborative team was open and honest.	527	37.8	51.4	6.3	3.0	0.8
Our PLC facilitated healthy and productive professional relationships.	527	20.9	47.8	14.2	3.1	3.0



Teacher Survey Items	N	Strongly Agree %	Agree %	Not Sure %	Disagree %	Strongly Disagree %
As a collaborative team member, I felt a sense of accomplishment when students of my colleagues were successful.	527	17.7	49.9	17.1	11.4	3.4
The insights gained through our collaborative work have been worth the time spent in meetings and on PLC work.	527	22.2	48.8	15.8	9.3	3.2
Our PLC has been valuable for investigating solutions to identified student learning problems.	520	24.8)	37.9	22.5	7.7	6.7
I used ideas that I acquired from collaborative team meetings in my classroom.	520	26.9	31.2	28.3	7.9	5.0
I assessed and documented the student learning outcomes of the strategies we talked about in our collaborative team meetings.	527	27.7	35.5	23.0	7.0	5.9
I felt comfortable openly sharing my student achievement results with my collaborative team colleagues.	525	52.0	28.4	11.4	2.9	4.4

*Note.* PLC = Professional Learning Community.

The results shown in Table 9 demonstrate that over the period of continuous implementation that was observed, there was a change in teacher perception from the initial observation during the 2012 school year to the observation during the 2014 school year for those teachers without leadership matches. Furthermore, there was a decline in the perceptions of

those teachers without leadership matches even when compared to those teachers without leadership matches in 2012. The comparative results indicate that not only was leadership involvement critical for teachers in successful professional teaching communities, the lack of involvement compounded teachers' negative perceptions over time.

Table 9

*PLC Survey-Teachers: 2014 School Year Results by Item for Teachers Without Leadership Match (N=1,264)*

Teacher Survey Items	N	Strongly Agree %	Agree %	Not Sure %	Disagree %	Strongly Disagree %
The purpose and goals of our PLC were clearly defined.	1,248	28.8	52.5	8.2	7.5	2.6
Our team developed norms that include how the team will interact, support each other, make sure all voices are heard, and foster an overall feeling of safety and community.	1,264	32.3	47.2	7.8	9.1	3.3
Our collaborative team set specific goals for student learning.	1,264	32.8	50.2	7.6	7.4	1.5
There was sufficient time built into our schedule to have meaningful PLC meetings.	1,264	18.5	42.6	8.3	19.1	11.2
I believe that PLC's are contributing to an increasingly positive and professional culture at our school.	1,264	30.1	51.6	8.8	9.7	2.8
School administrators provide adequate support of our efforts related to the work in our PLC.	1,264	26.8	45.2	11.9	11.9	4.4
I believe that the communication that took place in our collaborative team was open and honest.	1,264	39.6	49.4	5.7	3.9	1.0
Our PLC facilitated healthy and productive professional relationships.	1,264	21.2	45.3	13.9	11.2	7.1
As a collaborative team member, I felt a sense of accomplishment when students of my colleagues were successful.	1,264	22.5	41.1	17.5	11.4	7.1

Teacher Survey Items	N	Strongly Agree %	Agree %	Not Sure %	Disagree %	Strongly Disagree %
The insights gained through our collaborative work have been worth the time spent in meetings and on PLC work.	1,264	22.5	45.4	13.1	12.7	5.9
Our PLC has been valuable for investigating solutions to identified student learning problems.	1,252	23.61	33.4	24.1	9.7	8.6
I used ideas that I acquired from collaborative team meetings in my classroom.	1,247	27.9	31.6	25.8	7.3	7.1
I assessed and documented the student learning outcomes of the strategies we talked about in our collaborative team meetings.	1,264	27.1	32.8	22.9	8.0	8.8
I felt comfortable openly sharing my student achievement results with my collaborative team colleagues.	1,255	52.0	29.2	10.0	3.4	4.9

*Note.* PLC = Professional Learning Community.

To further understand current teacher perceptions of PLCs across the school district, a mean and standard deviation were calculated for the entire survey and each of the three central PLC constructs for both the 2012 and the 2014 school years. The results of the analyses are reported in Table 10. For the complete PLC Survey-Teachers, the mean score for the 2012 PLC Survey-Teachers was 3.81. Comparatively, the 2014 mean score was 4.09. Teachers without a corresponding leadership match began with a higher mean score of 3.93, but results showed a drop of mean score over the implementation period to a mean of 3.80 in the 2014 school year.

Another significant trend in the reported data revealed that teachers at schools without leadership matches had a drop in the mean score of those items within the construct of leadership, indicating the importance of leadership involvement in the PLC at every school.

Table 10

*Descriptive Statistics for PLC Survey-Teachers With and Without Matches for PLC Survey-Leaders for the 2012 and 2014 School Years (N=5,649)*

	Teachers With Match		Teachers Without Match	
	2012	2014	2012	2014
<b>Overall</b>				
Mean	3.81	4.08	3.93	3.80
Standard deviation	0.79	0.50	1.04	1.12
<b>Collaboration</b>				
Mean	3.85	4.07	3.89	3.86
Standard deviation	1.09	0.89	1.04	1.11
<b>Shared Goals and Vision</b>				
Mean	3.89	4.09	3.92	3.88
Standard deviation	1.02	0.82	1.00	1.05
<b>Leadership</b>				
Mean	3.60	4.10	3.64	3.54
Standard deviation	1.15	0.58	1.08	1.20

*Note.* PLC = Professional Learning Community.

### Data Analysis for Research Question 2

What is the difference in reported levels of implementation of professional learning communities from 2012 to 2014?

To answer the second research question independent sample t-tests were performed to provide comparative data on the mean scores for the PLC Survey-Teachers and the PLC Survey-

Leaders for the 2012 and 2014 school year. The results of the PLC Survey- Teachers and the PLC Survey- Leaders are reported in Table 11.

Table 11

*Comparative Statistics for PLC Survey-Teachers and PLC Survey-Leaders: 2012 and 2014 School Years (N=7,440)*

	Levene's Test for Equality of Variances		t-Test for Equality of Means					
	F	Sig	T	Df	Sig(2-tailed)	Mean Diff	95% Confidence Interval of the Difference	
							Upper	Lower
PLC Survey-Teachers	411.48	.00	15.59	4947.28	.00	.27	.01	-.23
PLC Survey-Leaders	7.18	.01	1.974	291.92	.05	.11	.00	-.22

*Note.* PLC = Professional Learning Community. Based on Levene's Test for Equality of Variance, a significant difference was found, and the degrees of freedom were adjusted.

The independent samples t-test was utilized to determine the level, if any, of statistically significant differences between the perceptions of teachers during the 2012 school year and then during 2014 school year. The same statistical method was also utilized to determine the difference in perceptions of leaders between the 2012 and the 2014 school year. The difference between the respondents for the PLC Survey-Teachers in the 2012 and 2014 school years reveals a mean difference of 0.27. The results of the independent sample t-test for the PLC Survey-

Teachers instrument demonstrated a statistically significant difference between the two years,  $t(4947.38) = 15.59, p=0.00$  (2-tailed). As the Levine's Test for Equality of Variance showed that variability was not the same for the two years, it was therefore necessary for the degrees of freedom to be adjusted.

The second independent samples t-test was conducted to determine the difference in levels of perceptions of leaders according to the PLC Survey- Leaders. For the 2012 school year, the leader respondents reported a mean score of 4.31 with a standard deviation of 0.58; during the 2014 school year 112 leaders responded reporting a mean perception score of 4.42 and a standard deviation of 0.41. The mean differential between leader perceptions in the 2012 and 2014 school years was -0.11. The independent samples t-test for leadership perceptions during the 2012 and the 2014 school years did show a statistically significant difference between the 2012 and 2014 school year,  $t(291.92) = -1.97, p=0.05$  (2-tailed). The results demonstrate the means by which we can quantify the known differential between teacher and leader perception of implemented collaborative programs.

The collective statistical analysis indicated that for both teachers and leaders the perception of their professional learning community changed in a significant way over the two-year period. Both teachers and leaders reported a statistically significant increase in their perceptions of their school's professional learning community.

### Data Analysis for Research Question 3

What is the relationship between the reported overall level of implementation of professional learning communities in the 2012 school year and students' performance on the Florida Comprehensive Assessment (FCAT 2.0) in reading and mathematics?

To answer the third research question, 10 Pearson product-moment correlation coefficient tests were performed to clearly determine the relationship between a teachers' or a leader's reported level of implementation as indicated by the PLC Survey-Teachers or the PLC Survey-Leaders and student achievement as determined by the FCAT Reading 2.0 and the FCAT Mathematics 2.0 in the 2012 school year. Data were analyzed for teachers and leaders grouped by elementary schools, middle schools, and high schools separately to uncover any relationship between teachers' or leaders' reported levels of perception of their PLC and students' performance on the FCAT 2.0 Reading and Mathematics in Grades 3, 6, and 10. Table 12 shows the results of each Pearson product-moment correlation coefficient tests for teachers and leaders.

The results shown in Table 12 demonstrate that although there was not a statistically significant relationship between teachers or leaders, there was educational significance within the results. Table 12 shows the results of each Pearson product-moment correlation coefficient test for teachers and leaders. Specifically, for leaders, all correlations showed a downhill relationship, indicating that as leaders' perceptions of their schools' PLCs rose, their students' FCAT scores declined. Teachers primarily showed weak positive correlations between PLC perceptions and FCAT scores for the 2012 school year. Results from leaders indicated important educational significance in how leaders' perceptions can have a negative relationship with student success. As shown in Table 12, though the results of the analysis indicated a negative relationship for leaders in 3<sup>rd</sup>-, 6<sup>th</sup>-, and 10<sup>th</sup>-grade Reading as well as 3<sup>rd</sup>- and 6<sup>th</sup>-grade Mathematics, the relationship was nonlinear, indicating that there was not a direct linear relationship between the perceptions of school leaders and their students' performance on the FCAT 2.0 in Reading or Mathematics. B



Table 12

*Pearson Correlations: Teachers' and Leaders' Perceptions of PLCs and Student Achievement for 2012 (N=2,066)*

Scores	Teachers			Leaders		
	Pearson Correlation	Sig (2-tailed)	N	Pearson Correlation	Sig (2-tailed)	N
FCAT 2.0 Reading Grade 3	.01	.76	1,390	-.07	.46	102
FCAT 2.0 Mathematics Grade 3	.02	.43	1,390	-.10	.30	102
FCAT 2.0 Reading Grade 6	-.01	.89	611	-.19	.17	52
FCAT 2.0 Mathematics Grade 6	.01	.74	611	-.20	.15	52
FCAT 2.0 Reading Grade 10	.03	.35	765	-.21	.21	37

*Note.* PLC = Professional Learning Community.

The first Pearson product-moment correlation coefficient test was performed to identify a correlation between teachers' reported perceptions of their PLC and their school's mean Developmental Scale Score (DDS) on the 2012 FCAT 2.0 Reading for Grade 3. The correlation did not show a statistically significant relationship,  $r(1390) = .01$ ,  $p > .05$  between the two variables. As shown in Table 12, the given results did not show that teachers' perceptions of their PLC were correlated with any increase on the FCAT 2.0 Reading assessment for Grade 3.

The second Pearson product-moment correlation coefficient analysis sought to find any evident correlation between teachers' perceptions of their PLC during the 2012 school year and their school's mean DDS on the 2012 FCAT 2.0 Mathematics for Grade 3. There was no significant correlation,  $r(1390) = .02$ ,  $p > .05$ , between the two variables. As shown in Table 12,

there was no apparent correlation between teachers' perceptions of their PLC and any increase on the 2012 FCAT 2.0 Mathematics assessment for Grade 3.

The third Pearson product-moment correlation coefficient analysis was conducted to uncover any potential correlation between teachers' overall perceptions of their PLC and their school's mean DDS on the 2012 FCAT 2.0 Reading for Grade 6. The correlation was not shown to have a statistically significant relationship,  $r(611) = -.01, p > .05$ . As indicated in Table 12, the Pearson coefficient did not show a significant relationship between the teachers' perceptions and the 2012 DDS FCAT 2.0 Reading for Grade 6.

The fourth Pearson product-moment coefficient test set out to identify a correlation between the teachers' perceptions of their PLC and their school's mean DDS on the 2012 FCAT 2.0 Mathematics for Grade 6. The two variables did not show a relationship,  $r(611) = .01, p > .05$ . The results as indicated in Table 12 did not show that the way a teacher perceives their PLC correlated to any statistically significant changes in performance on the 2012 FCAT 2.0 Mathematics assessment in Grade 6.

The fifth Pearson product-moment correlation coefficient test was performed to understand any possible correlation between a teacher's overall perception of their PLC and their school's mean DDS on the 2012 FCAT 2.0 Reading for Grade 10. As detailed in Table 12, the analysis did not uncover any statistically significant relationship between teachers' perceptions and their school's mean DDS for the 2012 FCAT 2.0 Reading for Grade 10,  $r(765) = .03, p > .05$ .

The sixth Pearson product-moment correlation coefficient test shifted focus to perception of PLCs as reported by leaders at the conclusion of the 2012 school year to understand any possible correlation between leaders' overall perception of the PLC and their school's mean

DDS on the 2012 FCAT 2.0 Reading for Grade 3. The results of the analysis, shown in Table 12, did not uncover any statistically significant relationship between leaders' perceptions and the DDS 2012 FCAT 2.0 Reading for Grade 3,  $r(102) = -.07, p > .05$ .

The seventh Pearson product-moment correlation coefficient test was completed to recognize any possible correlation between the leaders' reported perception of their PLC and their schools' mean DDS on the 2012 FCAT 2.0 Mathematics for Grade 3. No relationship was found between the two variables. The results of the analysis, shown in Table 12, indicated no statistically significant relationship between average student achievement on the 2012 FCAT 2.0 Mathematics for Grade 3 and the leaders' perceptions of their school PLC,  $r(102) = -.10, p > .05$ .

The eighth Pearson product-moment correlation coefficient test sought to find any potential relationship between leaders' overall perceptions of their PLC and their school's mean DDS on the 2012 FCAT 2.0 Reading for Grade 6. The results of the analysis, as shown in Table 12, indicated there was no correlation between the variables,  $r(52) = -.19, p > .05$ . The Pearson coefficient revealed no statistically significant relationship between the leaders' perceptions of the PLC and the mean DDS for the 2012 FCAT 2.0 Reading for Grade 6.

The ninth Pearson product-moment coefficient analysis made efforts to identify any potential correlation between the perception of school leaders about the PLC and their school's mean DDS on the 2012 FCAT 2.0 Mathematics for Grade 6. The considered variables did not show any statistically significant relationship,  $r(52) = -.20, p > .05$ , results. Table 12 reveals that leaders' perceptions of their PLC did not correlate to any statistically significant changes in achievement on the 2012 FCAT 2.0 Mathematics in Grade 6.

The last Pearson product-moment coefficient test was conducted to determine any relationship between the mean DDS on the 2012 FCAT 2.0 Reading for Grade 10 and the perceptions of school leaders about the school's PLC during the 2012 school year. The correlation coefficient,  $r(37) = -.21, p > .05$ , was not statistically significant and did not indicate the possibility of a relationship between the two variables. The results, reported in Table 12, did not indicate the possibility of a correlation between leaders' perceptions and mean DDS scores on the 2012 FCAT 2.0 Reading for Grade 10.

#### Data Analysis for Research Question 4

What is the relationship between the reported overall level of implementation of professional learning communities in 2014 school year and students' performance on the Florida Comprehensive Assessment (FCAT 2.0) in reading and mathematics?

In answering the fourth research question, 10 separate Pearson product-moment correlation coefficient tests were conducted to fully understand the depth and nature of the relationship, if any, between the reported perceptions of teachers or leaders about their PLC and the school's mean Developmental Scale Score (DDS) on the 2014 FCAT 2.0 Reading and Mathematics for Grades 3, 6, and 10. Each analysis conducted included the overall mean score for the teachers or leaders as recorded on the 2014 issuance of either the PLC Survey-Teachers or PLC Survey-Leaders and the relationship to the school's mean DDS. Table 13 displays the results of the Pearson coefficient and significance level for each test.

The results from Table 13 indicate that during the 2014 school year teacher's perceptions, specifically in Grade 3 for both Reading and Mathematics correlated in a direct linear way to a student's academic performance on the FCAT. Although the leader perceptions did not show

any statistically significant relationship at any grade for Reading or Mathematics, there were important educational trends revealed which are outlined in Table 13. The results of the analysis demonstrated the strongest correlation in the 6<sup>th</sup> grade for both Reading and Mathematics. Although, the results do not show that a leaders' perception had a linear relationship with FCAT 2.0 performance both 3<sup>rd</sup>- and 6<sup>th</sup>-grade students had a positive relationship. The results for leaders from the 2014 school year were particularly significant when considered alongside the 2012 results shown in Table 12 which initially demonstrated a negative relationship between leaders' perceptions and FCAT performance.

Table 13

*Pearson Correlations: Teachers' and Leaders' Perceptions of PLCs and Student Achievement for 2014 (N=2,689)*

Scores	Teachers			Leaders		
	Pearson Correlation	Sig (2-tailed)	N	Pearson Correlation	Sig (2-tailed)	N
FCAT 2.0 Reading Grade 3	.07	.01	1,379	.07	.59	71
FCAT 2.0 Mathematics Grade 3	.09	.00	1,379	.08	.49	71
FCAT 2.0 Reading Grade 6	.00	.93	604	.17	.46	22
FCAT 2.0 Mathematics Grade 6	.03	.41	604	.19	.40	22
FCAT 2.0 Reading Grade 10	-.04	.30	706	.00	.99	14

*Note.* PLC = Professional Learning Community.

The first Pearson product-moment correlation coefficient test was conducted to understand the relationship, if any, between teachers' perceptions of their PLC and their school's mean DDS score on the 2014 FCAT 2.0 Reading for Grade 3. As outlined in Table 13, results of the analysis indicated a statistically significant, slightly positive relationship between the considered variables,  $r(1379)=.07, p<.05$ .

The second Pearson product-moment correlation coefficient test was utilized to determine the correlation, if any, between teachers' reported perceptions of their PLC during the 2014 school year and their school's mean DDS score on the 2014 FCAT 2.0 Mathematics for Grade 3. As shown in Table 13, the results of the analysis demonstrated a small, but statistically significant positive relationship between the two variables,  $r(1379)=.09, p<.05$ .

The third Pearson product-moment correlation coefficient test determined the relationship, if any, between the mean DDS score for students on the 2014 Grade 6 FCAT 2.0 Reading and teachers' overall perceptions of the PLC. As shown in Table 13, the results did not indicate any statistically significant relationship,  $r(604)=.00, p>.05$ .

The fourth Pearson product-moment correlation coefficient test determined that there was not a statistically significant relationship between teachers' perceptions of their PLC and the school's mean DDS on the 2014 FCAT 2.0 Mathematics for Grade 6,  $r(604)=.03, p>.05$ . The results, shown in Table 13, demonstrate that teachers' perceptions did not correlate with changes in a school's mean DDS score on the 2014 FCAT 2.0 Mathematics for Grade 6.

The fifth Pearson product-moment correlation coefficient test was conducted to determine the relationship between the school's mean DDS on the 2014 FCAT 2.0 Reading for Grade 10 and teachers' reported perceptions of their PLC. The analysis, as outlined in Table 13,

did not show any statistically significant relationship between the two considered variables. The calculated coefficient,  $r(706)=-.04, p>.05$ , was unable to sufficiently support the identification of a relationship between teachers' perceptions of their PLC and the school's mean DDS on the 2014 FCAT 2.0 Reading for Grade 10 .

The sixth Pearson product-moment correlation coefficient test was conducted to analyze the relationship between the reported perceptions of school leaders and their school's mean DDS score on the 2014 FCAT 2.0 Reading for Grade 3. As demonstrated in Table 13, there was not any statistically significant relationship identified between the two variables. Pearson's coefficient,  $r(71)=.07, p>.05$ , was not sufficient to demonstrate any correlation between the considered variables.

The seventh Pearson product-moment correlation coefficient test was utilized to uncover any possible relationship between a school's mean DDS score on the 2014 FCAT 2.0 Mathematics for Grade 3, and the perceptions reported by school leaders about their school's PLCs. The correlation coefficient,  $r(71)=.08, p>.05$ , was not able demonstrate with sufficient certainty any relationship between the school's mean DDS score and the leaders' perceptions of the PLC at the schools during the 2014 school year. As shown in Table 13, the results indicated that there was not sufficient evidence to establish a correlation.

The eighth Pearson product-moment correlation coefficient test was utilized to determine if there was any potential relationship between school leadership's perceptions of their school's PLCs and their school's mean DDS on the 2014 FCAT 2.0 Reading for Grade 6. As shown in Table 13, the resulting Pearson coefficient,  $r(22)=.17, p>.05$ , was unable to satisfactorily establish evidence of any correlation between the variables.

The ninth Pearson product-moment correlation coefficient test was conducted to uncover the potential relationship between leaders' reported PLC perceptions during the 2014 school year and the mean DDS score on the 2014 FCAT 2.0 Mathematics for Grade 6. The results of the Pearson coefficient,  $r(22)=-.19, p>.05$ , were not statistically significant. Table 13 contains the results of the variable analysis.

The 10<sup>th</sup> Pearson product-moment correlation coefficient test was conducted to determine the relationship between the school's mean DDS on the 2014 FCAT 2.0 Reading for Grade 10 and school leadership's reported perceptions of the PLC. As shown in Table 13, the Pearson coefficient,  $r(14)=.00, p>.05$ , was unable to provide sufficient evidence to establish any correlation between the two variables.

#### Data Analysis for Research Question 5

What is the difference between the reported overall level of implementation of professional learning communities as perceived by principals and assistant principals compared to teachers?

To address the fifth research question, two independent sample tests were performed to identify the difference between the reported perceptions of teachers and leaders regarding PLC implementation. Teacher and leaders reported their perceptions during the 2012 and 2014 school years using, PLC Survey-Teachers and PLC Survey-Leaders, respectively. The results of the analysis are presented in Table 14.

There was significant variability between the perceptions of teachers and leaders. Violating the assumption of homogeneity necessitated adjustment to the degrees of freedom, as indicated by Levene's Test for Equality of Variances in Table 14, for both the 2012 and the 2014



issuance the PLC Survey-Teachers and the PLC Survey- Leaders. All independent sample t-tests were computed based on the altered degrees of freedom.

The first independent sample t-test was performed to determine the presence, if any, of a statistically significant difference between perceptions of teachers and leaders during the 2012 school year. The results of the independent sample t-tests,  $t(259.76)=11.51, p=.00$  indicated that for the 2012 school year there was a statistically significant difference between the reported perceptions of PLC implementation of teachers and leaders. The results, as outlined in Table 14, indicate teacher and leaders had a mean difference in perception of .50.

The second independent samples t-test was utilized to determine if there was a statistically significant difference between the perceptions of PLC implementation between teachers and leaders during the 2014 school year. The results of the independent sample t-test analysis, as shown in Table 14, indicated there was a statistically significant difference between the perceptions of PLC implementation of teachers and leaders in the 2014 school year. Specifically, the results of the independent sample t-test,  $t(130.25)=8.96, p=.00$ , and a mean difference of .49 for the 2014 school year showed a significant gap in perceptions between teachers and leaders.

Table 14

*Comparison of Teachers' and Leaders' Perceptions of PLC Implementation for the 2012 and 2014 School Years (N=7,440)*

Year	Levene's Test for Equality of Variances		t-Test for Equality of Means				95% Confidence Interval of the Difference	
	F	Sig	T	Df	Sig(2-tailed)	Mean Diff	Upper	Lower
2012	27.05	.00	11.51	259.76	.00	.50	.58	.41
2014	13.82	.00	8.96	130.25	.00	.49	.59	.38

*Note.* PLC = Professional Learning Community. Based on Levene's Test for Equality of Variance if a significant difference was found, and the degrees of freedom were adjusted.

### Summary

Within this chapter, the quantitative results acquired from statistical analysis of the considered data were described. Also included in this chapter were descriptive statistics for the categorical and continuous variables that were used to answer each of the five considered research questions. In the subsequent chapter, specific elements and trends from the data analysis are discussed along with conclusions and recommendations for future research.

## CHAPTER 5 SUMMARY, IMPLICATIONS, AND RECOMMENDATIONS

### Introduction

Chapter 5 contains a restatement of the purpose of this study, a condensed overview of the research design, the population as well as the instrumentation utilized to conduct this study. The chapter also contains a summary and discussion of the findings from the research questions which guided the study along with implications for implementing professional learning communities in urban school districts, and recommendations for future research.

### Purpose of the Study

The purpose of the study was to analyze comparative data across a large urban school district to examine the impact of continual implementation of the professional learning community model compared to initial impact, as outlined by leaders in the 2009 school year (Ellis, 2010). Specifically, this research was conducted to analyze three critical constructs of the PLC model (collaboration, shared goals and vision, and leadership); how teachers perceive each of these constructs; how those perceptions compare to school leaders' perception; and if their perceptions can be correlated with student achievement. By better understanding the long-term impact of implementation of the professional learning community model, the researcher sought to recommend research based practices for school site and school district leaders on appropriate strategies for long term implementation of the professional learning community model.

### Population, Research Design, and Instrumentation

The sample considered for this study was a convenience sample from all instructional and leadership personnel within the targeted school district. Two instruments were distributed to all

instructional and leadership personnel, PLC Survey-Teachers (Appendix A) and PLC Survey-Leaders (Appendix-B) respectively. The instruments were used to measure respondents' current perceptions of their school's participation in the professional learning community model. Using this population and the quantitative Likert-type scale data, a causal comparative study was conducted to determine any possible relationship between teachers' or leaders' perceptions of their professional learning community and student achievement. The researcher examined archival school district Reading and Mathematics FCAT data in the quantitative analysis to respond to the research questions concerning student achievement.

Necessary statistical analyses were conducted using the Statistical Package for Social Sciences (SPSS, and applicable statistical tests such as Pearson correlations and independent sample t-tests were utilized in the analysis of data. The analysis of the statistical data was intended to assist in determining if perceptions of the PLC model or any of the primary constructs could be correlated with increases in student achievement.

### Summary and Discussion of the Findings

The subsequent section contains a discussion of the findings organized around the research questions that were used to guide this causal comparative study. Quantitative results are presented and discussed for each of the five research questions.

#### Research Question 1

What are the perceptions of teachers related to the constructs of collaboration, shared goals and vision, as well as, leadership?

The descriptive statistics included in this research question suggested that there was a difference in teachers' perceptions of each of the three considered constructs (collaboration,

shared goals and vision, and leadership) over the two years. Teachers overall had a more positive perception of their PLCs during the second administration of the PLC Survey-Teachers during the 2013-2014 school year with a mean score of 4.09 than they did based on the mean of 3.81 during the 2011-2012 administration. This demonstrating an increasingly positive trend in teachers' perceptions of their experience with the PLC collaborative model.

The mean scores for (a) collaboration, (b) shared goals and vision, and (c) leadership for the 2011-2012 year were 3.85, 3.89, and 3.60 respectively. During the reissuance of the survey in the 2013-2014 school year all three constructs saw an increase in positive teacher perceptions: 4.07 for collaboration, 4.09 for shared goals and visions, and 4.10 for leadership. The strongest area of growth between the two surveys was within the leadership construct, indicating, similar to the findings of Honingh and Hooge (2014), that leadership can directly impact teachers' likelihood of collaboration and understanding of the shared goals and vision.

Moreover, the differential in perceptions between those teachers at schools with a leader match for the PLC Survey-Leaders and those without leadership matches displays the importance of leadership as a crucial part of any collaborative model. A significant finding in the results of teachers at school sites without a leader match was the percentage of teachers reporting positive perceptions of their PLCs. The teachers without a match initially held a more positive perception than those teachers with a leadership match on the overall survey, and within each of the three individual constructs of (a) collaboration, (b) shared goals and vision, and (c) leadership. After two years of continuous implementation, however, the reported perceptions in the 2014 survey of those teachers without a match were not only lower overall and within the three constructs, compared to those teachers at school sites with a match, but there were more negative

perceptions of their collaborative time than teachers at matched school sites during the 2012 issuance of the survey.

The mean score for leaders was consistently higher across both the 2012 and the 2014 school years for matched questions to the PLC Survey-Teachers. The results provide additional support for the findings of Hallam et al. (2014) who demonstrated that teachers' reported levels of trust in their collaborative groups was inversely linked to the level of administrative oversight in place. The disparity in perceptions of school leadership and instructional personnel highlights the importance of ensuring open and consistent communication between instructional personnel and leaders during the collaborative process (Nelson et al., 2008).

#### Research Question 2

What is the difference in reported levels of implementation of professional learning communities from 2012 to 2014?

The quantitative results from the two independent samples t-tests demonstrated that there was a statistically significant difference between the 2012 and the 2014 PLC Survey-Teachers and PLC Survey-Leaders. The results of the statistical analysis to respond to the question indicated that there was a statistically significant difference in the perceptions of both teachers and leaders over the two-year time period between administrations of the survey during the 2012 and 2014 school years.

These findings indicate that if a school district does choose to implement a collaborative model, such as the professional learning community, it is critical to observe the perceptions of instructional staff over time. The increase in positive perceptions of both teachers and leaders within the school district indicated that there can be increasingly positive perceptions of the

model among users as they become more comfortable with the expectations and vulnerability that accompany any collaborative model. Furthermore, the results showed that although the instructional staff had a lower mean ( $M= 3.81$ ) during the 2012 school year the PLC Survey-Teachers had the larger increase in the mean, with a mean difference of 0.27. The PLC Survey-Leaders also showed an increase from the 2012 to the 2014 school year ( $M=xxx$ ) but only had a mean difference of 0.11 between the two school years.

The results from the independent samples t-test as well as the differential in means on both of the utilized instruments indicated that the support programs offered, resources provided, and the consistent utilization of the professional learning community model had a positive effect on the perceptions of both teachers and leaders within the considered school district. These results are of particular interest when considered alongside those of Schechter (2012) and Nelson et al. (2008) who each cited the instructional leader as a key indicator of success of collaborative work. The analysis of the reported perceptions from the PLC Survey-Teachers and the PLC Survey-Leaders demonstrated that although, overall, leaders were much more likely to perceive the collaborative model in a positive light, their influence over time had a positive impact on the perceptions of the instructional staff participating alongside them in the collaborative model.

### Research Question 3

What is the relationship between the reported overall level of implementation of professional learning communities in the 2012 school year and students' performance on the Florida Comprehensive Assessment (FCAT 2.0) in reading and mathematics?

The statistical analysis of the 10 Pearson product-moment correlation coefficients performed did not suggest that there is not a statistically significant relationship between the perceptions of teachers or leaders and a school's mean Developmental Scale Score (DDS) on the 2012 FCAT 2.0 Reading or Mathematics during the 2012 school year.

Of the five completed analyses of the PLC Survey-Teachers, none showed evidence of any relationship of statistical significance between the perceptions of teachers and a school's mean DDS on the 2012 FCAT 2.0 Reading or Mathematics in Grades 3, 6, or 9. The lack of a significant relationship aligns with current understanding of the complex interaction between teacher collaboration, a teacher's perception of collaboration, and effects on student learning as noted by earlier researchers (Goddard et al., 2007; Goddard et al., 2015; Moolenaar et al., 2012). Although the results did not indicate any direct relationship between the perceptions of instructors' collaborative time and students' performance, the analysis did not directly address the idea of indirect links between collaboration, teacher perception of collaboration, and self-efficacy as reported by Brownell et al. (1997), Goddard et al. (2007), and Moolenaar et al. (2012).

The five Pearson product-moment correlation coefficient tests performed to understand the relationship between leader's responses to the PLC Survey- Leader (Appendix B) and a school's mean DDS score on the 2012 FCAT 2.0 Reading or Mathematics in Grades 3,6, or 9 were each unable to provide evidence of any statistically significant relationship between the two



variables. The results did not establish with any level of significance for a positive relationship between how leader perceive their staff's collaborative efforts and student achievement outcomes. Dunne et al. (2000), Honingh and Hooge, (2014), and Phillips (2003) all emphasized the functional role of the leader as a role model and resource provider, demonstrating the need for further evidence to craft appropriate practices for instructional leaders who are seeking to change teachers' instructional practice through collaboration. As the results of the present study were not sufficient to establish a direct relationship between leaders' perceptions of collaboration and changes in students' achievement, there must be further research to fully understand the connections between instructional leadership, teacher collaboration, and students' performance.

Of further interest were the findings regarding the correlation between leaders' perceptions and performance on any of the considered assessments at any grade level. Each of the calculated Pearson coefficients revealed a negative relationship, with Grade 10 Reading and leaders' perceptions having the strongest negative, although not statistically significant, relationship,  $r(37)=-.21$ ,  $p=.21$ .

#### Research Question 4

What is the relationship between the reported overall level of implementation of professional learning communities in 2014 school year and students' performance on the Florida Comprehensive Assessment (FCAT 2.0) in reading and mathematics?

The quantitative analysis for the fourth research question included 10 Pearson product-moment correlation coefficient tests utilized to understand the relationship between the perceptions of teachers and leaders and a school's mean Developmental Scale Score (DDS) on the 2014 FCAT 2.0 Reading and Mathematics in Grades 3, 6, and 10. The results were able to establish evidence for a statistically significant relationship in two of the calculated Pearson

coefficients for teachers' perception and 2014 FCAT 2.0 Reading and Mathematics in Grade 3. The remaining eight Pearson product-moment correlation coefficient tests, considering teachers' and leaders' perceptions and 2014 FCAT 2.0 mean DDS for Grades 6 and 10, were unable to provide sufficient evidence for a statistically significant relationship.

Findings did reveal a statistically significant relationship between teachers' perceptions and the mean DDS score on the 2014 FCAT 2.0 Reading and Mathematics in Grade 3. The relationship identified was positive but relatively weak for both Reading and Mathematics,  $r(1379)=.07$ ,  $p=.01$  and  $r(1379)=.09$ ,  $p=.00$ , respectively. The results of the analysis coincide with recent work by Goddard et al. (2007) who determined that the impact of collaborative efforts are only occasionally seen directly in students' performance on assessments. They are more often indirectly experienced by teachers learning to improve their instructional practice through collaborative efforts.

The quantitative results for the remaining eight Pearson product-moment correlation coefficient tests were unable to provide evidence of a statistically significant relationship between the variables. Although none of the relationships shown were statistically significant, all relationships were correlated with a slightly positive improvement in DDS, except for teachers' perceptions and FCAT 2.0 Reading for Grade 10 which had a slightly negative correlation,  $r(706)=-.04$ ,  $p=.30$ . Also of significance were the strongest positive correlations, those between leaders' perceptions and Grade 6 performance on the FCAT 2.0 Reading,  $r(22)=.17$ ,  $p=.46$ , and FACT 2.0 Mathematics,  $r(22)=.19$ ,  $p=.40$ .

### Research Question 5

What is the difference between the reported overall level of implementation of professional learning communities as perceived by principals and assistant principals compared to teachers?

The quantitative analysis for the fifth research question utilized two independent sample t-tests to understand the differences between the perceptions of PLC implementation of teachers and leaders, as recorded by the PLC Survey-Teachers and PLC Survey-Leaders during the 2012 and 2014 school years. The mean differences between the perceptions of PLC implementation held by teachers and leaders was found to be statistically significant for both the 2012 and 2014 school years. The mean difference for the 2012 and 2014 were similar, .50 and .49 respectively. The observed results indicated there was a significant difference found between the teachers and leaders. Hallam et al. (2014) demonstrated how teacher perceptions of collaborative time diminished as administrative accountability increased. The findings in this study, like those of Hallam et al. were of significant importance for consideration by instructional leaders hoping to impact student performance through a collaborative model, such as a PLC. Significant efforts should be made by leaders to clearly establish and communicate the shared goals and vision of the collaborative time and support teacher's efforts without excessive administrative oversight. Instead, leaders should focus on listening to their teachers' perceptions of their collaborative time and modeling collaborative practices, as administrative personal perceptions may differ significantly from those of teachers.

These results are further supported by the statistical analysis performed to respond to the first two research question which provided specific details in the reported perceptions of implementation by teachers and leaders in both the 2012 and 2014 school years. The results

showed that school leaders must be clear and collaborative in establishing and communicating their goals and vision for the school's collaborative time and should not rely on their own perceptions or intensive oversight to evaluate the impact of their teachers' collaborative practices.

### Implications for Policy and Practice

The following section includes the primary implications for school-based or school district-based teachers or leaders that can be considered, based on the finding included in this study, for application to policy and practice. As collaborative models continue to expand to school districts across the country, an increased importance should be placed on understanding how to successfully implement collaborative models based on current literature.

1. Elementary school leaders who have not already implemented collaborative time for their staff should begin to facilitate the process of incorporating collaborative time into their school's culture. Modeling collaborative practices and clearly communicating goals and vision with instructional staff are likely to lead to an increase in student achievement in Reading and Mathematics.
2. School leaders who structure and initiate collaborative models should closely follow the recommendations found in 21<sup>st</sup> century literature. Careful crafting and facilitation of teacher collaborative time will increase the likelihood that teachers and students will benefit from collaborative efforts. Leaders will maximize the impact of their teachers' collaborative time by minimizing administrative or compliance tasks during the collaborative time, thereby allowing teachers to focus collaboratively in designing solutions to each cohort's needs.

3. Instructional staff should have time to collaborate with the school's instructional leaders on a regular basis. In doing so, instructional leaders can actively model collaborative practices for their instructional personnel. By providing a collaborative model and opportunities for collaborative goal-setting, leaders can grow the likelihood of changing instructional practices and increasing teacher buy-in. Leaders who join in collaboration with teachers can also eliminate the necessity of excessive administrative oversight which stunts collaborative efforts.
4. All able school districts should set out to craft research-based collaborative time for all instructional personnel. Particularly, those school districts seeking to see an increase in teachers' usage of research-based instructional practices should focus the allocation of resources on providing all teachers with collaborative time. This time should be free of mandatory clerical accountability measures, as this will decrease the effectiveness of collaboration among teachers.
5. Professional development opportunities based on the current research for monitoring and facilitating collaborative time between teachers should be available to all school and district leaders overseeing collaborative teams. Specific focus of these professional development sessions should be placed on understanding how to effectively increase teacher trust in their collaborative efforts through the removal of excessive administrative oversight and the addition of an instructional leader as a model and facilitator.

### Recommendations for Future Research

Following are recommendations for future research based on the results of the current study.

1. Further research is necessary to understand specific actions that can be taken by instructional leaders which are likely to result in altering problematic instructional practices or increase student achievement through the use of teacher collaboration.

2. To more completely understand teachers' perceptions of their collaborative time, quantitative data could be collected by each professional learning community.

Ideally, the data could also include perceptions from leaders to better understand the variance of teacher perceptions within individual schools and how teachers' perceptions are impacted by the school leader and the demographics of the school.

3. In order to better understand the effectiveness of changing instructional practices using collaborative time, data could be collected based on teachers' years of experience, their perception of their collaboration, and their own reports of changing instructional practices. Categorizing teachers based on years of experience could be useful in the analysis of data in understanding how teachers who have more recently entered teaching differ from more experienced teachers in their perceptions of collaborative time.

4. The study could be replicated utilizing multiple years of the Florida Standards Assessment (FSA) over a longer time period. This would provide additional evidence about the impact of collaborative efforts on multiple assessments over time.

Increasing the time period may be of particular interest as more and more schools mandate collaborative time for their teachers.

5. Further research is needed to understand how teachers and leaders are prepared before beginning the process of participating in a collaborative model. Highlighting the differences in teacher and leader preparation can be useful in understanding how to improve current collaborative preparation and practices.

#### Limitations of the Study

Those seeking to interpret the findings included in this research should carefully consider the multiple limitations that existed during the course of the research. Although there was significant effort made by the researcher in the design of the study, the limitations that were encountered were not insignificant and should be included as part of a complete and thoughtful analysis.

The primary limitation within the research was in relation to the utilized instruments, the PLC Survey-Teachers and the PLC Survey-Leaders. Each of these instruments was designed by the considered school district without input from the researcher. The lack of input in the creation of the two instruments meant that the items contained within them were not crafted with current literature in mind. As a result, it was necessary for the researcher to eliminate many questions that were not aligned with current research on the collaborative process for teachers and leaders.

Another area that limited the generalizability of this study was that it focused on the measurement of student achievement utilizing a test that may differ drastically from assessments utilized in other states and has since been changed by the state of Florida. Student learning was measured, for the purposes of this study, utilizing mean Developmental Scale Scores on the 2012

and 2014 FCAT 2.0 which has since been replaced by the substantially different Florida Standards Assessment (FSA) for both Reading and Mathematics. The alterations to the method for measurement of student achievement should be considered in deriving any analysis or conclusions from the given research.

### Summary

Through this research, the researcher further extended the current body of research on teacher collaboration as well as the understanding of how teachers and leaders perceive collaborative efforts. This study was conducted in an effort to expand the understanding of how perceptions of collaborative time can impact students' learning. By utilizing quantitative archival data on teacher and leader perceptions as well as archival student achievement data, the researcher extended the foundational research by Ellis (2010) into the relationship between perceptions of collaborative time and student achievement.

The findings in this study illuminate the many levels of complexity surrounding teacher collaboration and student learning. The levels of intricacy are apparent when considering the interaction between student learning, teacher instructional practices, and perceptions held by teachers and administrators. Considering every facet of teacher collaboration requires significantly more effort on the part of educational researchers and is necessary as school districts search for effective solutions for improving student performance and teacher instructional practice.



APPENDIX A  
PROFESSIONAL LEARNING COMMUNITY SURVEY-TEACHERS

## PLC Survey-Teachers

Read each item carefully and then rate your current level of agreement with each statement based on your experience in the professional learning community at your school.

<b>Item</b>	<b>Strongly Agree</b>	<b>Agree</b>	<b>Not Sure</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
1. The purpose and goals of our PLC were clearly defined.					
2. Our team developed norms that include how the team will interact, support each other, make sure all voices are heard, and foster an overall feeling of safety and community.					
3. Our collaborative team set specific goals for student learning.					
4. There was sufficient time built into our schedule to have meaningful PLC meetings.					
5. I believe that the communication that took place in our collaborative team was open and honest.					
6. Our PLC facilitated healthy and productive professional relationships.					
7. As a collaborative team member, I felt a sense of accomplishment when students of my colleagues were successful.					
8. The insights gained through our collaborative work have been worth the time spent in meetings and on PLC work.					
9. I believe that PLC's are contributing to an increasingly positive and professional culture at our school.					
10. School administrators provide adequate support of our efforts related to the work in our PLC.					
<b>Item</b>	<b>Almost Always</b>	<b>Most of the Time</b>	<b>Some times</b>	<b>Once in Awhile</b>	<b>Hardly Ever</b>
11. Our PLC has been valuable for investigating solutions to identified student learning problems.					
12. I used ideas that I acquired from collaborative team meetings in my classroom.					
13. I assessed and documented the student learning outcomes of the strategies we talked about in our collaborative team meetings.					
14. I felt comfortable openly sharing my student achievement results with my collaborative team colleagues.					

**APPENDIX B**  
**PROFESSIONAL LEARNING COMMUNITY SURVEY-LEADERS**

### PLC Survey-Leaders

Read each item carefully and then rate your current level of agreement with each statement based on your experience in the professional learning community at your school.

<b>Item</b>	<b>Strongly Agree</b>	<b>Agree</b>	<b>Not Sure</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
1. Each PLC at our school has set specific goals.					
2. We have structured our schedule to provide protected time for PLC meetings.					
3. I believe that PLC's are contributing to an increasingly positive and professional culture at our school.					
4. The leader documents the activities and outcomes of each PLC meeting.					

APPENDIX C  
INSTITUTIONAL REVIEW BOARD APPROVAL



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

## Approval of Exempt Human Research

From: UCF Institutional Review Board #1  
FWA00000351, IRB00001138

To: Erica N. Sutula

Date: June 16, 2016

Dear Researcher:

On 06/16/2016, the IRB approved the following activity as human participant research that is exempt from regulation:

Type of Review: Exempt Determination  
Project Title: A STUDY OF THE RELATIONSHIP BETWEEN  
CONTINUOUS PROFESSIONAL LEARNING COMMUNITY  
IMPLEMENTATION AND STUDENT ACHIEVEMENT IN  
CENTRAL FLORIDA SCHOOLS

Investigator: Erica N Sutula  
IRB Number: SBE-16-12331  
Funding Agency:  
Grant Title:  
Research ID: N/A

This determination applies only to the activities described in the IRB submission and does not apply should any changes be made. If changes are made and there are questions about whether these changes affect the exempt status of the human research, please contact the IRB. When you have completed your research, please submit a Study Closure request in iRIS so that IRB records will be accurate.

In the conduct of this research, you are responsible to follow the requirements of the [Investigator Manual](#).

On behalf of Sophia Dziegielewski, Ph.D., L.C.S.W., UCF IRB Chair, this letter is signed by:

A handwritten signature in black ink that reads "Joanne Muratori".

Signature applied by Joanne Muratori on 06/16/2016 11:00:33 AM EDT

IRB Manager

APPENDIX D  
SCHOOL DISTRICT PERMISSION TO CONDUCT RESEARCH



# Orange County Public Schools

445 West Amelia Street • Orlando, FL 32801 • 1129 • Phone 407.317.3200 • [www.ocps.net](http://www.ocps.net)

## Notice of Approval

Approval Date: 09/30/2016

Approval Number: **0057**

Project Title: The Study of the Relationship between Professional Learning Community Implementation and Student Achievement in a Large Urban District

Requester: Erica Sutula

Project Director/Advisor: Dr. Rosemarye Taylor

Sponsor Agency/Institutional Affiliation: University of Central Florida

Thank you for your request to conduct research in Orange County Public Schools. We have reviewed and approved your application. This Notice of Approval expires one year after issue 09/29/2017.

If you are interacting with OCPS staff or students, you should have submitted a Principal Notification Form with your application. You may now email the principals who have indicated interest in participating, including this Notice as an attachment. After initial contact with principals, you may then email any necessary staff. This notice does not obligate administrators, teachers, students, or families of students to participate in your study; participation is entirely voluntary.

OCPS badges are required to enter any OCPS campus or building (see the [Security Clearance Flow Chart](#)).

You are responsible for submitting a [Change Request Form](#) to this office prior to implementing any changes to the currently approved protocol. If any problems or unexpected adverse reactions occur as a result of this study, you must notify this office immediately by emailing a completed [Adverse Event Report Form](#). On or before 08/29/2017, you must complete a [Request for Renewal or Executive Summary Submission](#). Email all forms to [research@ocps.net](mailto:research@ocps.net). All forms may be found at [www.tinyurl.com/OCPSresearch](http://www.tinyurl.com/OCPSresearch).

Should you have questions or need assistance, please contact Mary Ann White at (407) 317-3201 or [mary.white@ocps.net](mailto:mary.white@ocps.net).

Best wishes for continued success,

Tavy Chen, Ed.D.  
[tavy.chen@ocps.net](mailto:tavy.chen@ocps.net)  
Director of Accountability, Research and Evaluation  
Orange County Public Schools



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