INSTRUCTIONAL LEADERSHIP: THE RELATIONSHIP BETWEEN PROFESSIONAL LEARNING COMMUNITY BEST PRACTICES AND STUDENT ACHIEVEMENT

A Doctoral Thesis Presented to the
Faculty of the College of Education
University of Houston

In Partial Fulfillment
of the Requirements for the Degree

Doctor of Education
in Professional Leadership

by

Edward Cunningham

May 2013

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Abstract

This study evaluated the implementation of Professional Learning Communities (PLC) in a Texas school district. It established the reliability and validity of a PLC instrument, measuring the perceived degree of implementation of the model on campuses, and examined the significant difference between the perceptions of principals and instructional coaches regarding implementation of the model at the campuses, as well as the relationship between perceived implementation and results on statewide assessments. It found that perception differences did exist between principals and instructional coaches, and some aspects of PLC had significant positive correlations with student achievement on state assessments. With the increase in legislated public school accountability measures, principals and school leaders continue to seek professional models that can positively impact student growth. The PLC is a model that has gained momentum in public school systems. PLC emphasizes that educators work together in collaborative teams as a part of continuous improvement.

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CHAPTER 1
Introduction

Late twentieth century and current trends in American public education saw an increase in the push towards mandated accountability systems to ensure students receive equitable educational opportunities. The primary foci of inequities has been on historic achievement gaps among racial and ethnic groups – especially among Hispanic, African American, and white populations – and among students of varied socioeconomic status, including the economically disadvantaged. Educational leaders have the charge of identifying when and where these gaps exist and implementing processes for addressing them. This study looks at the relationship between a model of best-practices, the Professional Learning Community (PLC), and Texas state assessment results.

In Texas, the state legislature and Texas Education Agency (TEA) have attempted to meet the demand for accountability with a series of assessment systems dating back to the 1980s. The performance standards and accountability measures created with these assessment systems have increasingly held campuses and districts accountable for student performance, including the use of public ratings based on student performance and graduation requirements. Beginning in the 2011-2012 school year, students in grades 3 through 9 took, for the first time, the State of Texas Assessments of Academic Readiness (STAAR). This latest assessment system has the most rigorous high school graduation requirements of any other in Texas to date (Texas Education Agency, 2012), as well as an alignment towards postsecondary-readiness focusing on curriculum "readiness" standards identified by TEA throughout the grade levels tested (Texas Education Agency, 2010).

With high-stakes testing at the forefront of the collective consciousness in public education, campuses and districts, as well as educational researchers, have focused time,

effort, and funding on determining the best-practices that result in meeting the strict accountability requirements.

STATEMENT OF THE PROBLEM

Educational leaders, campus principals and district administrators are faced with the increasingly rigorous accountability measures for students. In Texas, only forty four percent of schools and twenty eight percent of districts evaluated under the federal accountability system in 2012 met Adequate Yearly Progress (AYP), the federal standard applied to the state's assessment program. These numbers are down from 2011, when sixty six percent of campuses and fifty percent of districts met AYP (Texas Education Agency, 2012). The ultimate goal for these standards has been to decrease achievement gaps that exist among particular populations of students, while increasing academic readiness of all students for postsecondary education. Much of the search for how to accomplish this dates back to the research leading to the Effective Schools Correlates developed by Ronald Edmonds, Wilbur Brookover, and Larry Lezotte (Lezotte, 2001). While the subsequent Effective Schools Movement was not alone, or even first, in its search for effective practices for schools with high populations of economically disadvantaged students, it is often a reference point for current efforts. This has culminated in recent publications of the Professional Learning Community (PLC) model, most-notably by Richard DuFour and Robert Eaker (DuFour, DuFour, & Many, 2006).

The PLC model established five criteria for schools and educational systems. These are:

- Shared Mission, Vision, and Set of Goals
- Collaborative Teams

- Collective Inquiry
- Continuous Improvement
- Results-Oriented (DuFour R. , DuFour, Eaker, & Karhanek, 2004)

Important to the PLC model is the understanding that it is not a program, but rather a conceptual framework for schools to draw on the collective knowledge and skills of their professionals to address their students' needs. "A school does not become a PLC by enrolling in a program, renaming existing practices, taking the PLC pledge, or learning the secret PLC handshake" (DuFour R. , 2007, p. 6). The framework of a PLC must be applied to the whole campus so that the way the campus operates makes it a PLC (DuFour R. , 2011).

The PLC model has become popular in recent years, and many schools and districts have engaged in book studies, hired speakers for trainings, and attempted to become Professional Learning Communities. The range of implementation has been from PLCs operating with high fidelity, where campuses fully incorporate the five criteria of PLCs into the way they operate, to operating with low fidelity, where campuses might call themselves a PLC, or refer to team meetings as PLCs, but do not change their practices from traditional structures in which teachers work in isolation from each other. (DuFour & DuFour, 2012)

Instructional coaching is another model schools and districts have adopted to address accountability concerns. Teaching positions are valuable, and master schedules have to be planned strategically to ensure class sizes and course conflicts are minimized. However, research indicating that dedicating teaching positions for instructional coaches

(ICs) to work with classroom teachers in support of professional development has shown positive correlations with student achievement (Knight, 2004).

In the "partnership philosophy" of instructional coaching, Jim Knight identified seven principles: equality, choice, voice, dialogue, reflection, praxis, and reciprocity. Also identified were three structural variables that can heavily influence the success of an instructional coaching model: Campus and district leadership interested in a successful IC program must provide training on how to coach adult learners; must hire disciplined, effective teachers who possess varied instructional skill sets in the classroom as well as the personalities to work in partnership with adult learners; and must work as instructional partners with the ICs, supporting them as teacher-leaders – not as fellow administrators – with a shared vision for the campus. To summarize, the "partnership philosophy" is a simultaneous collaboration on several levels, including between the IC and the principal/administration, the IC and teacher teams, and the IC and individual teachers (Knight, 2007).

A PLC campus with instructional coaches would use those coaches to work with teams of teachers to ensure fidelity in the implementation of the PLC framework. The degree to which fidelity is achieved would depend on the skill set of the ICs, the relationships with the teachers, and the leadership of the principal.

THE NEED FOR THE STUDY

Current literature regarding school improvement makes frequent references to the need for schools to become PLCs, but there is a lack of information about PLC implementation (Wells, 2008). PLC, as a term referring to a team of teachers who function in specific ways, is defined and differentiated from a group of teachers who

simply meet together (Richmond & Manokore, 2011). However, tools to measure the implementation of PLC best practices by a team of teachers are lacking.

There was a need for research into how characteristics of Professional Learning Communities correlate with student achievement on campuses in the presence of instructional coaches. Specifically, what can a principal look for on a campus when observing teams of teachers with ICs that can indicate if the actions of the staff are likely to positively impact student achievement on state assessments at the end of the school year? Additionally, with ICs and principals having different leadership functions related to working with teachers, there was a need to compare the points of view of the two regarding the implementation of PLC best practices.

PURPOSE OF THE STUDY

This study attempted to determine the relationship, if any existed, of varying levels of implementation of PLC characteristics on student achievement on STAAR mathematics and STAAR reading in grades 3 through 8. The practical purpose of the study was to supply educational administrators with a list of observational indicators to assist in determining if (or to what extent) a campus is implementing PLCs with fidelity. The study specifically focused on the achievement of economically disadvantaged students on campuses with low and high numbers of economically disadvantaged students.

Additionally, this study examined perceptions of PLC implementation between two different groups of campus leaders, principals and instructional coaches, to determine the variance between the two groups, and to what extent these views correlate with PLC implantation and student achievement.

RESEARCH QUESTIONS

This study used a mixed methods research model to answer questions about the perceived implementation of PLC best-practices and the correlation of those practices with student performance on state assessments. A survey was used to determine the perception principals and ICs have about the use of PLC best-practices on their campuses. The results of this survey were compared between the two groups and were analyzed with state assessment data from two years to answer the following questions:

1. Was there a significant difference in the perception of principals and instructional coaches regarding PLC best-practice implementation in math and reading?
2. Was there a correlation between the perceived implementation of specific components of PLC best-practices and high student achievement?
3. How did the correlation, if any, vary when considering the socioeconomic group economically disadvantaged?
4. Were there specific best-practices among PLC components that educational leaders, especially principals and instructional coaches as campus instructional leaders, can look for and encourage among their teachers that showed strong positive correlations with student achievement?

DEFINITION OF TERMS

Academic Excellence Indicator System (AEIS): series of reports published each year for Texas school districts and campuses which contains data regarding performance on

state assessments and campus demographics of students and staff (Texas Education Agency, 2012)

Adequate Yearly Progress (AYP): the federal accountability measure established by the No Child Left Behind laws (Education Week, 2011)

Texas Education Agency (TEA): the Texas state organization charged with oversight of public primary and secondary education, including designing and implementing assessment and accountability systems established by legislation (Texas Education Agency, 2013)

No Child Left Behind (NCLB): set of federal laws, passed in 2002, that establish national accountability rules for campuses and districts receiving federal funding (Education Week, 2011)

Texas Assessment of Knowledge and Skills (TAKS): state accountability and assessment program from 2003-2011 (Cruse & Twing, 2000)

State of Texas Assessments of Academic Readiness (STAAR): state accountability and assessment program, beginning in the 2011-2012 school year, which emphasized vertical alignment of identified "readiness" curriculum standards, in preparation for post-secondary readiness (College and Career Readiness) (Texas Education Agency, 2012)

Professional Learning Community (PLC): Professional practice that emphasized educators working together in collaborative teams using a continuous improvement processes (DuFour R. , DuFour, Eaker, & Karhanek, 2004).

Effective Schools Movement and Effective Schools Correlates: During the 1970s and 1980s, researchers looked for schools that showed success with traditionally low-

performing student groups and identified seven features, the Correlates, which they found in common among those schools (Lezotte, 2001).

Instructional coach (IC): Professional position dedicated to partnering with the principal and with teachers for the purpose of embedded professional development and the pursuit of continuous improvement (Knight, 2007).

LIMITATIONS

- The data collected for this study were based on perceptions of PLC best-practice implementation on campuses. While the convergence of the perceptions of the two groups surveyed was analyzed – the survey was completed by principals and instructional coaches about the same groups of teachers – the results were subjective. Future research should include a third-party observation protocol to include with perception data. Self-reported survey results could then be compared to the observations of an outside agent.
- Fidelity of PLC implementation was not measured in this study. The survey measured perceptions; a tool was not included to collect information about actual PLC implementation over time. For example, a survey item stated, "the teachers on my campus meet at least once a week as a team." The study did not follow up and collect the actual number of times the teachers met as a team.
- The survey was not administered to the individual teachers involved in implementing a PLC culture. Principal and ICs cannot be at every meeting of a teacher team and form points of view from impressions at the

meetings they have attended. Much of what teachers do individually and as teams does not occur at formal meetings. There are preparations that must be made before meetings. There are action steps that must take place after meetings are concluded. The teachers are the individuals involved at every stage of the work, and future research may want to include this additional perspective.

- This study only used one school district for its potential survey respondents. This limited the number of responses available for analysis. Additionally, the results found in the study were specific to the schools in the district where the study was conducted. PLCs have been implemented in many school districts, and repeating the study with a larger sample size could provide valuable information about PLC implementation on a larger scale.
- The survey instrument used in this study was not field tested prior to use in the study. A reliability test was performed as a part of the study. However, more frequent and varied applications of the instrument, like those stated above, could also provide data for editing the survey to fit a larger audience than just principals and instructional coaches.
- The assessment performance data came from the 2012 federal AYP data tables for the campuses whose principals and ICs were surveyed. In the 2011-2012 school year, students took the new STAAR. The data tables reflected the prior-year's TAKS results and the current year's STAAR results. Because these tests were different, TEA established TAKS

equivalency scores for STAAR (Texas Education Agency, 2011). The study used the TAKS equivalency performance results for STAAR to compare with the prior-year TAKS results. However, in spite of the work done to bridge the two assessment systems, STAAR was in its first year of implementation, and this study compared STAAR performance results with performance results from an established assessment, TAKS.

CHAPTER 2
Literature Review

To better understand the development of high-stakes assessment in public schools and the current interest in Professional Learning Communities, it is important to examine the Effective Schools Movement. The educational beliefs that motivated the Effective Schools researchers underlie PLC philosophies. Additionally, the Effective Schools Correlates articulated by the Effective Schools Movement have led directly to accountability policies at the state and federal levels.

A Brief History of the Effective Schools Movement

Research for, and development of, the Effective Schools Movement was a reaction to the 1966 publishing of "The Equal Educational Opportunity Survey" by J. S. Coleman. The study concluded that schools were not the major factor in determining student achievement; instead family background, including the socioeconomic standing and education levels of parents, was believed to be the reason some students achieved at lower levels than others (Lezotte, 2001).

During the 1970s, programs were created in public schools designed to help low-socioeconomic students develop strategies for learning in school. The students' backgrounds were treated as variables, while the ways in which instruction was delivered and the schools were run remained essentially constant. In response to this practice of intervening outside of schools, researchers grounded in the philosophy that all children can learn began looking for evidence that schools themselves could be structured in ways that counteracted the barriers to achievement that some students had in their backgrounds (Lezotte, 2001).

To research what can be done in schools to affect learning for students of low socioeconomic background, people such as Ron Edmonds, Larry Lezotte, and Wilbur Brookover looked for what they defined as effective schools (Lezotte, 2001). Their findings from these schools, located throughout the United States, varied from the findings of the Coleman report and had high levels of student achievement regardless of socioeconomic status or family backgrounds. The researchers then looked for common characteristics among these schools to determine which factors might correlate with higher levels of student achievement.

It was Ron Edmonds that first identified what would later be the founding factors of the Seven Correlates of Effective Schools. In his paper "Programs of School Improvement: An Overview," he stated five correlates found in common among the schools studied (Edmonds, 1982). Further research and findings of Edmonds, Brookover, and Lezotte were confirmed by a similar cotemporaneous study done in Britain and by many subsequent studies. The conclusion was simply that schools can be structured to positively affect student achievement regardless of socioeconomic status and family background (Lezotte, 2001).

PHILOSOPHICAL EDUCATIONAL BELIEFS AND CORRELATES OF THE EFFECTIVE SCHOOLS MOVEMENT

The core beliefs of the Effective Schools Movement developed into the following statements by Lezotte:

- "All children can learn and come to school motivated to do so;

- Schools control enough of the variables to assure that virtually all students do learn;
- Schools should be held accountable for measured student achievement;
- Schools should disaggregate measured student achievement in order to be certain that students, regardless of gender, race, ethnicity, or socioeconomic status are successfully learning the intended school curriculum;
- The internal and external stakeholders of the individual school are the most qualified and capable people to plan and implement the changes necessary to fulfill the Learning for All mission" (Lezotte, 2001)

Additionally, the Effective Schools Movement is centered on seven correlates:

- Instructional Leadership
- Clear and Focused Mission
- Safe and Orderly Environment
- Climate of High Expectations
- Frequent Monitoring of Student Progress
- Positive Home-School Relations
- Opportunity to Learn and Student Time on Task (Lezotte, 2001)

EFFECTIVE SCHOOLS MOVEMENT AND ITS EFFECT ON POLICY

The Effective Schools philosophies and Correlates have manifested in current policy at the state and federal levels. Nationally, the No Child Left Behind (NCLB) Act established a federal accountability system which holds schools accountable for student

success. NCLB holds schools accountable for student achievement based upon the results of state reading and mathematics assessments, with the standards for meeting accountability increasing with each subsequent year (Education Week, 2011). Additionally, Texas is currently increasing the rigor and expectations involved in its state accountability system with a transition from TAKS to the new STAAR and STAAR End of Course. Student results are split into indicator groups based on race/ethnicity and socioeconomic status (Texas Education Agency, 2010).

In Texas, districts and campuses are required to develop improvement plans annually which include features of Effective Schools research. Improvement plans must include state assessment results and goals for the current year. They must identify methods and timelines for meeting those goals, as well as include progress measures. Campuses must also create procedures and policies for violence prevention and school safety. And finally, they must provide a platform to encourage parental involvement in the school (Texas Education Code §11.252-253).

A Brief History of Accountability and Assessment in Texas (the Evolution of High-Stakes Testing)

Texas's first move towards an accountability system began with 1980's Texas Assessment of Basic Skills (TABS). The TABS was given to students in grades 3, 5, and 9 and covered reading, mathematics, and writing. Students who did not pass the grade 9 assessments were required to repeat the failed assessments every year until they either passed or graduated from high school. Since the results of the assessments were published, TABS was "the beginning of high-stakes accountability for large-scale assessments in Texas" (Cruse & Twing, 2000).

Introduced in 1984, and lasting until the end of the decade, the Texas Educational Assessment of Minimum Skills (TEAMS) replaced TABS with a new focus. Now with state law focused on "minimum" skills instead of "basic," the Texas Education Agency (TEA) has increased the rigor of state assessments and added testing at more grade levels. TEAMS was administered in grades 1, 3, 5, 7, 9, and 11 for reading, writing, and mathematics. The most challenging addition that affected Texas public schools and districts under TEAMS was the new rule that a diploma could be withheld from a high school student who had not yet passed all of his or her exit level (grade 11) subject assessments. Withholding diplomas pending passing assessment scores increased public awareness of schools and districts with lower percentages of students performing proficiently on the state assessments (Cruse & Twing, 2000).

The next stage in the evolution of Texas state high-stakes testing was the Texas Assessment of Academic Skills (TAAS). TAAS was modified several times between 1990 and 2002. Students were tested in grades 3 through 11 in reading, writing, and mathematics. As with TEAMS, the assessment rigor was increased from the prior system, and students under TAAS were required to pass their exit-level assessments in order to graduate. Under TAAS, schools and districts received ratings for the first time along with their performance results (Cruse & Twing, 2000).

Most recently, the Texas Assessment of Knowledge and Skills (TAKS) was introduced to measure student learning of the newest state curriculum standards – the Texas Essential Knowledge and Skills (TEKS) – and to add increased accountability to grades three through eight by requiring students in certain grades to meet scoring expectations for mathematics and reading prior to grade promotion. Under TAKS, high

school students were tested in English language arts, mathematics, science, and social studies in grades 10 and 11. Passing scores on the eleventh grade assessments, called the Exit Level assessments, were requirements for graduation (Cruse & Twing, 2000).

Table 2- 1

TAKS Subjects and Grade Levels

Grade Level	Subjects Assessed				
3	Reading	Mathematics			
4	Reading	Mathematics			
5	Reading	Mathematics		Science	
6	Reading	Mathematics			
7	Reading	Mathematics	Writing		
8	Reading	Mathematics		Science	Social Studies
9	Reading	Mathematics			
10	English Language Arts	Mathematics		Science	Social Studies
Exit	English Language Arts	Mathematics		Science	Social Studies

Under the TAKS accountability system schools received state accountability ratings based upon student performance on the tests administered. Performance standards for these ratings were applied to student achievement results for all students, as well as to white, Hispanic, African American, and economically disadvantaged student groups. School ratings were based upon the performance of the lowest performing student group. By basing the school's rating upon the lowest performing student group, policy makers hoped to focus attention on decreasing the learning gaps between the highest and lowest performing student groups. These ratings and the student results behind them were published annually (Cruse & Twing, 2000).

Table 2-2 summarizes the base performance standards under TAKS that were required in 2011 for campuses to earn the various state accountability ratings. For the ratings "Recognized" and "Exemplary," additional commended performance standards

not reflected in the table were applied to the "all students" and "economically disadvantaged" indicator groups for the content areas math and reading/ELA (Texas Education Agency, 2011).

Table 2- 2

TAKS Performance Standard Requirements for State Accountability, 2011

Academically Acceptable					
	Reading/ELA	Mathematics	Writing	Science	Social Studies
All Students	70%	65%	70%	60%	70%
African American	70%	65%	70%	60%	70%
Hispanic	70%	65%	70%	60%	70%
White	70%	65%	70%	60%	70%
Econ. Dis.	70%	65%	70%	60%	70%
Recognized					
	Reading/ELA	Mathematics	Writing	Science	Social Studies
All Students	70%	65%	70%	60%	70%
African American	70%	65%	70%	60%	70%
Hispanic	70%	65%	70%	60%	70%
White	70%	65%	70%	60%	70%
Econ. Dis.	70%	65%	70%	60%	70%
Exemplary					
	Reading/ELA	Mathematics	Writing	Science	Social Studies
All Students	70%	65%	70%	60%	70%
African American	70%	65%	70%	60%	70%
Hispanic	70%	65%	70%	60%	70%
White	70%	65%	70%	60%	70%
Econ. Dis.	70%	65%	70%	60%	70%

Over time several features were added to the TAKS accountability program. Among these were the additions of a vertical scale score to the grade 3 through 8 mathematics and reading assessments and a projection measure, meant to show when students who did not meet passing standards were projected to meet future passing standards, to all content area assessments. These measures were designed to help educators align their student results vertically with the expectations at higher grade

levels. Exit Level TAKS included college and career readiness indicators in addition to "met standard" and "commended" indicators to mark achievement levels which were determined to be aligned with higher education readiness. As the TAKS program ended, the accountability focus pointed increasingly to top-down vertical alignment of curriculum and assessment (Texas Education Agency, 2012).

Heavily influenced by the Texas accountability systems since the 1980s, the federal No Child Left Behind (NCLB) accountability laws from 2002 phased in increasing performance standards for mathematics and reading assessments. Schools and districts must demonstrate that they have met Adequate Yearly Progress (AYP) by requiring that all student groups meet the increased standards. As the standards increase from year to year, so will the number of schools across the nation that do not meet AYP performance requirements, especially those standards related to low performing student groups (Education Week, 2011).

AYP measures performance for seven indicator groups in each of the two subjects. Those indicator groups are all students, African American, Hispanic, white, economically disadvantaged, limited English proficiency (LEP), and special education. As with the state TAKS accountability system, failing to meet the performance standard for any one indicator group results in a rating of "missed AYP" for a campus or district. The passing standards for reading and math in 2011 were 80% and 75%, respectively. The standards rose to 87% for reading and 83% for math in 2012. This means that, in 2012, the performance standards for math and reading under federal accountability were higher than those under the former state accountability system to earn a rating of

"Recognized." Table 2-3 shows the increase of performance standards for meeting AYP from the 2011 to the 2012 school year (Texas Education Agency, 2013).

Table 2- 3

AYP Performance Standards, 2010-2011 to 2011-2012

	2010-2011	2011-2012
Reading	80%	87%
Mathematics	75%	83%

In the 2011-2012 school year, Texas introduced its newest assessment program. The State of Texas Assessments of Academic Readiness (STAAR) was built on the framework of TAKS and the assessment programs that came before it. STAAR tests the same grade three through eight subjects as TAKS:

- Grades 3 through 8 reading
- Grades 3 through 8 mathematics
- Grades 4 and 7 writing
- Grades 5 and 8 science
- Grade 8 social studies

The primary difference between the previous assessment programs and STAAR is the way the assessments and the curricula (TEKS) have been aligned. Under STAAR, twelve end of course (EOC) assessments will be given to students in high school courses. Students take assessments for:

- English I, English II, English III
- Algebra I, Geometry, Algebra II
- World Geography, World History, US History
- Biology, Chemistry, Physics

To graduate, high school students must meet minimum cumulative standards for the four core subjects tested. Additional higher standards for college and career readiness must be met for students to earn diplomas for the Recommended High School Program (RHSP) and Distinguished Achievement Program (DAP) (Texas Education Agency, 2012).

The curricula for the twelve high school STAAR EOC courses have been vertically aligned backwards to the preceding grades 3 through 8 courses. The STAAR program will assess grades 3 through 8 with a focus on the readiness standards identified through this alignment. In order for campuses and districts to meet the new accountability requirements (beginning in the 2012-2013 school year), they will have to ensure that students in all student groups are learning the curriculum standards that have been aligned vertically, ultimately for demonstrations of college and career readiness (Texas Education Agency, 2012).

The creation of government policies for schools is not in line with the findings of the Effective Schools Movement. While the policies were clearly linked to components of the Effective Schools philosophies and Correlates, they conflict with the basic belief that it is the stakeholders who are the most qualified to affect change in a school. To do this, the stakeholders must believe in the philosophies; the mandates do not promote that ownership. A principal who is not a strong instructional leader, for example, is still capable of completing a campus improvement plan that superficially addresses the Effective Schools Correlates. The act of completing this task does not automatically make his or her school effective. The development of a Professional Learning Community is a way for sound Effective Schools beliefs to be implemented with fidelity.

PROFESSIONAL LEARNING COMMUNITIES

A Professional Learning Community, as promoted by Richard DuFour, Rebecca DuFour, and Robert Eaker, consists of five categorical features (DuFour R. , DuFour, Eaker, & Karhanek, 2004). The first of these is a shared mission, vision, and set of goals. PLCs recognize that schools are not for teaching, they are for learning. This understanding becomes the foundation for the PLC's shared vision. They collaboratively develop specific, achievable, and measurable goals and create action plans to meet those goals. Schools and districts, functioning as larger and higher levels of PLCs, develop mission statements with learner-centered philosophies at the core. Because of this belief in a leaner-centered philosophy, the PLC has four questions essential to its planning and actions.

1) What do we want our students to learn? This question is meant to be examined at a deeper level than just listing the state-mandated curriculum standards. Learning targets are designed by PLCs, beginning with the state-mandated curriculum standards and building upon them to create progressive statements for students to follow to master those standards (Guskey, 2009, p. 90). The PLC determines the path students should take in order to attain mastery of the standards. Once learning targets and paths are determined, the PLC develops instructional plans and lessons to facilitate the learning.

2) How will we know when our students have learned the intended knowledge and skills? PLCs engage in the design, implementation, and data analysis of Common Assessments (CAs). These can be either formative or summative, depending on the needs of the team. However, PLCs understand that formative CAs will inform their next steps with more specificity than summative assessments (Guskey, 2009, pp. 39-42). Common

Assessments, particularly formative ones, contribute to the clarity of the learning targets for the teachers and the students. Additionally, assessments prepared by PLCs are of a higher quality when compared to those developed by teachers in isolation. Finally, common assessments, because of the collaborative process in their design and the group analyses when they have been administered, result in enhanced communication among team members and between teachers and students (DuFour & Stiggins, 2009).

3) What will we do when students show difficulty learning the knowledge and skills? The reason for more formative CAs than summative is to answer this question. Again, PLCs are rooted in concepts of mastery learning of specific targets based on content standards. State standards are designed under the educational framework of essential knowledge. So when students show difficulty in mastery of learning targets, the PLC plans intervention to move students towards mastery of the standards.

4) How will we enrich and extend the learning for students who are proficient? This requires intentional differentiation in instruction when planning in order to avoid the rigid tracking that has traditionally occurred (DuFour & DuFour, 2012).

The second categorical feature of the Professional Learning Community is the presence of collaborative teams (DuFour R. , DuFour, Eaker, & Karhanek, 2004). Members of a PLC work interdependently for their common goals. While individual growth is crucial to organizational growth (Senge, 1990), it does not guarantee organizational growth. PLCs work to learn collectively through collaborative discourse and shared professional development opportunities (DuFour R. , 2011). This does not mean that individual teachers do not have autonomy or individual latitude. In fact, the nature of school structures, with classrooms and class periods led by individual teachers,

requires teachers to be personally strong in their knowledge of best practices for targeting learner needs. With PLCs, though, these strong individual professionals share their expertise for common benefits. It is important, therefore, for school leaders to create time and protocols for these collaborative teams to make their meetings effective (DuFour R. , DuFour, Eaker, & Karhanek, 2004).

Collective inquiry is the third feature of a PLC. A district, school, or team of teachers organized under the philosophies of a PLC is consistently in a state of questioning. The PLC questions strengths and weaknesses of the status quo, continuously looks for researched and proven best practices to add to the collective repertoire, and engages in ongoing data collection regarding the current levels of mastery and progress of the learners. Central to the inquiry process is a shared understanding that the discoveries that will be made are formative in nature and, therefore, are safe from biased judgment. The search for answers is valued and recognized as being more important than always having an answer. To this end PLCs develop norms and protocols for inquiry (DuFour R. , DuFour, Eaker, & Karhanek, 2004).

The fourth feature of a PLC is continuous improvement. For this, PLCs develop protocols to answer four ongoing questions. These are:

- What is our purpose?
- What do we want to become?
- What are our strategies to get there?
- How will we assess progress towards our goals? (DuFour R. , DuFour, Eaker, & Karhanek, 2004)

Schools and districts often implement programs which are not integrated into the practices of the school or district, and thus never impact the climate or culture of the organization. A PLC should be a learning organization as defined by Senge (1990) and to achieve this level of functioning, the school or district must integrate and expect a cyclical approach to ongoing growth and development (DuFour R. , 2011).

Finally, Professional Learning Communities are results-oriented. Sharing a vision, developing common assessments, collaborating to design instruction, investigating best practices, and seeking continuous improvement means nothing if the ultimate goal of maximizing student achievement is not realized (DuFour R. , DuFour, Eaker, & Karhanek, 2004). There is a shared understanding in a PLC that the work is accountable to this measure. To check for achievement, data collection is integrated into regular practice, and metrics are designed for program evaluation. All other features of the PLC are judged by the results, and the results are measured with fidelity and integrity in a safe environment focused on identifying needs rather than protecting egos (DuFour, DuFour, & Many, 2006).

COMPONENTS OF PLCS STEM FROM THE EFFECTIVE SCHOOLS MOVEMENT

Lezotte quotes Edmonds as having frequently stated, "we have never yet found an effective school that did not have a strong instructional leader as the principal" (Lezotte, 2001). The principal in a Professional Learning Community culture is such a leader. The PLC principal must believe strongly in the shared mission and goals of the campus, support and value the team-created goals of the teachers, support and value the collective skill set of the teachers while simultaneously facilitating a culture of continuous acquisition of new knowledge and skills. The PLC principal must structure the school's

master schedule to allow for collaborative team meetings and flexible intervention plans, foster a safe climate for teachers to be accountable for their processes, and serve as a walking collection of best practices to coach teams as needed. The instructional principal is the keystone to implementing a PLC climate on a campus (DuFour & DuFour, 2012).

Beyond simply implementing a PLC climate, sustaining a culture of a PLC is a test for any campus leader or leadership team (Hipp, Huffman, Pankake, & Olivier, 2008). Many campuses and districts have adopted PLC terminology in their day-to-day operations, but lack guidance in maintaining and growing a PLC campus due to a lack of guidance from the research. Additionally, the differences among campuses make it difficult to model a set of steps for doing so; every campus climate demands unique guidance. The term PLC is frequently used, but not necessarily understood or implemented with fidelity, potentially leading to its disfavor. That is, it has been adapted and embraced while being misunderstood or not fully implemented, so it may lose its effectiveness and be branded as a failure when it was never implemented with fidelity (Hamos, et al., 2009).

The shared mission, vision, values, and goals developed by a PLC and as expressed in the essential questions, are directly tied to the Effective Schools Correlate regarding a clear and focused mission. Additionally, PLCs design their learning targets based on standards set for all students, and plans are implemented in order to help all students master those standards. This is based on the Effective Schools philosophy that all children can learn, as well as the Correlate regarding maintaining high expectations.

Regarding Common Assessments, PLCs frequently develop the diagnostic tools for measuring student progress. PLCs identify students in need of assistance based on

data disaggregation, with attention paid to separate student groups such as racial or ethnic populations and economically disadvantaged students. PLCs hold themselves accountable for student achievement with a focus on results.

Philosophically, the PLC is established on a faith that the professionals involved are the best-suited for the task of promoting higher levels of student achievement for all students. The PLC has, and continuously adds to its, knowledge and skills for this purpose. The PLC recognizes that it cannot change the external factors of the students before they come to school. But with careful team planning and frequent self-monitoring, the PLC can change the way instruction is delivered and build relationships with parents and the community to influence achievement in meaningful ways.

In conclusion, the findings of effective schools research has led to the development of the Professional Learning Community as a means to positively affect student achievement. While some components of the Effective Schools Movement have been turned into federal and state policies, real ownership of the philosophies and Correlates by teachers, principals, and district personnel is the only way to ensure faithful action based on three decades of Effective Schools research. The PLC culture involves developing a campus and district system that attempts to guide professional stakeholders towards that ownership and, ultimately, higher levels of student achievement regardless of socioeconomic status or family background.

LEADERSHIP

As society gets more complex, leadership in our schools has to grow in sophistication to match (Fullan, 2001). The leader of a school that has incorporated PLCs

into its culture understands the connection between transformational leadership practices and student learning (Leithwood, Louis, Anderson, & Wahlstrom, 2004). Indeed, the leader of a PLC campus is not demonstrating a recent leadership style. Transformational leadership was identified as a concept in the late 1970s and has been studied since the 1980s (Bass & Riggio, 2006). Transformational leadership in an educational setting features characteristics that can fall under four general areas: idealized influence, inspirational motivation, individualized consideration, and intellectual stimulation (Balyer, 2012).

Idealized influence can be defined as representing a high moral standard of professional behavior and attitudes for the campus. This includes the creation of reasonable goals as a part of campus planning (Balyer, 2012). Sergiovanni (2005) would add that leaders should be hopeful based on faith in a set of assumptions. He differentiates the hopeful leader and the wishful leader by emphasizing the call to action that hope instills versus wishful thinking. The wishful leader and the hopeful leader might, for example, desire that the students on their campuses succeed. The hopeful leader, though, is hopeful because he or she has faith in the assumption that all students can succeed if provided with the right resources. This hope based on faith is the call to action that will drive the hopeful leader to seek those resources.

Inspirational motivation involves a leader maintaining and showing sincere optimism and enthusiasm towards a focused vision (Balyer, 2012). Senge's mental model (1990) concept is related to this creation of a vision, so that a series of actions can be planned in order to meet that vision. Inspirational motivation, too, includes hope based on faith in a set of assumptions (Sergiovanni, 2005). He refers to a "covenant of obligations"

that is produced when hope and faith turn into action, serving as the source for "leadership authority" (p. 116).

Individualized consideration, the third feature of transformational leadership, involves a leader serving as a coach or mentor for his or her subordinates (Balyer, 2012). It is important for a principal to build capacity among the teachers for addressing the specific needs of the campus (Bass & Avolio, 1997). On a campus, every individual employee has his or her roles to play in their work, and these roles relate to each other as role sets (Sergiovanni, 2005). No individual holds all the power of the whole work, not even the principal. The principal's role, however, includes understanding the interrelated roles of his or her employees and helping each individual to learn the knowledge and skills to accomplish their work.

The final feature of transformational leadership is intellectual stimulation. This refers to a leader's ability to inspire employees to create on their own, to essentially be leader themselves within the scope of their duties (Balyer, 2012). Crucial to the existence of intellectual stimulation, where employees feel safe and inspired to be active within their roles and interactive among the role sets in which they work, is relational trust (Sergiovanni, 2005). When there are "trust deficits" among teachers and between teachers and the principal people keep ideas to themselves, act on their own instead of as teams, and are less likely to be helpful and open with each other (p. 118).

THE ROLE OF THE PRINCIPAL IN SUPPORTING PLCS

The principal's role on a campus regarding PLC implementation can be divided into three broad functions: creating campus structures to support PLCs, developing the collective knowledge base of best practices, and providing a means for coaching as

needed (Jessup, 2007). Regarding the creation of campus structures, principals must conduct a needs assessment of their campus with the desired PLC practices they wish to implement in mind. When creating master schedules, teacher conference periods, campus committees, and teacher teams, principals must strive to ensure their staff members are provided with appropriate common times in which to work together regularly (Mohabir, 2009). Principals should also establish expectations related to PLC best practices they wish to see implemented with fidelity. For example, an expectation that all teacher teams plan together at least once a week and keep agendas documenting their meetings would provide a nonnegotiable structure in line with a vision that teachers work as teams. While this expectation on its own does not establish productive teaming, it does establish a standard for the campus (Hord & Hirsh, 2009).

To develop the collective knowledge base of PLC best practices, principals must provide opportunities for their teachers to learn from the most currently available professional development opportunities. This includes making research available for teachers (Hord & Hirsh, 2009), allowing teachers opportunities to learn from each other, and creating book study groups (Mohabir, 2009).

Finally, principals must coach (Jessup, 2007) and develop teacher coaches (Mohabir, 2009) so that implementation can be sustained over time and improve. Teachers must learn how to have professional discussions that lead towards decision being made towards the shared goals of the campus and of the team. These discussions can be difficult, especially when they can potentially uncover disagreements among team members about appropriate actions or next steps (Hord & Hirsh, 2009).

INSTRUCTIONAL COACHING

The purpose of creating an Instructional Coach (IC) model, according to Jim Knight's *Instructional Coaching: A Partnership Approach to Improving Instruction* (2007), is ultimately to help teachers apply professional learning through embedded and on-going professional development and theory. Specific programs and initiatives are named, such as working in PLCs, using CHAMPs (a behavior-management program), etc.; however, the main concept of "professional development" is treated more generally by dividing it into the "Big Four" (Knight, 2007): behavior, content knowledge, direct instruction, and formative assessment. These four types of professional development fall within the IC's scope and include the types of foci that an IC might find himself or herself involved in with teachers.

The majority of the Knight's book (2007) explores methods and steps that ICs in his studies used to enroll teachers into allowing themselves to be coached, and then examines actual coaching actions. Coaches have found success through personalized enrollment methods. For example, some groups of teachers are easier to convince to be coached when engaged in small-group or one-on-one dialogues. Others have a professional culture that requires a larger-group presentation of coaching. It is up to the IC to organize the best, most effective method for enrolling teachers, a fact that emphasizes the need for ICs to be familiar with their campus's professional climate and with the particulars of working with adult learners. The IC must form a partnership with teachers. A coach who perceives without judgment and acts as a collaborator sends clear nonverbal signals to teachers that he or she is a fellow teacher working with them, and not acting as a spy for the principal.

Knight's research, conducted over a decade by the Kansas University Center for Research on Learning and the school district in Topeka Kansas, was a part of a program called Pathways to Success. The studies have included interviews with coaches, teachers, campus and district administrators, and other district educators. They have also looked into how deeply implemented coaching has been on the district's high schools and middle schools. Finally, the emphasis for coaching has been what Knight refers to as "hi-fi teaching" in which ICs are meant to show fidelity towards interventions that are "scientifically proven" in regards to their effectiveness on student achievement. The main foundation for Knight's partnership model is based on a study completed in 1998 comparing professional development through "a traditional, lecture-based model" and an instructional coaching model focusing on the partnership attributes outlined above (Knight, 2007).

While student achievement is not the major focus of Knight's book, it does serve as the goal. Achievement outcomes are illustrated to show the effectiveness of the campuses and districts with deeply-embedded instructional coaching partnerships. Knight's work indicated that the primary effectiveness of instructional coaching on student achievement is its emphasis on ensuring implementation of effective professional learning models. Thus, the connection between the IC's involvement and student achievement may not be easily visible, but rather may be best viewed as an intervening variable affecting PLC implementation (Knight, 2007).

The research article "Assessment-based instructional coaching provided to reading intervention teachers" by Carolyn A. Denton, Elizabeth A. Swanson, and Patricia G. Mathes (2007) investigates student assessments, an aspect of instructional coaching

included as one Knight's Big Four areas of professional development. Denton et al. examined Student-Focused Coaching, a model involving teacher PLCs using assessment data, with a coach, to facilitate instructional foci by identifying areas of need for achievement growth. Coaches, in this model,

> (a) answered teachers' questions related to assessment, (b) suggested that teachers implement specific instructional strategies based on assessment results, (c) engaged teachers in examining assessment results and observing students for specific purposes, and (d) provided feedback, especially encouragement, to teachers about students' progress based on assessment results (2007, p. 569).

The concept behind the use of an IC here is similar to that of Knight's model. Professional development – here focused on how to use assessments to drive instructional practices – often becomes disconnected from its meaningful implementation. The IC is used to facilitate the implementation (Denton, Swanson, & Mathes, 2007).

Denton et al. maintain that there is a lack of research related to the effectiveness of coaching (Denton, Swanson, & Mathes, 2007). However, with backgrounds in special education, the authors found that co-teachers and regular education teachers have a relationship similar to a coaching relationship when they work together to create accommodations for students with Individualized Learning Plans (IEPs). With legislation requiring increasing inclusion and mainstreaming of special education students into the general education environment, special education teachers have increasingly been collaborating to ensure that instructional practices are inclusive of the students in their charge.

The Student-Focused Coaching model, with student achievement as the goal, can be called "differentiated coaching" (Denton, Swanson, & Mathes, 2007). Formative assessment data from students and classroom observation data are used by the coach and teachers to determine the types of interventions needed. Classroom observations focus on how teachers and students interact, not merely on the teacher behavior. And finally, the model uses a prescribed problem-solving approach which collaboratively uses the data, sets goals, collaboratively produces strategies to meet those goals, and evaluates the implementation of those strategies and any subsequent field adjustments. Central to the process is continuous formative assessment of student learning and the collection of ongoing student results to inform further instructional planning.

Denton et al. found that among two groups of coaches and teachers, one group using a prescriptive program of assessments and interventions and the other using a more responsive approach to assessment-development and instruction, coaches engaged in similar types of activities. Conversations in both groups included analyses of assessment results, identification of students and curricular areas of need and those that found success, and planning for future instruction. For example, "there was evidence that teachers in both intervention conditions set goals for student performance and adjusted the pacing and focus of instruction" after examining assessment results (Denton, Swanson, & Mathes, 2007).

A Collaborative partnership is clearly indicated by both Knight's work and the research article by Denton et al. While the article focused specifically on certain reading intervention programs tied to assessment and Knight's research included examples with a larger scope of professional development, the keystone to implementation of these

programs was the use of the IC as a fellow team member with the classroom teachers. The student achievement gains that are sought after are directly associated with the successful implementation of vetted programs. The direct connection for instructional coaches is that of successful implementation of the vetted programs itself, not the end result of student achievement. It is therefore difficult to analyze instructional coaching. Ultimately an IC is successful when a team of teachers can be praised for the success of their students. While it does not take away from the teachers to acknowledge the role the IC played in their implementation of effective strategies, it is the individual teacher and the PLC that implemented those effective strategies and helped improve students' achievement.

CHAPTER 3
Methodology

DESCRIPTION OF THE RESEARCH DESIGN

This study examined the relationship between Professional Learning Community (PLC) best-practice implementation and student achievement on state assessments, particularly related to performance of indicator groups like economically disadvantaged. A survey was used to quantify the principals' and instructional coaches' perceptions of PLC best practice implementation by reading and math teachers on their campuses (Appendix D). The quantified survey results were analyzed in light of the STAAR 2012 and TAKS 2011 results by subject (reading and math). By using the Adequate Yearly Progress (AYP) data tables from the Texas Education Agency (TEA) website, the 2012 STAAR results were based on the TAKS equivalency indicator established by TEA (Texas Education Agency, 2011). AYP data tables were appropriate, because they reported passing rates for the fourteen AYP indicator groups used in determining AYP ratings for both the 2011 and 2012 school years. The research examined the relationship between specific PLC categories of best practices and student achievement.

The subjects were asked to complete a survey. Survey respondents were chosen by their positions. A survey was sent to campus principals and to math and reading instructional coaches. Campus principals were asked to complete it once considering reading teachers and once for math. Instructional coaches, who are subject-specific and who may work on two campuses, were asked to complete one survey per campus considering the teachers with whom they work. The survey(s) were designed to be completed in one sitting.

District and campus names will not appear by name in this study.

RESEARCH QUESTIONS

This study used a survey research design to answer questions about the perceived implementation of PLC best-practices and the correlation of those practices with student performance on state assessments. A survey was used to determine the perception principals and ICs have about PLC best-practices on their campuses. The results of this survey were compared between the two groups and were analyzed with state assessment data from two years to answer the following questions:

1. Was there a significant difference in the perception of principals and instructional coaches regarding PLC best-practice implementation in math and reading?
2. Was there a correlation between the perceived implementation of specific components of PLC best-practices and high student achievement?
3. How did the correlation, if any, vary when considering the socioeconomic group economically disadvantaged?
4. Were there specific best-practices among PLC components that educational leaders, especially principals and instructional coaches as campus instructional leaders, can look for and encourage among their teachers that showed strong positive correlations with student achievement?

SETTING

This study was conducted in a large suburban district in Texas. For the purpose of this study, the district is referred to as Exemplary School District. The population of Exemplary ISD was 60,573 students in the 2010-2011 school year. The district ethnic distribution for that year was 9.4% African American, 34.1% Hispanic, 43.1% White, 0.3% American Indian, 10.6% Asian, 0.1% Pacific Islander, and 2.4% Two of More Races. The economically disadvantaged population was 30.2% of the total district population, or 18,292 students (Texas Education Agency, 2011).

For the 2011-2012 school year, Exemplary ISD grew to a population of 62,153 students. The district ethnic distribution for that year was 9.6% African American, 34.3% Hispanic, 42.3% White, 0.3% American Indian, 11.1% Asian, 0.1% Pacific Islander, and 2.4% Two of More Races. The economically disadvantaged population was 31.3% of the total district population, or 19,442 students (Texas Education Agency, 2012).

Table 3- 1

Exemplary ISD Demographic Summary, 2011 and 2012

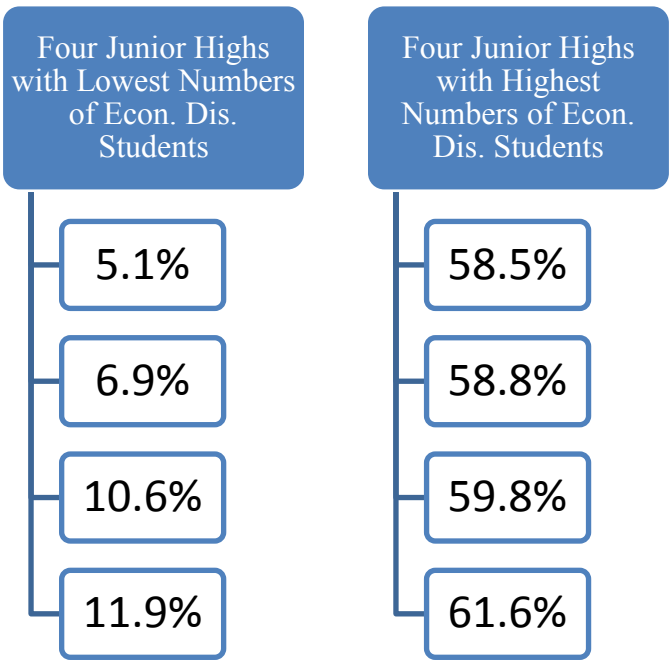
	2010-2011	2011-2012
Total Students	60,573	62,153
African American	9.4%	9.6%
Hispanic	34.1%	34.3%
White	43.1%	42.3%
American Indian	0.3%	0.3%
Asian	10.6%	11.1%
Pacific Islander	0.1%	0.1%
Two or More Races	2.4%	2.4%
Economically Disadvantaged	30.2%	31.3%

Because this study looked at economically disadvantaged student results in addition to results for all students in this school district, it is important to look more-

closely at the stratification of economically disadvantaged students across campuses in the district. There were 12 junior high and 32 elementary campuses in the district during the 2011-2012 school year. Looking at the junior highs, the four campuses with the highest numbers of economically disadvantaged students had proportions of 61.6%, 59.8%, 58.8%, and 58.5% in the 2010-2011 school year (Texas Education Agency, 2011). The four junior high campuses with the lowest number of economically disadvantaged students had proportions of 5.1%, 6.9%, 10.6%, and 11.9%. The elementary campuses, whose students move on to the district's junior highs, had similar numbers.

Illustration 3- 1

Exemplary ISD Economically Disadvantaged Disparities, 2011



The district has grown from 50,725 students in 2006-2007 (Texas Education Agency, 2007) to its current size, a growth of almost 10,000 students in four years. In that time the district's economically disadvantaged population has been increasing, from

24.3%, or 12,326 students, in 2006-2007. One of the four junior highs previously mentioned for the highest proportions of economically disadvantaged students was not yet built in 2007. The other three had 46.9%, 44.6%, and 43.5% of their students classified as economically disadvantaged in 2006-2007 (Texas Education Agency, 2007). Much of the additional socioeconomic diversity over the past several years in the district is located in the attendance zones of these junior highs and the elementary schools that feed into them from fifth grade to sixth grade.

SUBJECTS

All elementary and junior high campus principals plus math and reading instructional coaches from the same suburban Texas school district were included in the survey.

High school campuses were excluded in this study, because high schools utilize STAAR end of course exams in English I, II, & III, Algebra I & II, and Geometry as opposed to the STAAR Reading and Mathematics in grades 3-8. These exams are different enough from high school TAKS English Language Arts and TAKS Mathematics that it was inappropriate to compare for examining student performance growth.

The study was done in a specific suburban Texas school district that has used the language of PLC literature for several years. The study was campus-specific, and therefore required results from multiple campuses.

PLC literature and dialogue concerning PLC as a culture have been important to Exemplary ISD's leadership for the past several years. Several campuses have engaged in book studies using a number of the PLC resources available, especially those that

involved Drs. Richard and Rebecca DuFour. Several of the campus web pages make reference to PLCs and quote or cite the work of the DuFours. In August, 2007, the DuFours, Dr. Bob Eaker and Dr. Crystal Kuykendall headlined a large summit about PLC, hosted by the district and attended by over 6,000 of its employees.

The determination of which staff members received a survey was established by the positions they held: campus principal or instructional coach for math or reading.

PROCEDURES

The survey was sent electronically by email (Appendix E) to the potential respondents in the form of a link to a Google form that collected the results electronically. Survey results were collected with the following identifying information: Campus Initials, Job Title, and Subject. Examples: XYJH, principal, reading; ZE, instructional coach, math. The survey measured thirty items related to the five categories of PLCs, each on a scale of one to five.

The 2012 AYP data tables were downloaded from TEA when they were published, and electronic versions of the tables with Campus Initials and Subject were be created.

AYP data tables include information about assessment performance for math and for reading. Each campus's data tables include current-year and prior-year results for all students, as well as for indicator groups disaggregated by race/ethnicity and statuses regarding economically disadvantaged, limited English proficiency, and special education. For this study, the information for all students and for economically disadvantaged students for each campus was used in conjunction with the survey results.

The 2012 AYP data tables include results from two different state assessments. The TAKS accountability system lasted from 2002-2011. The new Texas assessment program, STAAR, began in the 2011-2012 school year (Cruse & Twing, 2000). STAAR is a more rigorous testing program than TAKS. Both TAKS and STAAR use a method of reporting results where raw scores, or scores equal to the number of items a student gets correct, are converted into scale scores. Scale scores can be compared from year to year for the same test because they take into account metrics related to item rigor (Texas Education Agency, 2012). However, a scale score from a TAKS administration cannot be compared to STAAR. Because of this, TEA conducted a study to determine TAKS equivalency standards for STAAR reading and mathematics assessments (Texas Education Agency, 2011). The 2012 AYP data tables reflect the percentages of students that met minimum standards on TAKS in 2010-2011 and minimum TAKS equivalency standards in 2011-2012 for math and reading.

Before data analysis, the Campus Initials on the survey results and AYP data were masked with randomly-generated numbers.

ANALYSIS

To answer question 1, first descriptive statistics were analyzed. The survey respondents were divided into those that responded for math teachers' PLC implementation and those that responded for reading teachers'. Within the two content areas, the respondents were further divided into the principal and instructional coach groups. This was done to make it possible to compare principal responses by content area to IC responses.

Each survey item was designed to fall under one of the five PLC categories: Shared Mission, Vision, and Set of Goals, Collaborative Teams, Collective Inquiry, Continuous Improvement, and Results-Oriented. Each category had several items within. The respondents' answers to the survey were averaged by category so that each individual respondent had five category ratio scores based on points answered to points possible. The descriptive statistics collected by content area for the principal and IC groups included the number of respondents, the mean survey scores by PLC category, the standard deviations of the survey scores by category, and the range of survey scores by category.

To further answer question 1, two analyses of variance (ANOVAs) were done, once for reading survey respondents and once for math survey respondents, using the survey responses for the two groups of respondents, principals and instructional coaches. The two groups were the independent variables, and the analyses were used to determine the variances in responses between them by PLC category.

To answer questions 2 and 3, the correlation was calculated using the PLC survey responses, by category, and the state assessment results as variables. The correlation was calculated once using reading responses and results and once using math responses and results. Question 2 deals with results for all students, and question 3 deals specifically with the students labeled as economically disadvantaged.

For question 4, a correlation was calculated between the PLC survey responses and the results for math and reading achievement, as well. However, to answer this question each item from the survey was treated as a separate variable instead of grouped by PLC category.

The design for this study was submitted and approved by an Institutional Review Board (IRB) for the University of Houston (Appendix A). Additionally, the district in which the research will be conducted has granted approval through its own review process for external research (Appendix C).

A "Consent to Participate in Research" document was used as the means for informing the potential respondents about the research and confidentiality (Appendix B).

INSTRUMENTS

The survey used for this study was developed using the literature available for Professional Learning Communities (DuFour R. , DuFour, Eaker, & Karhanek, 2004) (DuFour & DuFour, 2012), especially the works that are cited by Exemplary ISD campuses as being a part of their educational philosophies. Each survey item was designed to capture an element or concept of the collaborative model as explored in this literature. Several Solution Tree reproducible surveys regarding PLCs were consulted for examples from which to build a comprehensive PLC implementation perception tool (Reproducibles, 2011).

The survey was designed with section headings matching the five categories of Professional Learning Community (PLC) best practices, as stated in the literature about PLCs. These categories – Shared Mission, Vision, and Set of Goals, Collaborative Teams, Collective Inquiry, Continuous Improvement, and Results-Oriented – were used as the survey indicators for the principal and instructional coach respondents.

Each section of the survey, which covered a category of PLC, contained a number of individual items. The number of items per category varied, because the items were developed to capture the full definition of each individual PLC category as defined by

current PLC literature, especially the works cited by campuses in Exemplary ISD (DuFour R. , DuFour, Eaker, & Karhanek, 2004). The category Shared Mission, Vision, and Set of Goals contained eight survey items. The category Collaborative Teams had five items. The categories Collective Inquiry and Continuous Improvement each contained six items. And the category Results-Oriented had five items. There were a total of thirty survey items.

The items were designed to quantify implementation of PLC best practices on a campus, specifically regarding teachers of reading and math. The survey used a five-point scale that ranges from "Never True" to "Very True." The survey attempted to quantify implementation of PLC best practices from the perspectives of campus principals and content-specific instructional coaches.

When the survey data were collected, validity and reliability checks were done on the instrument, to be included with the findings.

LIMITATIONS

- The data collected for this study were based on perceptions of PLC best-practice implementation on campuses. While the convergence of the perceptions of the two groups surveyed was analyzed – the survey was completed by principals and instructional coaches about the same groups of teachers – the results were subjective. Future research should include a third-party observation protocol to include with perception data. Self-reported survey results could then be compared to the observations of an outside agent.

- Fidelity of PLC implementation was not measured in this study. The survey measured perceptions; a tool was not included to collect information about actual PLC implementation over time. For example, a survey item stated, “the teachers on my campus meet at least once a week as a team.” The study did not follow up and collect the actual number of times the teachers met as a team.
- The survey was not administered to the individual teachers involved in implementing a PLC culture. Principal and ICs cannot be at every meeting of a teacher team and form points of view from impressions at the meetings they have attended. Much of what teachers do individually and as teams does not occur at formal meetings. There are preparations that must be made before meetings. There are action steps that must take place after meetings are concluded. The teachers are the individuals involved at every stage of the work, and future research may want to include this additional perspective.
- This study only used one school district for its potential survey respondents. This limited the number of responses available for analysis. Additionally, the results found in the study were specific to the schools in the district where the study was conducted. PLCs have been implemented in many school districts, and repeating the study with a larger sample size could provide valuable information about PLC implementation on a larger scale.

- The survey instrument used in this study was not field tested prior to use in the study. A reliability test was performed as a part of the study. However, more frequent and varied applications of the instrument, like those stated above, could also provide data for editing the survey to fit a larger audience than just principals and instructional coaches.
- The assessment performance data came from the 2012 federal AYP data tables for the campuses whose principals and ICs were surveyed. In the 2011-2012 school year, students took the new STAAR. The data tables reflected the prior-year's TAKS results and the current year's STAAR results. Because these tests were different, TEA established TAKS equivalency scores for STAAR (Texas Education Agency, 2011). The study used the TAKS equivalency performance results for STAAR to compare with the prior-year TAKS results. However, in spite of the work done to bridge the two assessment systems, STAAR was in its first year of implementation, and this study compared STAAR performance results with performance results from an established assessment, TAKS.

CHAPTER 4
Results

The purpose of this study was to analyze the relationship between perceived implementation of PLC best practices, especially as defined by current PLC literature (DuFour R. , DuFour, Eaker, & Karhanek, 2004), and student achievement on state assessments. To do this, four questions were asked.

1. Was there a significant difference in the perception of principals and instructional coaches regarding PLC best-practice implementation in math and reading?
2. Was there a correlation between the perceived implementation of specific components of PLC best-practices and high student achievement?
3. How did the correlation, if any, vary when considering the socioeconomic group economically disadvantaged?
4. Were there specific best-practices among PLC components that educational leaders, especially principals and instructional coaches as campus instructional leaders, can look for and encourage among teachers which showed strong positive correlations with student achievement?

RELIABILITY OF INSTRUMENT

The survey used to gather principals' and instructional coaches' perceptions regarding PLC best-practice implementation on their campuses was developed for this study (Appendix D). Reliability was established first through the process by which the survey was developed. The survey was broken into the five categories of Professional

Learning Community (PLC) best practices from the literature about PLCs. These categories – Shared Mission, Vision, and Set of Goals, Collaborative Teams, Collective Inquiry, Continuous Improvement, and Results-Oriented – were used as the survey indicators for the principal and instructional coach respondents. Campuses in Exemplary ISD have done book studies and utilized professional development opportunities related to current PLC literature of DuFour et al. To develop the survey, the same literature was studied, and reproducible reference materials available from Solution Tree, the publisher of much of the current PLC literature used by Exemplary ISD, were referenced (Reproducibles, 2011). The survey, using the same literature as Exemplary ISD, utilized language familiar to the respondents.

Additionally, internal consistency was estimated after the survey was administered. The Cronbach's alpha of a group of items can be used to measure how well-related items are to each other. In the case of the survey, the thirty individual items, regardless of their PLC category, were considered to be the group. An alpha greater than 0.70 is generally considered acceptable to show reliable internal consistency among a group of items (Tavakol & Dennick, 2011). The Cronbach's alpha for the survey results was calculated at 0.96, well-above the acceptable 0.70.

CAMPUS STATE ASSESSMENT RESULTS

Survey respondents from twenty one elementary campuses and eleven junior high campuses in Exemplary ISD were included in the study. No respondents' survey results were excluded. Of the elementary campuses, eight earned Recognized ratings in 2011 under the state accountability system based on TAKS performance, and thirteen earned Exemplary ratings. All twenty one elementary campuses met AYP under federal

accountability in 2011, also based on TAKS performance. Of the junior high campuses, two earned Academically Acceptable 2011 state ratings, seven earned Recognized, and two earned Exemplary. However, junior highs JH5 and JH6 did not meet federal AYP that same year due to reading performance on TAKS. JH6 was one of the seven Recognized campuses that year under state accountability, but it failed to meet federal standards for all indicator groups. This illustrates the disparity between the state and federal accountability systems (Texas Education Agency, 2013).

Due to the new STAAR program in 2012, no state accountability ratings were assigned to campuses. Federal AYP ratings were assigned based on the Bridge Study conducted by TEA, connecting STAAR results to equivalent TAKS passing standards (Texas Education Agency, 2011). Only one of the elementary campuses that had survey respondents failed to meet AYP in 2012 based on STAAR performance. That campus, E19, had been Exemplary under the 2011 state accountability system. Four of the junior highs in the study, JH4, JH5, JH8, and JH9, did not meet 2012 AYP standards for math. JH8 also did not meet AYP for reading (Texas Education Agency, 2013).

Tables 4-1 and 4-2 show the 2011 and 2012 state and federal accountability results for the Exemplary ISD campuses included in this study. Tables 4-3 through 4-6 display the passing percentages for the 2011 TAKS and 2012 STAAR reading and math assessments for the campuses.

Table 4- 1

Elementary State and Federal Accountability Ratings

Campus	2011 State Ratings	2011 Federal Ratings	2012 Federal Ratings
E1	Recognized	Met AYP	Met AYP
E2	Exemplary	Met AYP	Met AYP
E3	Recognized	Met AYP	Met AYP
E4	Exemplary	Met AYP	Met AYP
E5	Exemplary	Met AYP	Met AYP
E6	Recognized	Met AYP	Met AYP
E7	Exemplary	Met AYP	Met AYP
E8	Exemplary	Met AYP	Met AYP
E9	Exemplary	Met AYP	Met AYP
E10	Recognized	Met AYP	Met AYP
E11	Exemplary	Met AYP	Met AYP
E12	Recognized	Met AYP	Met AYP
E13	Exemplary	Met AYP	Met AYP
E14	Exemplary	Met AYP	Met AYP
E15	Exemplary	Met AYP	Met AYP
E16	Exemplary	Met AYP	Met AYP
E17	Recognized	Met AYP	Met AYP
E18	Recognized	Met AYP	Met AYP
E19	Exemplary	Met AYP	Not Met, Math
E20	Exemplary	Met AYP	Met AYP
E21	Recognized	Met AYP	Met AYP

Table 4- 2

Junior High State and Federal Accountability Ratings

Campus	2011 State Ratings	2011 Federal Ratings	2012 Federal Ratings
JH1	Exemplary	Met AYP	Met AYP
JH2	Recognized	Met AYP	Met AYP
JH3	Recognized	Met AYP	Met AYP
JH4	Recognized	Met AYP	Not Met, Math
JH5	Academ. Acceptable	Not Met, Reading	Not Met, Math
JH6	Recognized	Not Met, Reading	Met AYP
JH7	Exemplary	Met AYP	Met AYP
JH8	Recognized	Met AYP	Not Met, Math & Reading
JH9	Academ. Acceptable	Met AYP	Not Met, Math
JH10	Recognized	Met AYP	Met AYP
JH11	Recognized	Met AYP	Met AYP

Table 4- 3

Elementary Reading and Math Passing Rates – All Students

Campus	R 2011 TAKS	R 2012 STAAR	M 2011 TAKS	M 2012 STAAR
E1	92%	91%	91%	93%
E2	99%	99%	99%	99%
E3	90%	94%	95%	94%
E4	97%	96%	98%	98%
E5	97%	98%	98%	98%
E6	94%	92%	92%	93%
E7	99%	99%	99%	98%
E8	97%	98%	99%	97%
E9	98%	97%	98%	97%
E10	94%	93%	91%	92%
E11	99%	99%	98%	99%
E12	91%	93%	90%	92%
E13	99%	99%	99%	99%
E14	98%	98%	98%	98%
E15	98%	99%	98%	97%
E16	99%	98%	99%	99%
E17	96%	99%	96%	98%
E18	93%	93%	92%	92%
E19	97%	96%	94%	91%
E20	97%	98%	98%	98%
E21	93%	93%	92%	91%

Table 4- 4

Junior High Reading and Math Passing Rates – All Students

Campus	R 2011 TAKS	R 2012 STAAR	M 2011 TAKS	M 2012 STAAR
JH1	98%	99%	98%	98%
JH2	88%	90%	87%	86%
JH3	97%	97%	95%	94%
JH4	92%	92%	89%	87%
JH5	89%	91%	84%	82%
JH6	87%	91%	89%	91%
JH7	97%	98%	99%	99%
JH8	94%	94%	93%	91%
JH9	90%	91%	84%	79%
JH10	97%	97%	96%	97%
JH11	91%	91%	88%	88%

Table 4- 5

Elementary Reading and Math Passing Rates – Economically Disadvantaged

Campus	R 2011 TAKS	R 2012 STAAR	M 2011 TAKS	M 2012 STAAR
E1	90%	88%	89%	91%
E2	100%	96%	96%	100%
E3	86%	93%	88%	91%
E4	97%	94%	98%	99%
E5	90%	94%	98%	94%
E6	92%	91%	90%	92%
E7	99%	98%	97%	95%
E8	96%	96%	99%	97%
E9	98%	94%	90%	98%
E10	91%	93%	88%	91%
E11	94%	100%	94%	100%
E12	87%	92%	84%	89%
E13	100%	100%	97%	100%
E14	92%	82%	96%	91%
E15	88%	97%	92%	97%
E16	98%	96%	99%	99%
E17	86%	98%	86%	98%
E18	94%	94%	93%	91%
E19	97%	96%	94%	89%
E20	97%	95%	95%	100%
E21	90%	91%	91%	90%

Table 4- 6

Junior High Reading and Math Passing Rates – Economically Disadvantaged

Campus	R 2011 TAKS	R 2012 STAAR	M 2011 TAKS	M 2012 STAAR
JH1	96%	95%	99%	99%
JH2	86%	88%	84%	83%
JH3	94%	94%	84%	87%
JH4	88%	87%	83%	80%
JH5	87%	90%	82%	80%
JH6	82%	89%	86%	90%
JH7	93%	94%	98%	98%
JH8	89%	88%	89%	84%
JH9	88%	88%	80%	75%
JH10	97%	93%	92%	89%
JH11	86%	89%	83%	85%

Overall, the results from state math assessments in Exemplary ISD in 2011 and 2012 were lower than those of reading assessments. The mean and median passing percentages were lower for the math assessments for all students and for economically disadvantaged students. While there were high performing campuses that had 99 or 100 percent of their students pass both subjects, the minimum range math passing rates were all lower than the reading minimum passing rates.

Table 4- 7

Descriptive Statistics for Exemplary ISD State Assessment Results, 2011 and 2012

	Mean	Median	SD	Minimum	Maximum	Range
R 2011 TAKS % Passed All	94.19	96.00	4.034	87	99	12
R 2012 STAAR % Passed All	94.77	96.00	3.285	90	99	9
R 2011 TAKS % Passed Econ. Dis.	91.43	90.00	5.272	82	100	18
R 2012 STAAR % Passed Econ. Dis.	92.25	93.00	4.127	82	100	18
M 2011 TAKS % Passed All	93.06	94.00	5.308	84	99	15
M 2012 STAAR % Passed All	92.42	93.00	6.068	79	99	20
M 2011 TAKS % Passed Econ. Dis.	89.79	90.00	6.200	80	99	19
M 2012 STAAR % Passed Econ. Dis.	90.36	91.00	7.390	75	100	25

RESULTS FOR QUESTION ONE

To answer question one, descriptive statistics were first analyzed. The survey results were divided into math and reading content areas based upon which subject the respondents selected. Within each content area, the principals' results were separated from the instructional coaches' results.

The survey items were designed within five defined categories of PLC best practices:

- C1) Shared Mission, Vision, and Set of Goals,
- C2) Collaborative Teams,
- C3) Collective Inquiry,
- C4) Continuous Improvement, and
- C5) Results-Oriented.

These categories served as indicator groups for data analysis. Each respondent's answers were turned into ratios of total points answered for the category to total points possible for that category and converted to a 100-point scale. For example, there were eight questions under the category of Shared Mission, Vision, and Set of Goals (C1). A respondent who answered "4" for all of these items (C1Qa – C1Qh) would have a ratio of 32:40, or a scale score of 80.

Table 4- 8

Example of a respondent's scaled ratio

C1 Qa	C1 Qb	C1 Qc	C1 Qd	C1 Qe	C1 Qf	C1 Qg	C1 Qh	C1 Total Points Possible	C1 Total Chosen	C1 Ratio
4	4	4	4	4	4	4	4	40	32	80

In all categories for both content areas, the principals' mean scaled ratios were higher than the instructional coaches' mean scaled ratios. This means that the principals, on average, rated their math and reading teachers' PLC best practice implementation higher than ICs. In C1 for math, ICs had a mean scaled ratio of 74, while principals had one of 87. For reading, ICs had a ratio of 78, and principals had a ratio of 86. In C2 for

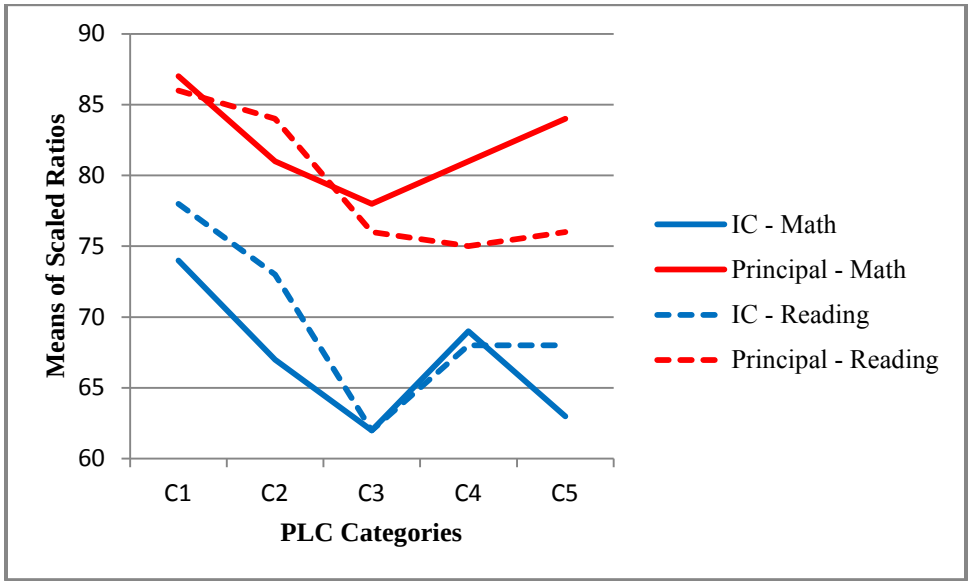
math, ICs and principals had ratios of 67 and 81, respectively. For reading it was 73 and 84. In C3 for math, ICs had a ratio of 62, and principals had one of 78. For reading it was 62 and 76. In C4 for math, ICs and principals had ratios of 69 and 81, respectively. For reading they had 68 and 75. Finally in C5 for math, ICs had a ratio of 63, and principals had one of 84. For reading it was 68 and 76.

There are also different trends for the mean scaled ratios for categories four and five. ICs rated the category four items – those concerning Continuous Improvement, about the same for math and reading. Principals, however, rated Continuous Improvement implementation among reading teachers lower than math teachers. Principals also rated Results-Oriented items lower for reading teachers than for math teachers, while ICs did the opposite.

Figure 4-1 shows the comparison between the two groups of respondents' mean ratios for both content areas. The mean ratios are also shown in Tables 4-2 and 4-3 below.

Figure 4- 1

Means of Scaled Ratios for Both Response Groups and Both Content Areas



Principals also responded to the survey categories with greater consistency than ICs in all categories for both content areas except for one. The standard deviations for the instructional coaches' responses for the math content area are all greater than those of the principals' responses. In C1 – C5 for math, ICs had standard deviations of 17, 15, 18, 14, and 18. In the same categories, principals had standard deviations of 7, 9, 9, 8, and 11. The ICs were replying to the survey about the math teachers on their campuses with greater variance than the principals.

For the reading content area, the differences between the ICs' and principals' standard deviations are less, and, in the case of C2, the principals' responses show slightly more variance than those of the ICs. In C1 – C5 for reading, the ICs had standard deviations of 13, 12, 15, 14, and 17. In the same categories, principals had standard deviations of 10, 13, 12, 11, and 13.

Tables 4-9 and 4-10 show the descriptive statistics for the mathematics and reading-related responses, respectively.

Table 4- 9

Descriptive Statistics for Survey Responses – Mathematics

		N	Mean	SD	Minimum	Maximum	Range
C1Ratio	IC	15	74	17	53	100	47
	Principal	8	87	7	78	95	17
C2Ratio	IC	15	67	15	44	92	48
	Principal	8	81	9	60	88	28
C3Ratio	IC	15	62	18	30	90	60
	Principal	8	78	9	60	90	30
C4Ratio	IC	15	69	14	47	90	43
	Principal	8	81	8	70	93	23
C5Ratio	IC	15	63	18	36	62	26
	Principal	8	84	11	68	96	28

Table 4- 10

Descriptive Statistics for Survey Responses – Reading

		N	Mean	SD	Minimum	Maximum	Range
C1Ratio	IC	13	78	13	58	93	35
	Principal	17	86	10	70	100	30
C2Ratio	IC	13	73	12	56	88	32
	Principal	17	84	13	52	100	48
C3Ratio	IC	13	62	15	40	80	40
	Principal	17	76	12	57	97	40
C4Ratio	IC	13	68	14	47	93	46
	Principal	17	75	11	50	97	47
C5Ratio	IC	13	68	17	44	96	52
	Principal	17	76	13	56	100	44

To determine whether the differences in the responses between the groups of instructional coaches and principals were significant, two Analyses of Variance

(ANOVAs) were calculated. The math and the reading responses were again treated separately.

For survey responses related to math teachers' PLC implementation, significance was found in the differences between the ICs' and principals' ratings in four out of the five PLC categories. The PLC categories of Collaborative Teams (C2), Collective Inquiry (C3), and Continuous Improvement (C4) had significance in the variance of responses of the two groups at or less than the 0.05 level. The Results-Oriented (C5) responses had significance in their variance at the 0.01 level.

The reading responses had fewer categories with significant variance than the math responses. Only Collaborative Teams (C2) and Collective Inquiry (C3) had significance below the 0.05 level. In this case, the Collective Inquiry (C3) responses had significance in their variance at the 0.01 level.

Tables 4-11 and 4-12 show the results of the ANOVAs for mathematics and reading survey results, respectively. Categories with a statistically significant variance at or less than the 0.05 level have been marked with a single asterisk. Those with a statistically significant variance at or less than the 0.01 level have been marked with two asterisks.

Table 4- 11

ANOVA for IC and Principal Responses – Mathematics

		Sum of Squares	df	Significance
C1Ratio	Between Groups	801.687	1	0.06
	Within Groups	4145.052	21	
	Total	4946.739	22	
C2Ratio	Between Groups	993.6	1	0.03*
	Within Groups	3902.4	21	
	Total	4896	22	
C3Ratio	Between Groups	1253.478	1	0.03*
	Within Groups	4967.778	21	
	Total	6221.256	22	
C4Ratio	Between Groups	772.319	1	0.04*
	Within Groups	3190	21	
	Total	3962.319	22	
C5Ratio	Between Groups	2374.493	1	0.01**
	Within Groups	5333.333	21	
	Total	7707.826	22	

Table 4- 12

ANOVA for IC and Principal Responses – Reading

		Sum of Squares	df	Significance
C1Ratio	Between Groups	495.499	1	0.06
	Within Groups	3693.043	28	
	Total	4188.542	29	
C2Ratio	Between Groups	817.433	1	0.03*
	Within Groups	4123.367	28	
	Total	4940.8	29	
C3Ratio	Between Groups	1396.965	1	0.01**
	Within Groups	5213.776	28	
	Total	6610.741	29	
C4Ratio	Between Groups	363.928	1	0.15
	Within Groups	4612.368	28	
	Total	4976.296	29	
C5Ratio	Between Groups	452.462	1	0.16
	Within Groups	6091.005	28	
	Total	6543.467	29	

RESULTS FOR QUESTIONS TWO AND THREE

Questions two and three of this study are similar to each other and can be studied together. To answer both questions, the responses of the two groups, ICs and principals, were not analyzed separately as before. Instead, responses were grouped by the content areas reading and math. These responses, as scaled ratios by category, were compared with two sets of state assessment data for the schools at which the respondents worked. The assessments used were the 2011 TAKS and 2012 STAAR for both reading and math. The percentages of students that Met Standard for TAKS were used as the passing percentages of the campuses for each subject on those assessments. For STAAR, passing for this study meant meeting the TAKS Equivalency standard established by the Texas Education Agency (Texas Education Agency, 2011).

Question two, asking about a possible correlation between the perceived implementation of PLC best practices and student achievement, concerns the results of all students tested. Starting with reading responses, significant positive correlations were found to exist between the perceived implementation by reading teachers of PLC categories C1, C2, C3, and C4 and both the TAKS and STAAR reading results. Correlations were considered significant if they were at or below the .05 level. This means that when principals and ICs rated the implementation of PLC practices in categories C1, C2, C3, and C4 at higher rates, TAKS and STAAR reading scores were higher. The only PLC category that did not have a significant correlation with assessment results in reading was category C5, Results-Oriented. This means that among Exemplary ISD's respondents concerning reading teachers, perceptions of Results-Oriented PLC practices did not have a significant relationship with state assessment results. These findings are included in Table 4-13.

Table 4- 13

Correlation of Reading Responses by PLC Category to State Assessment Passing Results for All Students

		R 2011 TAKS % Passed	R 2012 STAAR % Passed
C1Ratio	Pearson Correlation	.431*	.395*
	Sig. (2-tailed)	.017	.031
	N	30	30
C2Ratio	Pearson Correlation	.529**	.467**
	Sig. (2-tailed)	.003	.009
	N	30	30
C3Ratio	Pearson Correlation	.526**	.424**
	Sig. (2-tailed)	.003	.020
	N	30	30
C4Ratio	Pearson Correlation	.501**	.428*
	Sig. (2-tailed)	.005	.018
	N		
C5Ratio	Pearson Correlation	.268	.203
	Sig. (2-tailed)	.152	.281
	N	30	30

* Correlation is significant at the 0.05 level (2-tailed).

** Correlation is significant at the 0.01 level (2-tailed).

Unlike the survey responses for reading, no significant correlations were found to exist between any of the PLC categories' perceived implementation among math teachers and state assessment results. This means that the responses to the survey could not be related to assessment results with any significance. These results are shown in Table 4-14.

Table 4- 14

Correlation of Math Responses by PLC Category to State Assessment Passing Results for All Students

		M 2011 TAKS % Passed	M 2012 STAAR % Passed
C1Ratio	Pearson Correlation	.161	.039
	Sig. (2-tailed)	.464	.860
	N	23	23
C2Ratio	Pearson Correlation	.097	-.039
	Sig. (2-tailed)	.660	.860
	N	23	23
C3Ratio	Pearson Correlation	.115	.052
	Sig. (2-tailed)	.602	.814
	N	23	23
C4Ratio	Pearson Correlation	.218	.100
	Sig. (2-tailed)	.317	.650
	N	23	23
C5Ratio	Pearson Correlation	.104	.011
	Sig. (2-tailed)	.636	.959
	N	23	23

* Correlation is significant at the 0.05 level (2-tailed).
** Correlation is significant at the 0.01 level (2-tailed).

Question three is similar to question two, but it only concerns assessment results for economically disadvantaged students. To answer question three, the same reading and math PLC category ratios from question two were compared with the same assessments, only this time using economically disadvantaged students' results instead of all students'.

The results for the reading responses compared to assessment results for just economically disadvantaged students are different to those when compared with all students. In the case of economically disadvantaged students, the significant positive

correlations were found to exist between perceived implementation of categories C2, C3, and C4 and TAKS reading results. Categories C1 and C5 had no significant relationships with assessment results. Also, there were no significant correlations between any of the PLC categories' perceived implementation and STAAR results for economically disadvantaged students. Table 4-15 shows these findings.

Table 4- 15

Correlation of Reading Responses by PLC Category to State Assessment Passing Results for Economically Disadvantaged Students

		R 2011 TAKS % Passed	R 2012 STAAR % Passed
C1Ratio	Pearson Correlation	.258	.106
	Sig. (2-tailed)	.168	.579
	N	30	30
C2Ratio	Pearson Correlation	.388*	.148
	Sig. (2-tailed)	.034	.434
	N	30	30
C3Ratio	Pearson Correlation	.412*	.043
	Sig. (2-tailed)	.024	.820
	N	30	30
C4Ratio	Pearson Correlation	.374*	.144
	Sig. (2-tailed)	.042	.446
	N	30	30
C5Ratio	Pearson Correlation	.232	-.073
	Sig. (2-tailed)	.217	.703
	N	30	30

* Correlation is significant at the 0.05 level (2-tailed).

** Correlation is significant at the 0.01 level (2-tailed).

The survey responses about math PLC perceived implementation compared to economically disadvantaged student results matched exactly the results when compared

to all students. That is, no significant correlations were found between survey responses by category and assessment results on either TAKS or STAAR. The results of these comparisons are shown in Table 4-16.

Table 4- 16

Correlation of Math Responses by PLC Category to State Assessment Passing Results for Economically Disadvantaged Students

		M 2011 TAKS % Passed	M 2012 STAAR % Passed
C1Ratio	Pearson Correlation	.172	.115
	Sig. (2-tailed)	.432	.602
	N	23	23
C2Ratio	Pearson Correlation	.264	.114
	Sig. (2-tailed)	.224	.605
	N	23	23
C3Ratio	Pearson Correlation	.219	.176
	Sig. (2-tailed)	.316	.423
	N	23	23
C4Ratio	Pearson Correlation	.249	.145
	Sig. (2-tailed)	.252	.509
	N	23	23
C5Ratio	Pearson Correlation	.064	.030
	Sig. (2-tailed)	.772	.890
	N	23	23

* Correlation is significant at the 0.05 level (2-tailed).

** Correlation is significant at the 0.01 level (2-tailed).

To summarize, perceptions of PLC best practice implementation concerning reading teachers had significant positive correlations with student achievement on state assessments in categories C1, C2, C3, and C4 when compared to all students' results. However, the significant positive correlations only existed with TAKS, and not with

STAAR, in categories C2, C3, and C4 when compared to only economically disadvantaged students' results. No significant correlations were found, regardless of student group, between perceived PLC implementation by math teachers and state assessment.

RESULTS FOR QUESTION FOUR

The final research question for this study asks if there are any specific PLC best practices that, based on perceived implementation, have a correlation with student achievement. For this analysis, the individual items from the survey were treated separately and compared with student achievement on the TAKS and STAAR reading and math administrations of 2011 and 2012. All 53 respondents' scores were included together, as well. Several items had significant correlations with students' results on some of the state assessments. For the purposes of this study, items of note were considered as those that had significant correlations with at least three of the assessments. This is because to have significant correlations with at least three assessments at least one math and one reading, as well as at least one TAKS and one STAAR, will had to have occurred.

PLC category one – Shared Mission, Vision, and Set of Goals – contained eight survey items. These items are included in Table 4-17 as C1Qa - C1Qh. Three of the items, C1Qb, C1Qe, and C1Qh, had significant correlations with at least three of the assessments.

Table 4- 17

Shared Mission, Vision, and Set of Goals Questions Compared with Assessment Results

		R 2011 TAKS % Passed	R 2012 STAAR % Passed	M 2011 TAKS % Passed	M 2012 STAAR % Passed
C1 Qa	Pearson Correlation	.213	.220	.272*	.234
	Sig. (2-tailed)	.126	.114	.049	.091
	N	53	53	53	53
C1 Qb	Pearson Correlation	.338*	.287*	.320*	.254
	Sig. (2-tailed)	.013	.037	.019	.066
	N	53	53	53	53
C1 Qc	Pearson Correlation	.249	.279*	.308*	.262
	Sig. (2-tailed)	.072	.043	.025	.058
	N	53	53	53	53
C1 Qd	Pearson Correlation	.172	.242	.246	.196
	Sig. (2-tailed)	.219	.080	.075	.159
	N	53	53	53	53
C1 Qe	Pearson Correlation	.282*	.274*	.304*	.305*
	Sig. (2-tailed)	.041	.047	.027	.026
	N	53	53	53	53
C1 Qf	Pearson Correlation	.052	.071	.065	.076
	Sig. (2-tailed)	.714	.611	.646	.588
	N	53	53	53	53
C1 Qg	Pearson Correlation	.159	.131	.123	.100
	Sig. (2-tailed)	.256	.348	.381	.475
	N	53	53	53	53
C1 Qh	Pearson Correlation	.382**	.333*	.360**	.331*
	Sig. (2-tailed)	.005	.015	.008	.016
	N	53	53	53	53

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

PLC category two – Collaborative Teams – contained five survey items. These items are included in Table 4-18 as C2Qa – C2Qe. Two of the items, C2Qd and C2Qe, had significant correlations with at least three of the assessments.

Table 4- 18

Collaborative Teams Questions Compared with Assessment Results

		R 2011 TAKS % Passed	R 2012 STAAR % Passed	M 2011 TAKS % Passed	M 2012 STAAR % Passed
C2 Qa	Pearson Correlation	.266	.157	.123	.056
	Sig. (2-tailed)	.054	.262	.379	.690
	N	53	53	53	53
C2 Qb	Pearson Correlation	.164	.128	.111	.075
	Sig. (2-tailed)	.242	.362	.431	.591
	N	53	53	53	53
C2 Qc	Pearson Correlation	.304*	.256	.293*	.255
	Sig. (2-tailed)	.027	.064	.033	.066
	N	53	53	53	53
C2 Qd	Pearson Correlation	.369**	.374**	.381**	.298*
	Sig. (2-tailed)	.007	.006	.005	.030
	N	53	53	53	53
C2 Qe	Pearson Correlation	.356**	.343*	.357**	.290*
	Sig. (2-tailed)	.009	.012	.009	.035
	N	53	53	53	53

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

PLC category three – Collective Inquiry – contained six survey items. These items are included in Table 4-19 as C3Qa – C2Qf. Two of the items, C3Qb and C3Qf, had significant correlations with at least three of the assessments.

Table 4- 19

Collective Inquiry Questions Compared with Assessment Results

		R 2011 TAKS % Passed	R 2012 STAAR % Passed	M 2011 TAKS % Passed	M 2012 STAAR % Passed
C3 Qa	Pearson Correlation	.344*	.261	.330*	.279*
	Sig. (2-tailed)	.012	.059	.016	.043
	N	53	53	53	53
C3 Qb	Pearson Correlation	.386**	.325*	.414**	.364**
	Sig. (2-tailed)	.004	.017	.002	.007
	N	53	53	53	53
C3 Qc	Pearson Correlation	.169	.141	.171	.138
	Sig. (2-tailed)	.227	.316	.222	.324
	N	53	53	53	53
C3 Qd	Pearson Correlation	.203	.244	.277*	.271
	Sig. (2-tailed)	.146	.078	.045	.050
	N	53	53	53	53
C3 Qe	Pearson Correlation	.143	.099	.206	.204
	Sig. (2-tailed)	.308	.481	.139	.143
	N	53	53	53	53
C3 Qf	Pearson Correlation	.335*	.298*	.306*	.280*
	Sig. (2-tailed)	.014	.030	.026	.042
	N	53	53	53	53

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

PLC category four – Continuous Improvement – contained six survey items. These items are included in Table 4-20 as C4Qa – C4Qf. Four of the items, C4Qa, C4Qc. C4Qd, and C4Qf, had significant correlations with at least three of the assessments.

Table 4- 20

Continuous Improvement Questions Compared with Assessment Results

		R 2011 TAKS % Passed	R 2012 STAAR % Passed	M 2011 TAKS % Passed	M 2012 STAAR % Passed
C4 Qa	Pearson Correlation	.342*	.322*	.316*	.245
	Sig. (2-tailed)	.012	.019	.021	.077
	N	53	53	53	53
C4 Qb	Pearson Correlation	.119	.057	.026	.009
	Sig. (2-tailed)	.398	.686	.856	.947
	N	53	53	53	53
C4 Qc	Pearson Correlation	.341*	.294*	.273*	.184
	Sig. (2-tailed)	.012	.033	.048	.187
	N	53	53	53	53
C4 Qd	Pearson Correlation	.326*	.339*	.372**	.351**
	Sig. (2-tailed)	.017	.013	.006	.010
	N	53	53	53	53
C4 Qe	Pearson Correlation	.029	.043	.071	.086
	Sig. (2-tailed)	.839	.759	.612	.538
	N	53	53	53	53
C4 Qf	Pearson Correlation	.509**	.516**	.523**	.453**
	Sig. (2-tailed)	.000	.000	.000	.001
	N	53	53	53	53

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

PLC category five – Results-Oriented – contained five survey items. These items are included in Table 4-21 as C5Qa – C5Qe. Only one of the items, C5Qd, had significant correlations with at least three of the assessments.

Table 4- 21

Results-Oriented Questions Compared with Assessment Results

		R 2011 TAKS % Passed	R 2012 STAAR % Passed	M 2011 TAKS % Passed	M 2012 STAAR % Passed
C5 Qa	Pearson Correlation	-.050	-.053	.026	-.021
	Sig. (2-tailed)	.722	.707	.854	.882
	N	53	53	53	53
C5 Qb	Pearson Correlation	.115	.106	.120	.040
	Sig. (2-tailed)	.413	.450	.391	.778
	N	53	53	53	53
C5 Qc	Pearson Correlation	.032	.040	.050	-.039
	Sig. (2-tailed)	.822	.777	.723	.784
	N	53	53	53	53
C5 Qd	Pearson Correlation	.276*	.285*	.317*	.247
	Sig. (2-tailed)	.046	.039	.021	.074
	N	53	53	53	53
C5 Qe	Pearson Correlation	.216	.205	.264	.190
	Sig. (2-tailed)	.120	.141	.057	.173
	N	53	53	53	53

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

To summarize the results for question four, thirteen out of the thirty survey items had significant positive correlations with at least three out of the four assessments used in this study. This means that on these thirteen items, when the respondents perceived high implementation of the PLC practice there also existed high levels of student achievement on at least three of the assessments. Illustration 4-1 shows these survey items.

Figure 4- 2

PLC Best Practice Survey Items That Significantly Correlated with State Assessment Results

C1. Shared Mission, Vision, and Set of Goals
- The teachers on my campus are fully aware of the PLC question: How will we know if our students are learning?
- The leaders on my campus consistently "sell" the vision that the purpose of the school is to ensure high levels of learning for all students.
- The teacher teams on my campus work together to develop SMART goals (Strategic, Measurable, Attainable, Results-oriented, and Time-bound) related to student achievement. [NOTE: They do not necessarily have to use the SMART acronym to follow this process.]

C2. Collaborative Teams
- The teacher teams on my campus establish purposeful tasks to be completed at meetings that prioritize time to be spent focused on work aligned with goals.
- The teacher teams on my campus consistently accomplish their tasks as planned at meetings.

C3. Collective Inquiry
- The teacher teams on my campus consistently ask questions about what is working related to their goals in an attempt to deconstruct problems.
- The teacher teams on my campus consistently ask questions about what is not working related to their goals in an attempt to deconstruct problems.
- The teachers on my campus work interdependently with their teammates and campus leaders to find resources and researched best-practices related to their collective inquiry.

C4. Continuous Improvement
- The teacher teams on my campus understand that continuous improvement is a cycle that includes goal-setting, designing measurement tools (like assessments), implementing planned actions (like lessons with particular instructional strategies) with fidelity, data collection and analysis, and establishing new goals based on results.
- The teacher teams on my campus consistently use formative and summative assessments appropriately.
- The teachers on my campus are willing to alter their instructional practices based on collaboratively-identified areas of concern.
- The teacher teams on my campus regularly prepare enrichment activities for students who surpass achievement goals.

C5. Results-Oriented
- The teacher teams on my campus regularly analyze common assessment data related to individual students as a means to identify students in need of intervention or enrichment activities.

CHAPTER 5
Conclusions

OVERVIEW OF STUDY

The purpose of this study was to look for a possible connection between the professional practices of collaboration being implemented in schools and districts and the specific goal of improving student achievement. Specifically, Exemplary ISD in Texas, like many others, has studied and implemented PLCs as defined by contemporary popular education literature (DuFour R. , DuFour, Eaker, & Karhanek, 2004).

The ever present high stakes accountability system of Texas and the federal NCLB laws are factors in the drive for school improvement. With the introduction of STAAR in the 2011-2012 school year, Texas public school students have the most rigorous criterion-referenced assessments in the long history of Texas assessment programs dating back to the early 1980s.

The study sought to answer four questions related to PLC best practices and state assessment results.

1. Was there a significant difference in the perception of principals and instructional coaches regarding PLC best-practice implementation in math and reading?
2. Was there a correlation between the perceived implementation of specific components of PLC best-practices and high student achievement?
3. How did the correlation, if any, vary when considering the socioeconomic group economically disadvantaged?

4. Were there specific best-practices among PLC components that educational leaders, especially principals and instructional coaches as campus instructional leaders, can look for and encourage among their teachers that showed strong positive correlations with student achievement?

Discussion of Results

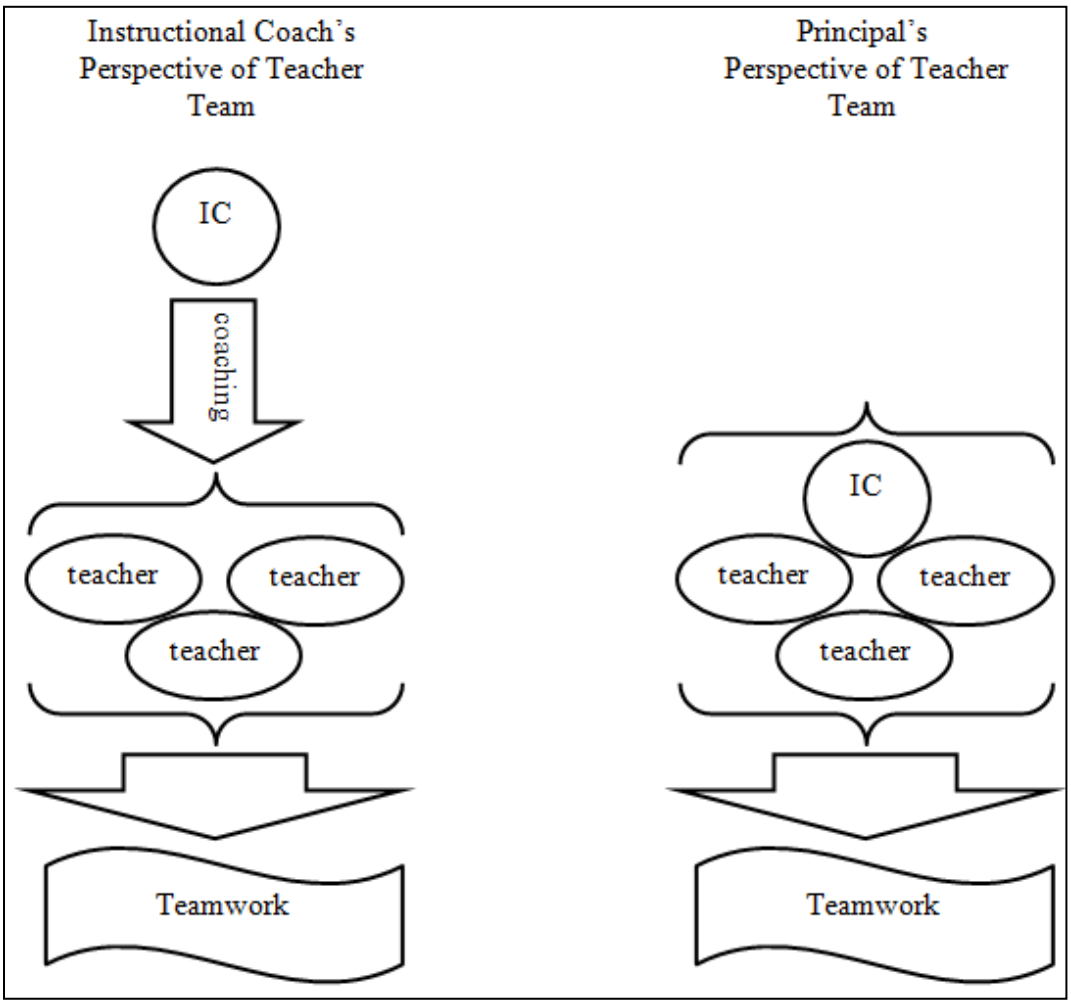
This study found that differences did exist between instructional coaches and campus principals regarding perceptions of PLC best practice implementation, and some of those differences were statistically significant. First, principals tended to rate their teachers' PLC implementation higher than instructional coaches, regardless of content area. There was also more consistency among principals' responses than among instructional coaches' responses. It is possible that this is due in part to the nature of the role ICs play with the team of teachers they were considering with the survey. ICs are meant to be lead members of the teams of teachers with which they work. It is a part of the partnership philosophy (Knight, 2007), that the IC leads through influence rather than authority as a team member rather than an appraiser. As such, ICs may be inclined to be hypercritical of the teams with which they work, causing them to proudly rank high a team that has implemented a practice to their satisfaction and rank low a team with which they have struggled to progress. A principal, on the other hand and regardless of leadership style, is the ultimate appraiser and manager of the campus. A principal's perception may be more inclined to be global, leading to the consistency among responses found in the survey.

ICs, working more closely with teacher teams, were likely to have had perceptions of the team dynamics that recognized the individual teachers' roles on the team and may have completed the survey with this in mind. A team of three teachers might have had two teachers with sound PLC practices and a third who did not match the culture of PLCs. The IC, knowing this, might have rated the team lower. The principal, however, might have rated the team higher, viewing the work of the two teachers as the work of all three.

As ICs were asked to consider PLC implementation among teachers, they were put into a forced perspective where they discounted their own roles on the teams. For example, an instructional coach that has struggled all year to help a team implement a culture of collective inquiry and has felt resistance from the team every step of the way would have been inclined to rate the team's Collective Inquiry (C3) survey items low. The principal on that campus would have observed a team that increasingly engaged in collective inquiry as the year progressed and would have rated the team higher. The principal would have been rating the team based on the IC's work, while the IC would have removed his or her own role with the team. Essentially, in this scenario, the survey measured two different teams, one with and one without the IC. Illustration 5-1 demonstrates the differing perspectives of a teacher team's work between an IC and a principal.

Illustration 5- 1

Perspective Comparison Between and IC and a Principal Regarding a Teacher Team's Work



There is a need for further research into the reasons why principals rated PLC implementation consistently higher than instructional coaches. What could be the actual reasons for the discrepancies between these two groups? Districts like Exemplary ISD have embraced the concepts behind PLCs for several years and have identified PLC practices as being important. Conversations between and among campus leaders need to occur to identify the reasons for different opinions about PLC implementation.

Improvement plans should reflect perceived deficits in best practices as assessed needs and should design goals and action steps towards improvement.

Regarding the significance of the differences between principals' and ICs' perceptions, there were more PLC categories with significant variances for math than for reading. Math analysis found significance in the variances for the categories Collaborative Teams (C2), Collective Inquiry (C3), Continuous Improvement (C4), and Results-Oriented (C5). Reading only had significance in the variances for the categories Collaborative Teams (C2) and Collective Inquiry (C3).

The reason for this difference may be related to the greater emphasis Exemplary ISD and other Texas school districts have had to place on math versus on reading with regards to assessment scores and accountability ratings. All of the campuses in Exemplary ISD that did not meet AYP standards in 2012 were affected by their math scores, with only one campus also not meeting for reading scores. Principals may have a more focused awareness of their math teachers than of their reading teachers. ICs for math may be under more pressure for their student performance than reading ICs. While this study sought to discover whether a significant difference existed between ICs and principals regarding their perceptions of PLC best practices, it may have uncovered a difference between perceptions by content area. Future research should focus on understanding the reasons for this.

Questions two and three both dealt with looking for a connection between perceived PLC implementation and student performance on state assessments. Question two was designed to look at all students, while question three focused only on economically disadvantaged students.

The perceived implementation of PLC best practices by reading teachers' were found to significantly correlate with all students' results on state assessments, both TAKS and STAAR, in the categories Shared Mission, Vision, and Set of Goals (C1), Collaborative Teams (C2), Collective Inquiry (C3) and Continuous Improvement (C4). They were also found to significantly correlate with TAKS performance for economically disadvantaged students in the categories Collaborative Teams (C2), Collective Inquiry (C3) and Continuous Improvement (C4). No correlations were found when the perceived implementations by math teachers were compared.

One possible reason why the significant correlations found for questions two and three existed when they did and for which subject may be related to the higher degree of significant variance found between principals' and ICs' survey responses for math teachers than for reading teachers. For questions two and three, the principals' and ICs' responses were combined for each subject before being compared with assessment results. The results from question one revealed that instructional coaches and principals significantly varied in their perceptions of PLC implementation among math teachers. The differences in the two groups' survey responses could have been such that the combined set of responses was not consistent enough to have a correlation with the math results.

To further investigate the discrepancy between math and reading results for questions two and three, future research should consider surveying more observers per campus regarding PLC implementation, such as the teachers or an outside evaluator. More points of view, including a potentially more objective perspective from an outside

evaluator, could assist in the development of a process for more accurate measurements of PLC implementation.

Another possible source for the results found for questions two and three was the use of passing rates alone as measures for student achievement. Analyzing student achievement could also include progress measures, which would give credit to campuses that had students grow from one year to the next in terms of math and reading assessment results. The addition of progress measures to future studies could broaden the scope of the results.

Finally, question four dealt with each survey item individually and its relationship with student achievement. For this question, some of the items had significant positive correlations with all four state assessment used in the study. Others had significant correlations with a few of the assessments.

Thirteen of the survey items were found to have significant positive correlations with at least three of the assessments. This means that for thirteen items, when the perceived PLC implementation was rated high, student performance on at least one math and one reading assessment, as well as on at least one TAKS and one STAAR, was also high.

As with the results for questions two and three, the significant correlations found for question four cannot be generalized to extend beyond the specific instances included in this study. However, campuses like those included in the survey that have implemented PLCs over the past several years have a stake in determining how well-implemented PLC best practices are on their campuses.

IMPLICATIONS FOR SCHOOL LEADERS

Campuses like those included in this study that have embraced the philosophies behind Professional Learning Communities have a vested interest in the results of this study and in studies like this. When programs are in place, program evaluation is necessary in order for appropriate attention to be given to fidelity of implementation. School leaders like those of Exemplary ISD who have attempted to implement the practices of PLC literature can potentially take the findings of this study and apply them to their campuses. For starters, a campus with a form of instructional coaching, whether through a dedicated staff member as in Exemplary ISD or through district facilitators who frequently work with teacher teams, can use the survey from this study as a starting point for needs assessment conversations. The principal and the leadership team for the campus, including instructional coaches, could all take the survey and share their responses. Based on this study, there may be significance in the differences among their responses, especially in math. After comparing responses, the team could then engage in a protocol designed to reveal the reason for their differences. Perhaps the ICs see something in the day-to-day operations of teacher teams that the principals do not. Perhaps principals see something in the big picture of which ICs are not aware.

Additionally, respondents for the PLC best practice implementation by reading teachers did have some significant relationships with state assessment results. While the correlations discovered in this study do not in themselves indicate a cause and effect relationship, there may be features of PLC categories one, two, three, and four that can foster school improvement. Campuses that do not have those features implemented with high-fidelity could focus on professional development initiatives to improve

implementation. These findings should be considered only in the context of this original study, however. They were not found among the math analyses, nor were they found when relating reading and STAAR results for economically disadvantaged students. If PLCs are going to continue to be embraced by educational leaders, more needs to be done to ensure the PLC culture is implemented with fidelity on campuses in order to accurately measure their connection to student success.

Finally, the thirteen specific items identified as having significant positive correlations with student achievement could be used as more-specific talking points for leadership teams for professional development. Again, these thirteen items cannot be considered as the causes of high performance. They have, however, been identified in this study as having significant relationships with the tests analyzed for this school district and may have further implications worth exploring. The survey, for example, could be used for campus improvement planning. It could be administered at the end of a school year to be used as a needs assessment for the start of the subsequent year. From a needs assessment, goals could be established towards stronger implementation of desired PLC practices that were identified as needing improvement, action plans could be developed to meet those goals, and follow up assessments could be administered to benchmark progress towards meeting those goals. Perhaps the survey or a variation of it could be used as a part of that benchmarking process.

Campus improvement plans are an appropriate venue for the results of this study. These results included significant differences between principals' and ICs' perceptions and significant correlations between certain features of PLC best practices and student performance on state assessments. However, the study only scratched the surface of PLC

implementation analysis in Exemplary ISD by uncovering these connections. Similar analyses at other campuses that have attempted to implement PLC practices could potentially uncover similar results. The end effect of these results should take the form of campus leaders addressing perceived deficits in their campus improvement plans. If PLC practices are valued by campus leaders, then conversations about next steps must take place so that goals and action plans can be developed for better implementation of those practices.

For program evaluation purposes, a rubric could be developed by a campus team to identify the essential roles and responsibilities of stakeholders on a campus that intends to implement PLC best practices with fidelity. The necessary stakeholders could be the PLC principal, PLC administrator, PLC teacher, and PLC instructional coach. The conversation about what the learning community should look like should take place at intervals throughout the year, where all levels of the organization engage in the analysis. Surveys like the one used in this study could be given at times to measure progress, successful teams could share their strategies with their peers, and successful campuses could even serve as model sites for visiting campus teams to observe and learn from.

IMPLICATIONS FOR FURTHER RESEARCH

The limitations of this study, coupled with the findings, point to several opportunities for further research. Beginning with the survey instrument, future studies might include surveying a larger group of people. This study only surveyed principals and ICs in one district. Expanding the survey group to multiple districts could provide useful information beyond the scope of Exemplary ISD. This might involve a need to

modify the instrument to be more inclusive of other leadership roles beyond the two used here.

Related to the above suggestion, teachers could also be considered for future research using a modified version of this survey created for this study. Principals' and ICs' perceptions were collected about groups of teachers on their campuses. The questions were designed about teachers with whom the two groups worked. Teachers, individually and as teams, are the ones who are involved in the majority of the work related to implementing PLC best practices. The leadership that guides the implementation has the teacher in mind as the end user of the protocols for proper PLC practices. The principals and instructional coaches of Exemplary ISD were not able to attend every team meeting or witness every individual action of the teachers about whom they responded to the survey. A teacher-focused version of the survey could provide valuable data related to the first research question in this study. Are there differences in the perceived implementation of PLC best practices between and among the groups when the teachers' perspectives are added? Additionally, teachers' feelings about working as PLCs could provide valuable data regarding barriers to implementation of PLC practices and could guide leaders towards achieving their campus improvement goals related to PLCs.

Regarding perception, this study used the perceptions of two groups of people. Adding the teachers' voice in future study could add an interesting and relevant dimension to the PLC body of research. However, there could also be a use for an objective third-party observation tool for PLC implementation. Further research should consider measuring PLC implementation from the point of view of a professional that

does not work on the campus being evaluated. How would a district representative or outside researcher have rated the exact same categories on one of Exemplary ISD's campuses that completed the survey had they been involved in the study? How would those ratings have related to the perceived ratings of groups that worked on the campus? Furthermore, an outside observer could also use a tool to quantify actual PLC implementation. For example, instead of simply asking for the respondents' perception to the frequency of teacher team meetings, an outside observer could document the actual number of times teacher teams on a campus met.

This study asked about the potential existence of a significant difference in the perceptions of ICs and principals. Further research could consider why the differences existed, thus incorporating a qualitative component. Of particular note from this study's findings is the significant difference that existed between math responses and reading responses.

To elaborate, a study could be done to determine the reasons principals and ICs rated PLC implementation differently. This would likely take the form of a qualitative data collection process. If teachers' perspectives were included, their potential differences would also be of interest. A protocol for uncovering these reasons was suggested above as an implication for school leaders. Knowing why different groups had different perceptions could reveal items for a campus needs assessment that could be included as a part of the campus improvement process. In addition, investigating why math and reading perceptions were different could have an impact on instruction in one or both areas.

Further research using the survey instrument should continue to include reliability and validity tests. These could be used to help modify the instrument for use among different populations of education professionals.

Finally, this study used state assessment results as indicators for student achievement. Student achievement can be much more broadly defined and measured than by simply looking at test scores. However, state assessment is a dominant factor in campus instructional planning and analysis. It is appropriate, therefore, to use assessment results as a way of defining student achievement. Within the realm of state assessment, though, there is more to study than passing rates. There are students that achieve at high levels on these tests whose successes are not apparent by simply looking at passing rates. Students that did not pass but who made significant progress from one year to the next are also not revealed in a passing rate. Future research may want to consider developing a more comprehensive definition of student achievement, even while still looking at just assessment results.

CONCLUSION

To conclude, school leaders faced with increased accountability standards have embraced educational philosophies like those of Professional Learning Communities as a means to build the capacity for problem solving among their teachers. This study found that the perceived implementation of best practices in one Texas school district varied between principals and instructional coaches and that some aspects of PLCs significantly correlated with student achievement on state assessments. School leaders serious about PLC implementation should examine their perceptions and those of their staff to identify goals and strategies for more long term sustained fidelity towards becoming a true PLC.

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APPENDIX A

APPROVAL FROM THE UNIVERSITY OF HOUSTON HUMAN SUBJECT RESEARCH COMMITTEE

May 11, 2012

Edward Cunningham
c/o Ms. Rayyan Amine
Dean, Education

Dear Edward Cunningham,

The University of Houston Committee for the Protection of Human Subjects (1) reviewed your research proposal entitled "Instructional Leadership: The Relationship Between Professional Learning Community Best Practices and Student Achievement" on April 20, 2012, according to institutional guidelines.

At that time, your project was granted approval contingent upon your agreement to modify your proposal protocol as stipulated by the Committee. The changes you have made adequately respond to those contingencies made by the Committee, and your project has been approved. However reapplication will be required:

1. Annually
2. Prior to any change in the approved protocol
3. Upon development of the unexpected problems or unusual complications

Thus, if you will be still collecting data under this project on **March 1, 2013,** you must reapply to this Committee for approval before this date if you wish to prevent an interruption of your data collection procedures.

If you have any questions, please contact Alicia Vargas at (713) 743-9215.

Sincerely yours,

for

Dr. Scott B. Stevenson, Chair
Committee for the Protection of Human Subjects (1)

PLEASE NOTE: (1) All subjects must receive a copy of the informed consent document. If you are using a consent document that requires subject signatures, remember that signed copies must be retained for a minimum of 3 years, or 5 years for externally supported projects. Signed consents from student projects will be retained by the faculty sponsor. Faculty is responsible for retaining signed consents for their own projects; however, if the faculty leaves the university, access must be possible for UH in the event of an agency audit. (2) Research investigators will promptly report to the IRB any injuries or other unanticipated problems involving risks to subjects and others.

Protocol Number: 12379-01 Full Review __X__ Expedited Review_____

316 E. Cullen Building Houston, TX 77204-2015 (713) 743-9204 Fax: (713) 743-9577
COMMITTEES FOR THE PROTECTION OF HUMAN SUBJECTS

APPENDIX B

CONSENT TO PARTICIPATE IN RESEARCH FORM

PROJECT TITLE:

Instructional Leadership: The Relationship between Professional Learning Community Best Practices and Student Achievement

You are invited to participate in a research study conducted by Ed Cunningham a student at the University of Houston. The research is a part of a doctoral program and is being conducted under the supervision of faculty sponsor Dr. Rayyan Amine.

NON-PARTICIPATION STATEMENT

Your participation is voluntary, and you may refuse to participate or withdraw at any time. You may also refuse to answer any question. NON-PARTICIPATION WILL NOT IMPACT EMPLOYMENT STATUS (PARTICIPANTS ARE SELECTED BECAUSE THEY ARE EXEMPLARY ISD EMPLOYEES).

PURPOSE OF THE STUDY

This study will attempt to identify whether a relationship between Professional Learning Community best practices and state assessment results exists.

PROCEDURES

You will be one of approximately 120 subjects – principals and instructional coaches – to be asked to participate in this study.

Your participation in this study will be limited to a minimally-intrusive survey. You may be asked to complete the survey no more than two times while considering different groups of teachers on your campus(es). The survey is 31 questions long and can be completed in one sitting. The survey may take about 15 minutes to complete.

There will be no need for follow-up surveys or any other kind of activity from respondents after the initial survey(s).

Survey results will be charted by the researcher with the state assessment results for reading and math that will be available on the 2012 AYP Data Tables. The researcher will look for a relationship between/among PLC best practice implementation and state assessment results.

CONFIDENTIALITY

The survey collects the following identifying information: Campus Initials and Role (principal or instructional coach). This information, as well as the name of the school district, will be kept confidential by the researcher. There is no place to write your name on the survey, the only item that will be collected.

Every effort will be made to maintain the confidentiality of your participation in this project. Each subject's campus initials will be paired with a code number by the researcher. This code number will appear on all written materials. The list pairing the subject's actual campus initials to the assigned code number will be kept separate from all research materials and will be available only to the principal investigator. Confidentiality will be maintained within legal limits.

RISKS/DISCOMFORTS

There are no foreseeable risks or discomforts associated with this study.

BENEFITS

This research seeks to determine what, if any, of the PLC best practices in place at various campuses can be shown to have a relationship with student achievement on state assessments. If the researcher is able to identify such a relationship between/among PLC best practice implementation, especially regarding specific student populations such as economically disadvantaged, the findings could provide a list of characteristics for campus leaders to look for in observing teacher teams.

There are no direct benefits to participants.

The findings of this research will be made available to interested respondents.

ALTERNATIVES

Participation in this project is voluntary and the only alternative to this project is non-participation.

PUBLICATION STATEMENT

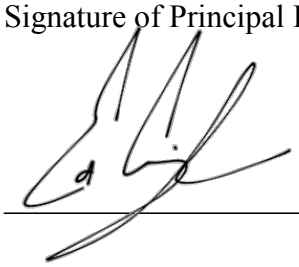
The results of this study may be published in professional and/or scientific journals. It may also be used for educational purposes or for professional presentations. However, no individual subject will be identified.

If you have any questions, you may contact Ed Cunningham at evcunningham@uh.edu . You may also contact Dr. Rayyan Amine, faculty sponsor, at 713-743-4965.

ANY QUESTIONS REGARDING YOUR RIGHTS AS A RESEARCH SUBJECT MAY BE ADDRESSED TO THE UNIVERSITY OF HOUSTON COMMITTEE FOR THE PROTECTION OF HUMAN SUBJECTS (713-743-9204).

Principal Investigator's Name: _Edward Cunningham

Signature of Principal Investigator:



APPENDIX C

DISTRICT APPROVAL LETTER FOR EXTERNAL RESEARCH

March 26, 2012

Edward Cunningham
[redacted]

Mr. Cunningham,

The [redacted] Independent School District review committee has met to consider your application for research in our district.

I am happy to inform you that the committee chose to approve participation in your study, pending IRB approval from the University of Houston.

We appreciate your interest and consideration of our district and wish you the very best in your endeavors. When your research is complete, please send a copy of the results to my office.

Sincerely,

[redacted]
Executive Director for Research, Assessment,
and Accountability

APPENDIX D
SURVEY INSTRUMENT

Professional Learning Community (PLC)

Survey of Best Practices

The purpose of this survey is to collect information from specific campus leaders regarding the regular implementation of PLC best practices. Please complete this survey by rating each item according to your observations and knowledge of your campus.

Principals: Please complete ***one survey for each content area***, considering only teachers for that subject for state-assessed grade levels (3-8).

Instructional Coaches: Please complete ***one survey for each campus on which you work***, considering only teachers in your content area for state-assessed grade levels (3-8).

Campus initials: _____ Role: [principal] [instructional coach]

Content area: [reading] [mathematics]

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5 = Very True; 4 = True; 3 = Somewhat True; 2 = Rarely True; 1 = Never True

C1. Shared Mission, Vision, and Set of Goals

a. The teachers on my campus are fully aware of the PLC question: What is it we want our students to know?

b. The teachers on my campus are fully aware of the PLC question: How will we know if our students are learning?

c. The teachers on my campus are fully aware of the PLC question: How will we respond when students do not learn?

d. The teachers on my campus are fully aware of the PLC question: How will we enrich and extend the learning for students who are proficient?
e. The leaders on my campus consistently "sell" the vision that the purpose of the school is to ensure high levels of learning for all students.
f. The leaders on my campus consistently "sell" the assumption that collaborative teaming is the most effective way to address continuous improvement and problem-solving.
g. The leaders on my campus play a vital role in establishing a collaborative environment.
h. The teacher teams on my campus work together to develop SMART goals (Strategic, Measurable, Attainable, Results-oriented, and Time-bound) related to student achievement. [NOTE: They do not necessarily have to use the SMART acronym to follow this process.]

C2. Collaborative Teams

a. The teachers on my campus meet at least once a week as a team.
b. The teacher teams on my campus have established their own norms to be followed at team meetings.
c. The teacher teams on my campus follow their meeting norms consistently.
d. The teacher teams on my campus establish purposeful tasks to be completed at meetings that prioritize time to be spent focused on work aligned with goals.
e. The teacher teams on my campus consistently accomplish their tasks as planned at meetings.

C3. Collective Inquiry

a. The teacher teams on my campus consistently ask questions about what is working related to their goals in an attempt to deconstruct problems.
b. The teacher teams on my campus consistently ask questions about what is not working related to their goals in an attempt to deconstruct problems.
c. The teacher teams on my campus operate in safe, judgment-free terms when engaged in inquiry about their practices.
d. The teacher teams on my campus collaboratively engage in a deconstruction of the Texas Essential Knowledge and Skills (TEKS) into specific learning targets as a part of answering the four PLC questions.
e. The teacher teams on my campus recognize that searching for the right questions regarding their practices and student achievement is more important than always having an answer.
f. The teachers on my campus work interdependently with their teammates and campus leaders to find resources and researched best-practices related to their collective inquiry.

C4. Continuous Improvement

a. The teacher teams on my campus understand that continuous improvement is a cycle that includes goal-setting, designing measurement tools (like assessments), implementing planned actions (like lessons with particular instructional strategies) with fidelity, data collection and analysis, and establishing new goals based on results.

b. The teacher teams on my campus understand the difference between formative and summative assessments.

c. The teacher teams on my campus consistently use formative and summative assessments appropriately.

d. The teachers on my campus are willing to alter their instructional practices based on collaboratively-identified areas of concern.

e. The teacher teams on my campus regularly prepare interventions for students who do not meet achievement goals.

f. The teacher teams on my campus regularly prepare enrichment activities for students who surpass achievement goals.

C5. Results-Oriented

a. The teacher teams on my campus frequently collaborate to design common assessments, to be administered around the same time frame and for the purpose of collecting data related to student achievement.

b. The teacher teams on my campus regularly analyze common assessment data related to teacher-specific results as a means to identify effective practices.

c. The teacher teams on my campus regularly analyze common assessment data related to learning targets as a means to identify areas of concern for redesigned instruction.

d. The teacher teams on my campus regularly analyze common assessment data related to individual students as a means to identify students in need of intervention or enrichment activities.

e. The teacher teams on my campus regularly involve students in their own data analysis for self-assessment purposes related to needing intervention or enrichment activities.

APPENDIX E

TEXT OF EMAIL SENT TO SURVEY RECIPIENTS

I am conducting a survey as a part of research for a doctoral program in Educational Leadership with the University of Houston. My research, entitled "Instructional Leadership: The Relationship Between Professional Learning Community Best Practices and Student Achievement," relies on input from campus principals and instructional coaches regarding the implementation of various instruction/assessment practices among their teachers. I am conducting this research within the school district where I work as a student at the University of Houston. This project has been reviewed by the University of Houston Committee for the Protection of Human Subjects [(713) 743-9204]. It has also been approved through the REDACTED DISTRICT NAME research application process.

The details of my research are outlined in the attached "CONSENT TO PARTICIPATE IN RESEARCH" document. Please read this document. If you are willing to respond and take part in my research, I ask that participants please do so by the end of the 2011- 2012 school year. The survey can be found at: REDACTED LINK

Thank you.

Ed Cunningham