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Collaboration and Collective Inquiry Goals in an Elementary School Professional Learning Community

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Walden University
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Abstract

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Doctoral Study Submitted in Partial Fulfillment

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K-12 schools in the United States face challenges to close the achievement gap, improve student learning and teacher instruction, and increase students' and educators' accountability. A professional learning community (PLC) was implemented to improve instruction and student learning at a K-5 elementary school located in the Western region of the United States. A bounded qualitative case study was used to conduct a modified formative objectives-oriented program evaluation to determine whether the collaboration and collective inquiry goals were met. This study was guided by DuFour's PLC framework. Research questions focused on how PLC team members developed and maintained the PLC goals to improve student achievement. Data were collected using document review and semistructured interviews from 10 teachers, 1 learning coach, and 2 administrators who participated in the PLC implementation for the 2015/16 school year. Thematic analysis using a priori, open, and axial codes were used to analyze the data and were related to the conceptual framework. Findings indicated that PLC teams used collaborative conversations/reflective dialogue to research and share strategies and used data-driven decisions to improve instruction and improve student achievement. PLC teams need to establish and monitor team goals and use vertical and horizontal planning. The project deliverable was a program evaluation report that provided recommendations to improve the PLC goals. Positive social change could occur if PLC teams partner with all teams, reflect on teaching practices, and use student data to improve teacher and student learning to close the achievement gap among students.

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Dedication

I dedicate this work to my parents, children, grandchildren, and friends who have offered their unconditioal love and support throughtout this journey. I also dedicate this to my friend Jeff who encouraged me to reach for the stars and chase my dreams. I will always be forever grateful to each and everyone of you. This could not have been possible without your support.

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Section 1: The Problem

Introduction

K-12 educators in the United States face many challenges to close the student achievement gap, increase student achievement, and improve teacher and school accountability. Stakeholders, including government officials, administrators, and school board members, expect educators to develop more effective pedagogical strategies and focus on student learning to reach these goals. To add to these challenges, educators are charged with helping all students close the achievement gap regardless of their students' socioeconomic status, diversity, or demographics. These challenges can become complicated if teachers experience problems analyzing the curriculum and student data to identify gaps in student learning (Stewart, 2014). Consequently, teachers may struggle with identifying acceleration and remediation strategies to help students increase academic achievement. Another issue that teachers face is the opportunity to engage in effective collaboration among educators needed for reflective dialogues based on trust (Ho, Lee, & Teng, 2016). These collaborative, reflective dialogues are focused on educators' instruction and assessment of student knowledge and student learning. Teachers rarely engage in meaningful or learning conversations (reflective dialogues) necessary to improve academic instruction and increase achievement (Makopoulou & Armour, 2014). The researchers found that critical conversations were uncommon, and teachers need additional training to challenge teachers to engage and learn from reflective dialogue.

A focus on school and teacher accountability represents yet another dimension of challenges teachers face and the changes now occurring in many schools across the United States. The state standardized tests administered in the spring of every school year measure school and teacher accountability at the research site. Intensified teacher accountability has resulted in improved educator evaluation procedures that ensure that teachers who remain in the classroom provide evidence of their continued effectiveness (Woodland & Mazur, 2015). If students perform well on these measurements, teachers are considered effective in the classroom. In contrast, if students perform poorly, teachers' performance is brought into question. If student achievement does not improve based on test scores, then schools are at risk of being put on remediation or improvement plans, and eventually taken over by the state. One recommendation is for educators to transform their teaching practices that focus on assessment, learning, and student needs that may result in improving student academic achievement and teacher accountability. This goal may be achieved through adopting and implementing a professional learning community (PLC).

PLCs like many educational reforms are designed to change the classroom environment. The infrastructure to create supportive cultures and conditions necessary to improve teaching and learning requires intention, collegiality, commitment, and a focus on learning (Nelson et al., 2013). Additionally, the PLC is a staff development strategy used to improve student achievement by strengthening the quality of teaching (Watson, 2014) through research based effective instructional practices (Lipka & Siegel, 2012). Central to PLCs, teachers engage in collaborative, reflective, inclusive learning to

improve teacher effectiveness as professionals. As mentioned earlier PLCs are designed for teacher and student success by creating (Kalkan, 2016) and sustaining a collaborative culture focused on improving student learning (Jones & Thessin, 2015). This goal is achieved by ongoing professional development, and high-quality teaching that are linked to increasing student achievement (Owen, 2014). In a PLC, priority is focused on teacher practice, collaborative decision making, and teacher learning (Kalkan, 2016). School leaders focus their efforts on assessment, both teacher and student learning, and teacher and student success by creating and sustaining a culture of learning (Thornton & Cherrington, 2014).

Despite the implementation of PLCs and many other school improvement initiatives, their effectiveness in meeting their goals is often left unevaluated (Wells & Feun, 2013). PLCs are implemented to create opportunities for effective professional development and teaching (Woodland & Mazur, 2015) by the intentional work of teachers to improve instruction and student achievement (Wennergren, 2016). If PLCs are not evaluated, then schools may not close the achievement gap among students, increase student achievement, or improve teacher and school accountability.

Background of Problem

Implementation of a PLC at a K-5 elementary school located in the Western region of the United States was designed to address poor student performance, and close the achievement gap based among the low socioeconomic status students. The PLC model was implemented at the target school beginning in September 2015 for the academic year 2015/2016. Teachers were responsible for collaborating in grade level

teams to address evidence of learning using collective inquiry. They used collective inquiry in weekly meetings to examine data and create common assessments to determine how students were meeting state and classroom objectives. These assessments were designed to measure outcomes of learning, and teachers brought the class performance data to the team meetings for collaborative discussions. Teachers discussed what students knew, how they knew students had learned the content, how to collaboratively plan if students did not know the information, and what to do if they already mastered the information.

The school in question is characterized by a high student mobility rate and low socioeconomic status, with 94% of students qualifying for the free and reduced rate lunch program (Colorado Springs School, 2016). The students with low socioeconomic status (SES) continue to fall behind their peers, which indicates that the achievement gap is increasing (Colorado State Department of Education, 2017). This poor academic performance of low SES students is evident from 2015- 2017 data. Growth scores provide a view of performance. School growth rates are calculated yearly by comparing their Partnership for Assessment of Readiness for College and Careers (PARCC) scores in reading and mathematics. PARCC scores measure how students are performing and meeting grade level expectations. Students receive a numerical score ranging from 650-850 and a performance level of 1-5 used to indicate student achievement, areas of improvement, and how well they are achieving state standards. Additionally, these levels are used to identify what students should demonstrate at each level. The five levels are: Level 1: Did not meet expectations, Level 2: Partially met expectations, Level 3:

Approached expectations, Level 4: Met expectations, Level 5: Exceeded expectations (Colorado Department of Education, 2018). The growth model identifies the percentage of students who are meeting the achievement levels, and those who are not making adequeate gains. Table 1 represents the growth scores for students classified as free and reduced lunch. The Grade 4 and 5 growth rate for the 2015/2016 academic year in English Language Arts was 42% and the state average was 47%. The Grade 4 and 5 growth rate in mathematics was 58% and exceeded the state avearge of 54%. The English language arts growth rates for the academic year 2016/2017 was 33% and the state average was 47%. The mathematics growth rate for the academic year 2016/2017 was 46% and the state average was 46%.

Table 1

State Assessment Growth Results Based on PARCC Scores

	Free and Reduced Lunch	2016 PARCC Results	Free and Reduced Lunch	2017 PARCC Results
2016 English Language Arts	*42%*	*47%*	*33%*	*47%*
2016 Mathematics	*58%*	*54%*	*46%*	*46%*

The goals of the PLC at the research site is to focus on collaboration and collective inquiy. The indicators in meeting these goals include clarifying essential learning outcomes, common formative assessments, establishing and monitoring progress

on team goals, innovative responsibility, and results orientation. In an examination of agenda and board meeting minutes over the 2015 and 2016 school year, there is no evidence that this PLC has been evaluated to determine whether these goals have been met (CSSD11.org). Based on the evidence to date, the PLC goals regarding collaboration and collective inquiry have not been evaluated (CSSD11.org, 2016) and will be the focus of this study. The remaining goals, although important and critical to the research site, will not be a part of this program evaluation, because collaboration and collective inquiry are foundational to the rest of the school's goals.

The local site adopted the goals for the PLC based on DuFour's PLC model. Professional learning communities are "the ongoing process in which educators work collaboratively in recurring cycles of collective inquiry and action research to achieve better results for the students they serve" (DuFour, DuFour, Eaker & Many, 2006, p.111). Administrators focused their attention on ensuring that students are not only taught but learn. The expectation is that the collaborative effort will produce ongoing student achievement and teacher learning and are evidenced in the following district goals:

District Goal 1: Meet in meaningful teams (collaboration) to improve professional practice.

District Goal 2: Analyze and respond to data (collective inquiry)

The purpose of this evaluation is to determine how K-5 teachers use collaboration and collective inquiry to close the achievement gap among subgroups of children and improve student achievment. Evaluating the PLC goals (collaboration and collective inquiry) may provide pertinent data for stakeholders to determine the success of this

inititative. Additionally, the program evaluation data may identify strengths and weaknesses of these two goals. This program evaluation is formative in nature due to the recent adoption and implementation of this educational initiative.

The remainder of Section 1 of this study includes a statement of the problem, the purpose, significance of the study, a review of the major background literature, research questions, and an outline of the conceptual framework. Section 2 presents a discussion of research methodology and ethical considerations.

Definition of the Problem

In an effort to address low student achievement, K-5 local school leaders adopted and implemented a PLC to improve instruction. Many such interventions are never evaluated for their effectiveness on meeting the program's goals (Wells & Feun, 2013), which represents a gap in practice. Evaluating programs is critical to ensure that teaching practices support high-level educational outcomes for students (Owen, 2014). Improving instruction and ensuring teaching practices and educational outcomes are effective strategies when increasing teacher quality and improving academic achievement (Battersby & Verdi, 2015). When teachers demonstrate high levels of effective collaboration and collegial responsibility, teaching practices improve and student achievement increases (Hilliard & Newsome, 2013). Responding to this need, when PLCs are evaluated, progress toward closing the achievement gap, improving student achievement, and improving accountability may be achieved.

Students in Grades 3-5 still perform below state expectations despite implementation of the PLC since September 2015. Using a PLC to increase student

achievement and close the achievement gap has not produced the outcomes desired by school leaders. There is a need for formative evaluation of collaboration and collective inquiry because students continue to fail to meet grade-level state expectations.

Rationale

Educators and school leaders are challenged with increasing achievement and closing the achievement gap for all students (Woodland & Mazur, 2015). Many schools have implemented the PLC to meet these challenges by improving teaching pedagogies and increasing student achievement (Poskitt, 2014). In the 2015/1016 school year, a PLC was adopted and implemented at the target site to achieve these outcomes. The school was placed on a unified improvement plan (UIP) to address the problems of students performing below the 50th percentile and decreasing scores in reading, writing, and mathematics at the elementary level. These scores indicate mounting growth gaps in these subject areas. In addition, there are increasing numbers of students with severe reading deficiencies (SRD) identified by the teachers, the learning coach, and administration at the local school (CSSD11.org). Two goals of the PLC, teacher collaboration and collective inquiry, were selected to assist teachers in choosing strategies to improve instruction for all students, including high-mobility students and/or low SES. To date the goals of this PLC have not been evaluated to determine whether they are effective.

Merriam (2009) stated that the goal of program evaluation is to increase understanding and gain insight into the worth or efficacy of a program. Despite the implementation of PLCs and other school improvement initiatives, many are never

evaluated for effectiveness. Formative program evaluation may provide insights into implementing and interpreting the outcomes of collaboration and collective inquiry, and the sustainability of a given PLC implemented in a local school district. This standard contains evidence that a problem exists with the implementation of a PLC at the local level and in the wider education profession.

Evidence of the Problem at the Local Level

In an effort to improve teacher and student learning a professional development program based on the PLC model was implemented at the target school in September 2015 for the academic year 2015/2016. However, its effectiveness has not yet been evaluated, a lack which represents a gap in practice (Colorado Springs School District, 2016). The selected site for this doctoral study is performing below state-level expectations in reading, writing, mathematics, and social studies (Colorado State Department of Education, 2016). In the spring, the PARCC test is administered to students in mathematics and language arts for Grades 3 through 5 (Parcc, 2014). Additionally, students in Grade 4 are administered the social studies assessment, and Grade 5 students are administered the science assessment every three years. For two years, students at the research site scored below the state average in social studies, language arts, mathematics, and science as presented in Table 2. The trends for Grade 3 students' language arts scores for the 2015/2016 academic years were 15.1% and 15.7% respectively; however, a decrease was noted for 2017 (8%). The trend for Grade 3 students' mathematics scores showed an increase in 2016 (19.6%) from 13.2% in 2015 but a decrease in 2017 to 10.4%. The trends for Grade 4 students' language arts scores

for the 2015/2016 academic years were 11.3%, 14.5%, and showed an increase in 2017 to 18.2%. The mathematics scores for 2015/2016 were 5.8% and 7.3%. The scores increased to 18.2% in the 2017 school year. Grade 4 students continue to score below the state results in all three years. The trends for Grade 5 students' English/language arts scores for the 2015 academic year was 17.4% and decreased to 10.0% in 2016. In the 2017 academic year the score increased to 17.7%. The fifth grade students still score below the state avearage of 46.3%. The fifth grade mathematics scores for the 2015 academic year was 6.7%, increased to 16.3% in 2017, and decreased to 12.9% in 2017. The fifth grade students scored below the state average in all three years. The fifth grade science scores in 2015 were 10.4%. The students were not tested in 2016. In 2017, the scores decreased to 8.2%. The fifth grade students still performed below the state average in all three academic years.

Table 2

State Assessment Results

	2015 PARCC Results	State PARCC Results	2016 PARCC Results	State PARCC Results	2017 PARCC Results	State PARCC Results
3rd English Language Arts	15.1%	38.2%	15.7%	37.4%	8%	40.1%
3rd Mathematics	13.2%	36.7%	19.6%	38.9%	10.4%	40.0 %
4th English Language Arts	11.3%	41.7%	14.5%	43.9%	18.2 %	44.1%
4th Mathematics	5.8%	30.2%	7.3%	33.3%	19.7%	34.0%
5th English Language Arts	17.4%	40.5%	10.0%	41.2%	17.7%	46.3%
5th Mathematics	6.7%	30.1%	16.3%	34.3%	12.9 %	33.6%
5th Grade Science	10.4%	34.8%	n/a	n/a	8.2%	34.9%

Evidence of the Problem from the Professional Literature

An effective form of professional development is the PLC as along as this form of professionment development is implemented with fidelity and includes the following characteristics: supportive and shared leadership, shared values and vision, collective learning and application, shared personal practice, and supportive conditions (Jones,

Stall, & Yarbrough, 2013). PLCs can make a difference in professional learning, collaboration, decision making, and practices that may lead to higher rates of student achievement (Liou & Daly, 2014). Professional learning in schools occurs when colleagues interact to share and review assessment data, participate and apply professional learning, and plan curriculum to improve their teaching and learning (Hoaglund, Birkenfeld, & Box, 2014). Educators develop, analyze, and improve instruction through collaborative discussions that focus on identifying the strenghts, weaknesses, and gaps in student achievement gaps. A PLC can be deemed successful if teachers select their professional learning objectives and participate in collaborative discussions (Stewart, 2014). When teachers are given autonomy to select their professional learning goals, they are more inclined to make choices that produce the educational outcomes that align with the school's learner outcomes.

School teams may encounter problems when trying to implement the PLC with fidelity. First, teachers need time to regularly collaborate. Collaboration is used to provide teachers with opportunities to work together to expand their expertise, discuss challenges, and actively learn about their practices with their colleagues (Kelly & Cherkowski, 2015). Additionally, teachers use collaboration to review timely and relevant data, plan appropriate curriculum, and learn strategies and teaching techniques to improve student learning (Farley-Ripple & Buttram, 2014). Second, teachers review student achievement data from district, state, and classroom assessments to determine their effectiveness on teaching (Christiansen & Robey, 2015). Once teachers review student data, they are expected to select and plan instruction to assist student learning.

Teachers struggle with identifying research based practices, analyzing student data, and collaborative conversations centered on students and improving instruction (Owen, 2014). Teachers who are involved in collaborative conversations about instructional strategies and data increase the likelihood that their efforts will improve student achievement (Woodland & Mazur, 2015). As a result of collaborative conversations, teachers design instruction that focused on the individual needs of all students, discover which students needed extra support, and discuss instructional strategies.

The key to implementing a successful PLC is the commitment of school leaders to integrate collaboration, deprivatization of practice, and classroom based assessments into professional development at their schools (Woodland & Mazur, 2015). Deprivatization of practice is another term for "teacher talk" through engaging in solving problems of practice, accessing knowledgeable resources, and observing other teachers to improve academic achievement (Woodland & Mazur, 2015). It is critical for all stakeholders involved in a PLC initiative to understand that commitment is not the sole responsibililty of school leaders. Only when the above happens, does a PLC have the potential to improve collaboration, instruction, and improve student achievement (Farley-Ripple & Buttram, 2014).

The purpose of this formative program evaluation was to evaluate the PLC goals of collaboration and collective inquiry in a K-5 low performing Title I school. Merriam (2009) stated that the goal of program evaluation is to increase understanding and gain insight on the worth or process of the program. To reiterate since the implementation of the PLC at the research site, student achievement has not improved.

Definitions

Collective inquiry: The process by which teachers build shared knowledge, learn together, and offer feedback to improve their respective teaching practice (Liou & Daly, 2014).

Common formative assessment: A collaboratively designed testing process used to identify students who need additional support (Caskey & Carpenter, 2012).

Teacher collaboration: A systemic process whereby teachers frequently meet to share ideas, defend a position, achieve consensus, apply knowledge to common goals, give and accept feedback, and learn to improve student learning (Morel, 2014).

Planning time: A regularly scheduled time when teachers meet to discuss planning and goals, monitor progress, and give each other feedback (Caskey & Carpenter, 2012).

*Professional learning Committee meeting***:** Grade level teams meet weekly to collaborate, monitor student learning, and develop common formative assessments (Prytula, 2012).

Professional learning committee team: Collaborative grade level teams that meet regulary to develop common formative assessments, analyze achievement, and share strategies and create lessons to improve student achievement (Hilliard & Newsome, 2013).

Professional learning community (PLC): A group of teachers working together to solve problems, achieve goals, and collaborate for a common purpose (Prytula, 2012).

Vertical and horizontal teams: Teachers work collaboratively with teachers above and below their grade levels to improve student achievement (DuFour & Marzano, 2011).

Significance

For this formative program evaluation, I provided information about the program's implementation and potential success for the program designers and school stakeholders adopting the PLC model. Principals, learning coaches, and teachers where PLCs feature collaboration, and collective responsibilities and the potential influence on teacher and student learning will benefit from this study. The PLC contains information on the changing roles of educators, school culture, classroom environment, vision, organizational learning, and focuses on student achievement. Researchers use formative program evaluations to make decisions about the program, examine barriers, and provide feedback for implementation (Fitzpatrick et al., 2011). This formative evaluation determined how this school's PLC achieved its student achievement goals to date and what improvements need to be implemented. Students will benefit from the study by understanding how they are performing and what they can do to improve their learning. Additionally, students will benefit from instruction that is designed to meet their individual needs.

If a PLC is successful, the implications for positive social change include recommendations for further teacher collaboration, a sense of community, and instructional improvement resulting in student learning gains. In contrast, recommendations may be warranted if weaknesses are identified regarding how

collaboration and/or collective inquiry are executed. Long-term benefits of the evaluation may include a transformation in the way teachers collaborate and increase collective inquiry. The results will help administrators prioritize goals and resources to support teacher and student learning.

Guiding Questions

The following questions were created to evaluate teacher collaboration and collective inquiry in the PLC at the local urban elementary school. The responses to these questions were designed to provide decision-makers and key stakeholders information that is both essential and useful for program improvement (Fitzpatrick et al., 2011).

RQ1: How do PLC team members develop and maintain collaboration to close the achievement gap and improve student achievment?

RQ2: How do PLC team members use collective inquiry to improve student performance?

Review of the Literature

The purpose of this section was to present a review of the literature on implementing PLCs, evaluating PLCs, the study's theoretical framework, collaboration, collective inquiry, professional development, and transformation effects of the PLC model on teaching practice and student learning. The literature review for this project study also includes information on using the conceptual framework to guide the study and PLC's use of collaboration and collective inquiry to address the achievement gap among student groups. An iterative process was conducted retrieving articles and studies

from ERIC, ProQuest Central, Google Scholar, and Sage. Also, for the search for literature related to PLCs, a search was completed for student achievement, federal policies, and professional learning. Keywords included *student achievement, policies, professional learning, collective inquiry, assessment, school culture, and professional development.*

Conceptual Framework

I used DuFour's model (1998) to inform this program evaluation for the PLC that the school district has adopted. School leaders use this framework to change their school cultures and build capacity for implementing and sustaining the PLC (Makopoulou & Armour, 2014). If this PLC model is adopted as the foundation for a PLC, teachers are expected to share expertise, collaborate, and learn together to improve their teaching skills as well as the academic performance of students (DuFour & Marzano, 2011). Through the PLC, educators can improve teaching and participation in professional development and improve student achievement through collaborative practices that provide instructional support (Riveros, Newton, & Burgess, 2012). Additionally, PLCs can be used by school leaders to create the opportunity for teachers to come together to identify student needs, improve teacher and leader knowledge, and create and understand common practices that can influence and improve instruction in the classroom (Thessin, 2015). Teachers identify instructional challenges they face and the changes needed to improve their teaching and expand their pedagogical knowledge through focusing on their learning instead of teaching. In a PLC, teachers address their assumptions and individual beliefs, and continue alternative teaching practices focused on student

achievement to facilitate change (Attard, 2012). Teachers target areas of improvement and monitor the results on a continual basis by examining, reflecting, and adapting on their teaching practices to deliver top education for all students.

Although the PLC is a professional development model, many school districts that have adopted it have not evaluated the program. The purpose of this study was to evaluate the PLC goals of collaboration and collective inquiry in a K-5 low-performing Title I school to improve the quality of teaching and student learning. Evaluating the PLC's goals (collaboration and collective inquiry) provided pertinent data for stakeholders to ascertain the success of this inititative. The interview questions and team meeting documents for participants were used to gain information on whether the goals and objectives of collective inquiry and collaboration were met.

DuFour and Eaker Professional Learning Community Model.

DuFour and Eaker (2006) identified the PLC as a model with which schools can build high-performing collaborative teams that focus on transforming instruction and improving student learning. The foundation of the PLC supports the mission, vision, values, and goals of a given organization (DuFour, DuFour, Loertscher, & Many, 2010). Educators collaboratively identify the school's mission, consider relevant questions, and reach a consensus on why the organization exists and what it hopes to become (Richmond & Manokore, 2014). Teachers, administrators, and leaders make collective commitments to support the vision, articulate, and clarify the purpose of the organization to move the school forward (Kohler-Evans, Webster-Smith, & Albritton, 2013). Goals of an organization are used by school leaders to determine targets and timelines that provide

a measure of the attainability of the improvement initiative and allow individuals to assess whether they are making a difference and meeting their desired outcomes on time (Jones, Stoll, & Yarbrough, 2013). According to DuFour et al. (2010), school administrators must engage staff members in communication and create congruency between what they say and do.

The research site's mission, vision, values, and goals align with the PLC model. Individual grade level teams receive encouragement from principals and learning coaches to develop grade level missions to support the school's mission (Van Lare & Brazer, 2013). The teams develop goals for potential strategies, current programs, and procedures contained in and aligned with the vision of the school and what the school wants to become (DuFour et al., 2010). The research site's vision is to "provide excellent, distinctive educational experiences that equip students for success today and in the future" (Colorado Springs School District 11, n.d.). Goals at the research site are for teachers to engage in frequent conversations about teaching practice, plan effective teaching strategies and programs, and providing collective ownership of learning goals to improve student achievement. These goals follow the PLC model. For my evaluation, I am focusing on collaboration and collective inquiry.

Collaboration is an element in DuFour's model (DuFour et al., 2010). Teachers work collaboratively to examine their instructional practices and to make changes to improve teaching, learning, and student achievement (DuFour et al., 2010). Educators collaboratively identify what students need to know and how educators will address challenges in student learning by engaging in questions that encourage self reflection and

analysis. The most significant questions that PLC addresses are to identify what students need to learn and how they will know when students have demonstrated mastery (DuFour et al., 2010).

Collective inquiry is also a key element of the PLC model. Grade level teams engage in collective inquiry and conversations regarding the best teaching and learning practices (DuFour & Mattos, 2013). Individual team members identify how their students are performing and the students' levels of achievement and share this knowledge with other faculty and staff. Grade level teams use collective inquiry to learn new skills and knowledge that can influence their experiences and awareness (Brodie, 2014). Grade level teams use critical inquiry to identify what essential standards are necessary for students to achieve the desired outcomes. At the research site, the grade level team meets weekly to discuss what students need to know and how students demonstrate mastery of learning based on students' academic performance.

A related component of DuFour's PLC model is action orientation. Educators understand the importance and urgency of turning goals into reality. Teachers engage in action orientation because they realize powerful learning takes place in the context of taking action, and value engagement and experience are the most helpful teachers (DuFour et al., 2010). PLC members also know not to anticipate different results until they change instruction (DuFour et al., 2010).

One of the most prevailing strategies for improving student learning is the construction of high quality common formative assessments by teachers working collaboratively to identify the knowledge and skills for specific state standards that

students need to meet to be successful (DuFour et al., 2010). Common formative assessments are used to promote accountability by providing information about the progress students are making. Teachers use these assessments to provide and ensure common pacing, ensure students have access to the same curriculum, and evaluate the quality of their students' work. Additionally, common assessments should include teacher-made tests, unit tests, and district assessments are regularly administered to determine evidence of student learning. Teachers collaboratively review the assessment results to identify strengths and weaknesses in student learning and teacher instruction. Teachers compare results to determine how their students are performing against other students who took the assessment. This comparison allows teachers to share instructional strategies and ideas on how their students excelled.

Teachers also use the common formative assessments to discover students who are experiencing difficulties, need additional time, and support and to improve teachers' individual and collective professional practices. These assessments provide information to administrators on the strengths and weaknesses of the curricula and programs in a district and, in this way, promote institutional accountability. These assessments help discovery of strengths and weaknesses in PLC members' instructional delivery and to motivate them to learn more effective techniques from their peers (DuFour et al., 2010; Stewart, 2014).

Grade level teams identify the next steps for instruction for students who have mastered the skills to advance their learning. In individual classrooms, teachers continually monitor how students are performing on daily assignments, teacher made

assessments, and state assessments. Teachers apply this knowledge to create a cycle of continuous improvement. Grade level teams review the data to determine instructional strategies to decide how to provide support for students who have not mastered specific skills. Team members decide which instructional strategies would benefit their students to increase student achievement. Teachers implement the strategies and then analyze the effect of changes should they occur. In sum, the continuous improvement cycle begins with assessing student knowledge, identifying and implementing strategic teaching, monitoring student engagement throughout the school year in a variety of tasks, and then making changes to instruction. Educators in a PLC team commit to continuous improvements to achieve the purpose of the PLC organization. One of the main goals of continuous improvement is for teachers to learn new strategies while creating an environment that encourages lifelong learning, innovation, and experimentation (DuFour et al., 2010).

Another component of DuFour's PLC model is a commitment to continuous improvement (DuFour et al., 2010). DuFour (2010) identified a systematic process to engage all members of the PLC in improvement. First, it is important for educators to identify current levels of student learning and identify strategies to address any needs. To assure that every student has the opportunity to master the same essential learning, school and district leaders must collaboratively engage teachers in clarifying, studying teaching, and committing to teaching the curriculum in an effective way for all. Collaborative teams study a common teaching attribute over a school year. Collaboratively studying

critical learning promotes clarity, consistent priorities, and the establishment of a workable curriculum for all students.

The framework and related literature guided the development of the two research questions. The interview protocol and document analysis are based on the two constructs, collaboration and collective inquiry, within the framework and related literature. The PLC has served as framework for other studies.

Herrelko (2016) used the Du Four's theoretical framework to examine how often DuFour's big ideas were used in PLCs in 12 urban elementary schools. The descriptive case study focused on improving the mathematical skills of these schools' students. Herrelko's findings concluded that the PLCs were more productive in all schools when they focused on DuFour's big ideas.

Farley-Ripple and Buttram (2014) used a mixed methods study in four urban elementary schools to examine the implementation of the PLC for improving teaching and learning in these schools. Qualitative data consisted of interviews, observations, and document analysis collected during the 2010-2011 school year. Expectations for the PLC and school improvement planning were gathered through district interview. Research findings identified the importance of district leadership focusing on communicating a clear and consistent vision and expectations of how data influences teacher instruction.

Kalkan's (2015) quantitative study revealed the connection between teachers' perceptions and organizational trust in the PLC. The sample included 805 primary education teachers using stratified sampling. The research model consisted of two

independent variables and two dependent variables. The researchers found that teachers' perceptions of the PLC increased through trust in principals and colleagues.

Formative Objectives-Oriented Program Evaluation Model

A formative objectives oriented program evaluation is used to render judgments about the value of a program that is being evaluated and may use predetermined objectives to determine whether the goals and objectives of the program have been met (Fitzpatrick et al., 2011). Fitzpatrick, Sanders, and Worthen (2004) defined an objectives-oriented program evaluation as the "identification, clarification, and application of defensible criteria to determine an evaluation worth or merit in relation to those criteria" (Fitzpatrick, Sanders, & Worthen, 2004, p. 5). Fitzpatrick, Sanders, and Worthen (2011) referenced seven steps for program evaluation using the Tylerian Evaluation Approach. The seven steps are to (1) establish goals or objectives, (2) classify goals, (3) define objectives, (4) locate achievement in goals, (5) select measurement techniques, (6) collect performance data, (7) compare performance data and objectives.

Step 1 – Establish goals or objectives: The PLC teams identified the goals and objectives for the PLC during the initial implementation of the PLC model.

Step 2 – Classify goals: The goals were organized in ways that they are measurable for collective inquiry and collaboration.

Step 3 – Define objectives: The program objectives were defined by the PLC teams to clarify their meaning, and what they are intended to accomplish.

Step 4 – Find situations in which achievement of objectives can be measured: I used interview and document protocols to monitor the achievement of goals.

Step 5 – Select measurement techniques: I used qualitative measurement techniques to determine whether collaboration and collective inquiry goals are met.

Step 6 – Collect performance data: Team meeting notes and interviews were used to collect data.

Step 7 - Compare performance data with objectives: I compared the qualitative data with the objectives to determine whether the goals and objectives were met. I made two modifications to this program evaluation model. First, this program evaluation was not used to evaluate the entire PLC program, but only on whether the goals of collective inquiry and collaboration were met. Second, in a typical program evaluation may include both quantitative and qualitative measures. Due to the nature of the problem and research questions to address the problem, only a qualitative research method was used. Data were collected through interviews with and team meeting notes from PLC teams that participated in the implementation of the PLC in 2015 and 2016.

One of the key elements of an objectives-oriented program evaluation is to identify the objectives of the program, which is the primary role of an evaluator, and to collect data. An objectives oriented evaluation uses explicitly stated objectives, and the evaluation assesses whether the goals and objectives have been met. Fitzpatrick, Sanders and Worthen (2004) identified one appeal to using a program evaluation is that it is simple to use, easily understood, and produces information for stakeholders.

Critical Review of the Literature

Academic Achievement

One education quality concern is that high school graduates are not fully prepared to enter college or the workforce. The United States continues to fall behind other countries in pre-college educational outcomes (Nation's Report Card, 2017). The 2015 National Assessment of Education Progress (NAEP) results show that only 40% of fourth grade and 33% of eighth grade students perform at or above proficiency levels in mathematics. Additionally, only one-third of fourth and eighth grade students perform at or above proficiency in reading (Nation's Report Card, 2017). Nearly 60% of college students, moreover, enroll in college remedial classes, which is a significant issue in low college graduation rates (Board, 2018). The American College Testing (ACT) 2016 results showed that only 23% of Hispanic students and 11% of African American students were ready for college (ACT, 2015). In the public education system, one in five students is not graduating on time with peers, and more than 4,000 students drop out of high school (National Center for Education Statistics, 2017).

Too many elementary schools are not meeting their goals for improving student achievement. Thirty-six percent of fourth grade students perform at or above the proficient level in reading, and 40% of fourth graders perform at 33% proficient on the NAEP assessment (Nation's Report Card, 2017). Schools are expected to be effective in educating students and increasing academic achievement on a yearly basis. Individual schools are responsible for implementing plans and goals to improve student achievement (Leavitt et al., 2013). Schools also continue to face the task of improving academic

standards for all students whether they are elementary, middle school, or high school students. Researchers Brown, Horn, and King (2018) identified that student achievement improves as a result of teachers and schools embracing and participating in the PLC.

Effect on Student Learning

PLCs are an approach used by schools that contributes to positive student outcomes for student learning (Muñoz & Branham, 2016). To improve student achievement, teachers have to implement strategies and programs to address low student achievement and implement mandated reforms (Jones et al., 2013). The reform efforts require schools to address low student achievement and learning gaps among students. Schools have to ensure that all students encounter rigorous standards and challenging cognitive demands while serving an increasing number of students who have struggled to find success with traditional instructional practices (DuFour & Marzano, 2011). Schools face increased pressure from state and local governments to collect student achievement data, show student performance growth, and determine instructional quality as benchmarks for raising the caliber of classroom teaching (Woodland & Mazur, 2015). Schools show academic progress by teachers examining successful teaching and learning practices and collaborating to increase achievement of students in all K-12 settings and at all socioeconomic levels (Jones & Thessin, 2015).

Improvement of student achievement involves more than evaluations of student performance. An essential element of student academic success is teacher quality (Battersby & Verdi, 2015). Due to federal mandates, requirements for school and teacher accountability have resulted in evaluations designed to remove ineffective teachers from

classrooms and ensure that teachers who remain in classrooms are effective (Woodland & Mazur, 2015). Improving students' academic achievement requires professional development for teachers that continually upgrades instructional practices (Owen, 2014). Having ineffective teachers in the classroom continue to lower students' academic achievement (Woodland & Mazur, 2015). Inflated performance measures, ineffective evaluation methods, and professional development programs that have little or no effect on teaching quality remain reasons for ineffective teachers staying in the classroom (DuFour & Mattos, 2013).

Standardized Testing. Schools remain under pressure for increased accountability, student learning, and data collection. Fortunately, these requirements are used to force educators to adopt instruction improvement strategies (Farley-Ripple & Buttram, 2014). Standardized test scores are used to measure school and teacher accountability. State and local educational agencies throughout the United States have put in place accountability measures to promote higher student achievement and help schools and students struggling to meet state standards (Farley-Ripple & Buttram, 2014). Educators remain accountable to their peers, districts, state accountability measures, policymakers, and district and school administrators. Teachers' participation in PLCs has lead to students' improved performance on standardized testing (Ning, Lee, & Lee, 2015) thus, addressing teacher accountability. Ning, Lee, and Lee (2015) focused on effective collaborative practices in enhancing instructional effectiveness, student learning, and accountability. The sample consisted of 952 teachers from 95 schools in Singapore, with most participants being female. The researchers identified team collegiality as a

significant factor in shared personal practice and collective learning. Collective staff attention to student learning needs can influence both student learning and teacher quality, which improves students and teachers' performance. Such collective inquiry tends to occur through strong relationships among teachers (Kelly & Cherkowski, 2015).

Teaching to diverse populations. As schools become more diverse, teachers must understand the academic needs and behaviors of all students and develop strategies for improving their academic achievement. Teachers struggle with the skills and knowledge needed to teach an increasingly diverse learner population. Educators use PLCs to engage in conversations and understand diversity in the classroom to identify and address obstacles to learning, and to accommodate diverse learning needs (Walton, Nel, Muller, & Lebeloane, 2014). For a diverse student population, teachers have to review course content to ensure that it meets these students' needs in preparing for further education or employment. In this study, diversity factors of students at the local site include socioeconomic status, language, ethnicity, and physical and mental limitations. It is imperative that teachers recognize that all students can learn regardless of these diversity factors (Walton et al., 2014).

Federal Policies

Many Americans question why school reform efforts have not improved student achievement or preparation for college and the workforce (U.S. Department of Education, 2018). Federal and state legislators, school boards, parents, and educators want an education system that prepares students for the 21st century workforce and citizenship in a democracy and to be self-actualized human beings. Teachers and administrators have

struggled to find success in the traditional school model in which teachers focused on teaching instead of student learning when challenged to increase academic achievement (DuFour & Marzano, 2011). Based on the concerns expressed by these stakeholders, an increased focus on student achievement has caused schools to challenge their fundamental philosophies regarding teaching and learning.

In the early 1980s, educational leaders rushed to identify solutions to low student performance since the "Nation at Risk" report identified struggles that U.S. schools faced when preparing students to compete in the global economy (U.S. Department of Education, 2018). Because of this report, federal policies were written to increase student achievement by requiring more assessments and increasing the consequences for inadequate results including rejecting diplomas, dismissing teachers, and closing schools (Darling-hammond, Hyler, & Gardner, 2017). Increased emphasis on accountability for student performance, meeting state standards, and teacher qualifications have created new expectations for teachers and schools (Dever & Lash, 2013).

No Child Left Behind (2001), Race to the Top (2012), Common Core State Standards Initiative 2010), and the Every Student Succeeds Act (2015) are federal policies designed to improve student performance and to prepare students for college or the workforce. No Child Left Behind (NCLB) was written to increase academic rigor, accountability, and quality personnel through state testing (Aquila, 2014). Educators were required to prepare students for the workforce and higher education by adopting student learning objectives, retaining qualified teachers, and tracking student progress (RTTT, 2012). Additionally, Common Core Standards were implemented to prepare

students for college and the workforce (Common Core State Standards Initiative, 2010). The Every Student Succeeds Act was written so state leaders could select their accountability plans, goals, and improvement programs to ensure that all students improve academically (ESSA, 2015).

No Child Left Behind. The No Child Left Behind (NCLB) law was written to address issues of student achievement by requiring schools receiving federal funding to provide programs to support comprehensive school reform (Aquila, 2014). Additionally, educators were mandated to use research based strategies to improve student achievement. Student achievement was measured by annual state testing of students identified by race, gender, ethnicity, socioeconomic status, and disabilities (U.S. Department of Education, 2018). One of the goals of NCLB (2001) was to reduce or close the achievement gap among students by increasing academic rigor, teacher quality, use of measurable objectives, and accountability through state assessments. Schools were required to demonstrate adequate yearly progress or be at risk of losing state or federal funding. Schools that did not meet these requirements were mandated to implement school improvement plans including the restructuring of administrations, offering of supplemental educational services, and creation of corrective action plans. Additionally, teachers were required to be "highly qualified" in subject areas they taught. Highly qualified were denoted by teacher licensure, a bachelor's degree, and subject matter competency in the subject area that they teach. The implementation of NCLB at K-12 schools influenced how students received instruction, professional development in-service for teachers, how teachers created assessments, introduced national standards, and

measured success. As a result of NCLB, school personnel (a) aligned standards to classroom teaching to improve instruction, (b) made better use of test results to improve academic achievement, scores on state tests are higher, and (c) aggregate test scores of their students and subgroups of children for purposes of accountability (Ladd, 2017). In response to NCLB's school reform, educators use the PLC as a school improvement method (Dever & Lash, 2013). The PLC is a tool to help schools address NCLB mandates by ensuring teachers are highly qualified, and have the content knowledge in curriculum, teaching, and assessment that they need to improve student achievement.

Race to the Top. Another federal initiative, Race to the Top, was implemented to improve student achievement and encourage educational reform. K-12 administrators were required to use research based improvement models and teacher merit pay and endorse a commitment to close the achievement gap among all students (Race to the Top, 2012). Educators adopted student learning objectives, used data to guide instruction, participated in professional development, and effective teachers were recruited and retained to prepare students for college and the workforce (Race to the Top, 2012). The key to successfully achieving these goals was incumbent on hiring and retaining effective leadership (i.e., the principal). The school principal's role in this initiative included greater responsibility for organizational change (Kellar & Slayton, 2016). Organizational change was achieved by transferring a principal from a high forming school to a low performing school to increase academic achievement (Kellar & Slayton, 2016). Stakeholders in low performing schools were responsible for improving academic

performance, adopting standards that prepared students to succeed in college and the workforce, and increasing teacher and principal effectiveness.

Common Core Standards. Common Core Standards were implemented in 2009 to provide educators with a clear, consistent framework aligned to college and career expectations, and embracing higher order thinking skills (Common Core State Standards Initiative, 2010). State personnel adopted Common Core Standards to improve students' academic performance and track student achievement to ensure that they have the necessary skills for college or the workforce. Elementary teachers used the Common Core standards to develop goals and objectives that students had to master at every grade level. By nature of the PLC adopted at the research site and based on district and state requirements, teachers collaborate and integrate the common core standards in lessons to enhance their instructional practices and improve student learning. Additionally, teachers create lessons based on the specific standards for each grade level, offering students the same curriculum as the curriculum at specific grade levels across the country. Common Core standards require students to learn content knowledge and then process the knowledge using conscious reasoning that continues to increase in complexity. Currently, 42 states have adopted the Common Core State Standards and implemented these based on their timelines (Common Core State Standard Initiative, 2018).

Every Student Succeeds Act. The Every Student Succeeds Act (ESSA) in 2015 reauthorized the No Child Left Behind Act. The authors designed ESSA to narrow the achievement gap by providing all students with fair and equal access to education and achieving academic excellence (Congress, 2015). Part of this federal legislation featured

multiple state and district assessments to determine the academic performance of students, the progress of English language learners, and school quality as the individual state specifies (Congress, 2015). Ninety five percent of all students are tested annually. Schools that do not meet the established standards are identified as needing improvement if they score in the bottom 5% of the state or fail to graduate more than one third of senior class students, especially those from underperforming socioeconomic groups (Colorado Department of Education, 2018).

Educational stakeholders in reaction to the federal mandates adopted PLCs to increase student achievement, address school reform, and create a collaborative teacher culture focused on learning (Liou & Daly, 2014). PLCs are tools to influence teacher learning, improve classroom instruction, and gain higher student achievement (Vablaere & Devos, 2016).

Teacher Professional Development

One of the issues that school administrators face is providing effective professional development for teachers to affect positively the academic performance of all students. Teachers learn to meet the diverse needs of their students in quality professional development training (Jones & Dexter, 2014). Both veteran and new teachers benefit from professional development programs that familiarize participants with district implemented improvement programs (Richmond & Manokre, 2014). Teachers need to learn to teach in different ways from how they were taught, shifting their focus from teacher centered instruction to student centered instruction (Jones & Dexter, 2014). Traditionally, in the teacher centered classroom, teachers stood in front of

the classroom lecturing and requiring students to learn the content. In contrast, teachers in student centered instruction facilitate student learning in individual or small groups using individualized learning and scaffolding instructional strategies to improve academic achievement (Andersen & Andersen, 2017).

Professional development is a requirement for all teachers as part of all state teacher licensing programs and individual school district guidelines. Schools use many professional development opportunities according to their cost, content, and capacity for meeting academic standards (Battersby & Verdi, 2015). The current professional development model implemented at the K-5 elementary school in this study is the PLC with a focus on sustaining academic performance.

Effective PD that affects student performance. To make a difference in student learning outcomes, professional development should be linked to learner needs, work to provide extended time for student learning, be collaborative, and include an ongoing assessment of effective professional development initiatives focused on improving student achievement (Cherkowski, 2016). When teachers have autonomy in selecting their professional development content, they design and implement their professional development content to lead to positive teacher and student outcomes (Linder, 2012). DuFour's (2014) practitioner focused article investigated PLCs that identified improvements in student and teacher learning. DuFour (2014) identified these descriptors of successful professional development: ongoing, collective, job embedded, and results oriented. Teachers who participate in continuous learning embedded in their jobs are more likely to improve student learning (Hoaglund, Birkenfeld, & Box, 2014).

Professional development can create positive teacher and student outcomes when done successfully, however, it is typically inadequate in meeting teacher learning needs (Jones & Dexter, 2014). Teacher learning in a PLC is more effective than traditional professional development because participants in PLCs commit to working together with the objective of improving student learning (Stewart, 2014). In a qualitative case study of three schools based on interviews with 58 teachers, Owen (2014) explored how high quality teaching and ongoing professional development in the PLC affect student achievement. Findings from the Owen (2014) study indicated that students benefited from the collaborative efforts of teachers examining data, learning from colleagues, and adopting innovative practices with ongoing support. Participating teachers in a PLC reported that professional development enhances instruction through engaging in interesting activities, learning from each other, focusing on improving their competencies, learning to work with difficulties in student learning, and being reflective about the most effective techniques to improve instruction (Cheng & Ko, 2012).

Teachers and administrators use the PLC to provide complex skills that students need to improve academic achievement, student behavior, higher level thinking skills, and student engagement. These opportunities help students to solve problems individually and collectively.

Professional Development That Affects Teacher Performance

Additionally, many schools seek ways to sustain academic improvement by ensuring teachers are engaged in ongoing professional development and are enhancing professional development opportunities for teachers (Cheng & Ko, 2012). High quality

professional development programs create new learning opportunities for teachers by addressing the specific student achievement and teacher learning needs of each school (Dever & Lash, 2013). To improve and sustain academic improvement, students need effective teaching to acquire higher order thinking skills. Teachers need new opportunities to learn to teach more effectively, prepare their students for a diverse workforce, and focus on the teaching learning relationship (Jones & Dexter, 2014). To achieve these goals, effective professional development experiences should include collaborative approaches that are monitored for effectiveness to improve students' educational outcomes. Collaborative approaches engage teachers in conversations and debates within a PLC to support staff professional growth and educational practices and improve student learning (Poekert, 2012).

Administrators at the local site implemented various professional development opportunities for teachers to improve and sustain academic achievement and teacher learning. To improve academic achievement, district administration adopted various curriculum programs, coaching, mentoring, workshops on curriculum, and study groups to improve instruction To sustain student achievement, teachers need to be trained and use curriculum programs with fidelity. Often teachers would select portions of a program rather than implementing the program as intended. In general, conventional approaches are ineffective because they have produced limited measurable effects on teaching practice and student outcomes (Gore et al., 2017).

Additionally, teachers take ownership of their learning using the PLC model to improve teaching. Kelly and Cherkowski (2015) sought to understand how professional

development opportunities can be designed and facilitated to support professional learning. Fourteen classroom teachers and six literacy intervention teachers participated in a qualitative case study, featuring collaborative inquiry interviews about their experiences with their PLC. The researchers examined the reflections and discussions of a group of teachers in a rural school district to determine the importance of collaboration, peer relationships, and their changing mindsets about their work. The findings showed that establishing a climate that focuses on teaching, learning, and collaborative inquiry has a positive influence on teachers' professional learning.

In summary, teachers learn when they engage with team members to collaboratively learn, share ideas, and engage in conversations about their students. Teachers use evidence of learning to discover problematic areas and which classes are performing better, and then adopt strategies to improve student achievement. Teachers become receptive to change in their instructional practice when they see students achieve at higher levels on team developed assessments. When teachers determine that students instructed by a colleague perform at higher levels on team developed assessments, they become more responsive to adjustments in their instructional practice.

The workshop approach, online learning, seminars, teaching rounds, and professional learning communities are conventional professional development formats (Gore et al., 2017). Although they are considered traditional, not all of them meet the criteria to make a difference in student learning. They may omit one or more of the criteria for effective professional development.

Professional Development Types

As demands for student learning intensifies, policy makers, and school district personnel think systematically about how to improve teacher learning through professional development. Professional development types include the workshop approach, online learning, educational conferences or seminars, teaching rounds, and the PLC. Each type of professional development has different characteristics that will be described below. The shared characteristics of effective professional development focus on teaching strategies with specific district adopted curriculum. For example, at the research site, teachers are encouraged to use specific activities to increase student collaboration contained in the adopted language arts program. Effective professional development incorporates active learning, contains interactive activities, and supports collaboration that provides teachers with the opportunity to share ideas in job embedded contexts (Darling-Hammond et al., 2017).

One type of professional development type is the workshop approach. District personnel often use the workshop approach by bringing in a consultant during a scheduled staff development day for training in a specific subject or pedagogical approach (Darling-Hammond et al., 2017). The consultant knows the program and its content and has the ability to demonstrate and model the program and provide ongoing support to the staff. The workshop approach is effective in introducing new strategies, techniques, and support to the staff on the implementation. Other benefits of the workshop approach are that the cost to the district is minimal, convenience in scheduling,

and the entire staff can be trained at one time. The workshop approach has shown little evidence of enhanced teacher effectiveness.

Online learning is an alternative type of professional development in which teachers have the autonomy of their learning and professional growth through course schedule and flexibility (Gunter & Reeves, 2016). Course content format includes digital information, photographs, videos, discussions, and interactive tools to construct knowledge (Beach & Willows, 2017). The advantage to this type of professional development is the flexibility in scheduling and ability to choose the course. The downside is that delivery is through photographs, and teachers do not have the opportunity to interact with people, engage in collaborative conversations, or ask questions (Beach & Willows, 2017). Another challenge of the online learning format is that teachers may struggle with completing the course and applying content knowledge that will positively influence teacher performance.

Teachers often take advantage of education conferences to improve their teaching practices and to keep current research on student and teacher learning. One of the advantages of attending an educational conference is that presenters excite educators about current educational topics (Why making time for professional development matters, 2019). This type of professional development uses a lecture approach to share information on a specific topic to a group. An advantage of this type of professional development is increasing teachers' knowledge of the subjects they teach and providing instructional strategies. One of the limitations of this type of professional development is that teachers may not have the opportunity to share their knowledge, experience, or not

new strategies that may improve their teaching practice (Darling-Hammond et al., 2017). Cheng and Ko (2012) stated that teacher professional development should include engaging activities, collaborating with colleagues, reflecting on effective ways of teaching, and focusing on student learning, which are missing in an educational conference or seminar.

Another type of professional development is the use of teaching rounds. Administrators and teachers use teaching rounds to analyze specific problems, identify needs of the classroom, and establish direction for additional support. Teaching rounds are observations by the principal, vice principal, and/or colleague in the same or neighboring school (Gore et al., 2017). Administrators and teachers use protocols to keep observations non-judgmental and to keep the focus on teaching rather than teachers. Teachers may have the opportunity to visit other schools, participate in a cohort of teachers, mentoring and colleague observation, and coaching (Darling-Hammond et al., 2017). Teachers may use observations to gain insight, new skills, strategies, and resources, and reflect how the lesson has been beneficial in improving student learning (Gore et al., 2017). However, classroom observations have several disadvantages for the observer. The observer may possess inadequate expertise in observational skills. Observation feedback does not always improve teaching performance. Lastly, teachers may misapply curriculum content.

Another professional development model is the PLC. The PLC is a tool that consists of a group of teachers, administrators, and learning coaches who focus on the constant improvement of teacher and student learning. The focus of this type of

professional development is ongoing "job embedded learning." Teachers work in collaborative teams to critically examine and deliberate standards based learning and identify evidence based instructional strategies for achieving the standards. Teachers customize and personalize their professional development allowing them to level a sense of ownership through self-directed learning (Linder, 2012). Ning, Lee, and Lee (2014) showed that the PLC lead to teachers' increased involvement in professional development, collaborative practices, and growth in student learning. One of the disadvantages of this style of professional development is that it can take several years to implement successfully. A more in depth description of the PLC formal will follow.

Use of PLCs for Professional Development

PLC teams have the opportunity to create an environment focused on student and teacher learning when a PLC professional development format is adopted. Cheng and Ko (2012) suggested that creating a learning community consisting of teachers, administration, and learning coaches is a critical factor for the professional development of teachers to enhance student learning. Teachers have the opportunity to learn from multiple experts, improve teacher competencies, and reflect on effective ways of teaching. Additionally, teachers customize their professional development and enhance self directed teacher learning. Owen (2015) identified increased learning outcomes for student learning in achievement when professional development in PLCs is continuous and connected to practice and aligned with school goals. Additionally, focusing on student learning, reflective teaching, and application of new strategies may result in increased student engagement and understanding the concepts taught.

DuFour (2004) stated that the PLC model consists of teachers, who are part of the learning community, are committed to the shared vision of increasing student learning, work collaboratively to identify solutions to problems in their practice, and evaluate the success of their attempts to improve pedagogy. Among the strategies of the PLC, the model is used by teams to focus on specific issues that are related to the school and to change the mindset of teachers. The teachers work together to examine evidence of student learning and identify specific strategies and goals to improve student achievement (Dogan & Adams, 2016).

In a learning community, professional knowledge is part of that community. Teachers construct professional knowledge through social interactions and reflections with other teachers, content experts, and administration (Van Lare & Brazer, 2013). When teachers collaborate on student learning, they develop multiple ways to deal with issues of practice and solve problems of practice in their classrooms. Teachers use evidence of student learning to drive collaborative interactions and reflections on teaching practice to evaluate the success of their efforts, identify specific goals, and develop strategies to achieve the goals (Kelly & Cherkowski, 2015). A learning community results when educators work together to examine and reflect on their teaching, improve their learning, begin to learn continuously, and gain new knowledge. Teachers need multiple opportunities to learn continuously, enhance accountability, examine and question their teaching practice, and share their learning experiences with other team members. Teachers use their shared expertise to increase knowledge on what is working in the classroom and the need for change to improve student learning (Kelly &

Cherkowski, 2015). PLC members become better decision makers by selecting their topics for inquiry, determining how they will be studied, implementing activities, setting up classroom materials and evaluations, and scheduling PLC meeting dates (Linder, 2012).

Ensuring that Students Learn

A collaborative culture. A collaborative culture in a PLC is a process in which educators work together to achieve increased teacher learning and student achievement (Battersby & Verdi, 2015). In a PLC collaborative culture, teachers meet to gather evidence of student learning, develop and implement strategies, discover effective strategies, and then apply those strategies in a cycle of continuous improvement (DuFour, 2015). Creating a collaborative culture in a PLC is necessary because teachers benefit from interacting and reflecting together as they plan and discuss student learning. Riveros et al. (2012) found that teachers' professional learning in schools is embedded in practices where they share information. When teachers increase their learning, they transfer their knowledge to the students in their classroom through the new knowledge gained.

As a part of the collaborative culture, educators use collective inquiry understand student knowledge acquired. Teachers examine student data to understand their teaching and student learning and identify evidence of learning to guide their instruction (Feldman & Fataar, 2014). Teachers determine which students are performing well, which students require extra support, and what to do with students who have mastered the content. Teachers adopt different pedagogies and explore new curricula and ways of teaching to

improve student achievement. These focused conversations help teachers to set clear goals and improve student learning (Nelson et al., 2013).

Collegial interaction to ensure student learning. Collegial interaction occurs when educators interdependently work together to improve student learning. In a collegial culture, teachers learn from each other to adjust their teaching practices and improve student learning (Ho, Lee, & Teng, 2016). Teachers engage in reflective dialog about specific issues and engage in cooperative practices and have a collective focus on student learning (Tam, 2015). Teachers can challenge practices, hear multiple perspectives of teaching approaches, and acquire new understanding about the curriculum that may have an influence on student learning (Tam, 2015). Teachers interact to share ideas, take risks, and break down the walls of isolation (Williams, 2013). Through these teachers interactions, they affirm improvement in student learning. Collegial interactions include observing and videotaping each other in the classroom, evaluating lessons, investigating teaching obstacles, generating new ideas, examining best educational practices, learning, and then discussing which led to academic improvement for students (Wells & Feun, 2013). For example, in an ELA classroom, the teacher observes another teacher. At the end of the lesson the PLC team meets to review and reflect on instruction. Everyone's input is valued and it is up to teachers to individually reflect on the feedback to ensure student learning.

In PLCs educators develop close, continuing relationships with colleagues that strengthen communication and interactions (Brodie, 2014). (Jacobsen, Eaton, Brown, Simmons, & McDermott, 2018) identified the importance of members working with a

team to enhance their professional learning through dialogue, idea sharing, and multiple perspectives to teaching ideas. Collaborative learning that arises from sharing professional experiences allows teachers to gain new insights, knowledge, and perspectives that enhance critical inquiry and reflective analysis (Attard, 2012). Ho et al. (2016) indicated that teacher instruction and student achievement improve as a result of the cohesive relationships among staff. Teachers develop a sense of efficacy and the ability to influence colleagues by holding each other accountable and committed to student learning (Tobia & Hord, 2012).

Student testing to ensure student learning. Teachers use test results to determine how students are performing and the foundational base for instruction. Additionally, teachers collect and organize data to address significant achievement gaps among students and subgroups of children (Jones, Stoll, & Yarborough, 2013; Williams, 2013). Teachers use test data to identify which students need extra support and which have mastered the content and provide instructional support using student grouping (Thessin, 2015). Teachers group children based on their academic strengths and weaknesses to provide interventions that may improve student learning. Teachers use progress monitoring (assessment at specific times of the year) to continually evaluate the effectiveness of their teaching and make informed instructional improvements. Students' current level of performance and academic goals and the rate of progress needed to achieve the goals can be identified using progress monitoring. The teachers use probes to measure student progress regulary and determine how they are responding to instruction, and evaluating the effectiveness of their instruction. When these measures are used

throughout the school year, the teaching performance improves and the gap in student achievment may close.

Leadership to ensure student learning. Leadership ensures that teachers focus on student achievement through the school's mission, objectives, and culture of the school to ensure student learning. DuFour et al. (2008) supported the development of a collaborative effort in which the members of the staff create a mission focused on improving learning for teachers and students. Leadership helps foster a culture of collaboration by establishing a safe, yet challenging environment for collective inquiry and assuring that teachers and students have the resources needed for learning (Christiansen & Robey, 2015). Principals serve as a vital resource to guide teachers into professional learning communities by modeling the expectations for the school environment and support and by providing resources and a supportive environment that ensures student learning.

Principals' may use their instructional leadership to support how teachers collaborate to improve instruction with detailed knowledge of classroom practice. Effective principals make it more likely that teachers will engage in collaborative interactions designed to improve instruction and achieve goals (Goddard, Goddard, Kim, & Miller, 2015). To achieve these goals, leadership should focus on communicating a consistent vision and expectations for student learning (Farley-Ripple & Buttram, 2014). Principals who regularly monitor instruction and provide instructional support to teachers experience high levels of collective work among teachers focused on improving their instruction (Goddard et al.). School leaders have a direct role in making decisions to

create opportunities that reinforce data use for instructional improvement while communicating the importance of collaborative work in improving student learning (Farley-Ripple & Buttram).

Principals who operate as instructional leaders with comprehensive knowledge of classroom practice are more likely to influence teachers who will engage in collaborative interactions intended to improve instruction (Goddard et al., 2015). Principals who focus on social and professional exchanges foster open communication, guiding teachers to critically reflect on their own learning and teaching practices. School leaders have an indirect effect on student achievement through the support they provide to teachers. Based on conversations, student outcomes improve when teachers are collectively involved in the development of curriculum and instruction (Goddard et al.).

Collaboration.

Collaboration is key to a successful PLC. Through the PLC, teachers collaboratively improve their instruction by reflecting on student needs, their practices, and improving their teaching efforts (Cheng & Ko, 2012). Establishing a PLC is a complex process that requires cultural changes to improve collaboration and make the initiative effective and sustainable (Makopoulou & Armour, 2014). Cultural change involves educators and administration questioning their beliefs about teaching, learning, and engaging in an iterative, collaborative process to generate opportunities to share expertise and learn from each other. Effective collaboration fosters relationships among teachers and other experts to create clear goals and share purposes and a greater responsibility for student learning resulting in increased morale (Nelson et al., 2013).

PLC teams meet to evaluate student work against standards (Sompong et al., 2015), using their insights to choose targets for instructional improvements. These team meetings work best with shared planning times for instructional decision making. Oral interactions build teacher community, support their feelings of competence, and generate a sense of individual autonomy. Teachers report that one benefit of the PLC model is (Nelson et al., 2013) collaborative planning that allows teachers to feel connected, supported, and assisted in planning and implementing mandated reforms to improve student learning (Caskey, & Carpenter, 2012).

PLCs are based on the idea that teachers who work collaboratively with peers are more effective in achieving school goals, have increased responsibility for their performance, and show a more significant commitment to their work (DuFour, 2015). Owen (2014) found that key factors in successful teacher learning are collaboration, goal setting, and use of data on results, continuous improvement, and making sure that students learn. Teachers participate in collaborative opportunities to strengthen their commitment to goals, the main one being student learning (Kalkan, 2016).

High quality professional learning can nurture a collaborative culture that empowers teachers to learn from each other to improve student learning and teaching practice and enhance student outcomes (Ho, Lee, & Teng, 2016). Teachers improve their learning by focusing on learning instead of teaching, working collaboratively, and holding themselves accountable for results (Hoaglund, Birkenfeld & Box, 2014). Collaboration seems to lead to diverse perspectives and skills that can promote teacher creativity, productivity, and the ability to defend positions, give feedback, achieve

consensus, and apply knowledge with the common goal of improving student achievement (Morel, 2014).

DuFour and Mattos (2013) stated that to ensure that students learn at higher levels then teaching must be improved. To improve instruction teachers interdependently organize and meet in grade level teams to achieve common goals. During these grade level team meetings, team members identify areas where students need extra time and support for learning and ensure assistance immediately for students who are struggling or need enrichment.

Environment/climate for collaboration. Collaboration requires a positive learning environment. Caskey and Carpenter (2012) stated that teachers' strengths and weaknesses, collaboration, implementation new ideas, and continual learning characterize a successful PLC. A sense of community forms when members interact and discuss their common interests (Linder, 2012). Furthermore, Pyhalto, Pietarinen, and Soini (2015) affirmed that a positive collaborative climate with support from colleagues and school leaders influences teacher satisfaction and their motivation to learn (Pyhalto, Pietarinen, & Soini, 2015).

Trust for collaboration Trust among colleagues requires focusing on student learning, developing shared values, using de-privatized practice, and employing reflecting dialogues to establish collaboration (Farley-Ripple & Buttram, 2014). Trust is necessary among PLC team members to problem solve, reflect on teaching practice, and construct knowledge. For collaboration to work, team members must have the freedom to express ideas and concerns without judgment from their colleagues. When trust is

present, the PLC team focuses their dialogue on individual goals, strategies, questions, and concerns in collaborative conversations where trust is present (DuFour & Mattos, 2013). If trust is evident within the team, teachers are willing to take instructional risks, adopt innovative teaching practices, unreservedly discuss their feelings and aggravations about working conditions, and develop positive working relationships. Team members who trust and respect each other participate in supportive and productive interactions with each other focused on improving achievement and learning (Ning et al., 2015). In contrast, distrust causes conflict among team members, and impedes teaching and learning, and collaboration. If teachers do not trust their colleagues to improve teaching and learning, then they cannot be expected to cooperate.

Collaboration is important in PLCs to improve student learning by sharing decision making and supporting strong personal and professional relationships focused on trust. Additionally, collective actions in a trusting group have a positive effect on problem solving and decision making promoting sharing of information. Moreover, trust is a prerequisite for implementing new techniques and procedures for student learning. A participatory action research project conducted by Sompong et al (2015) encouraged collaboration and trust building as teachers engaged in discussions of teacher learning. The researchers contended that trust requires members to discuss alternative viewpoints and understand differences that may arise when individuals make decisions. A PLC team has the potential to create (Gray, Mitchell, & Tarter, 2014) cohesion, safety, and the willingness to change. For teachers to learn, a safe environment is essential because they must admit their weaknesses in their practice and knowledge (Brodie, 2014).

Collaborative conversations centered on trust, mutuality, and respect create a safe space where teachers can expose and engage with their implicitly held beliefs and practices (Liou & Daly, 2014). It is important to create a respectful atmosphere where reflection, engagement, vulnerabilities, and conceptual weaknesses are exposed (Liou & Daly, 2014). Trust is essential for enabling change to occur among members of the learning organization and improve student learning (Jones et al., 2013). Implementing new methods and procedures for student learning thus requires trust. In contrast, distrust causes people to view change as a threat and are reluctant to do so (Kalkan, 2016). The nature of the PLC prospers in environments that encourage trust, risk taking, and teacher support.

Buchanan (2012) proposed that professional development happens best for teachers in a collaborative community where teachers take the risk to engage in conversations about their craft. This qualitative study discussed the importance of teachers relating to each other and provided research-based strategies on how professional learning can affect teacher learning. Teachers believed that they learned more when they interacted with teachers they trust to share problems, seek advice, and develop closed and sustained bonds with other colleagues who shared the same insights (Buchanan, 2012). A successful PLC team encourages and facilitates a collaborative environment where individuals produce and search for new information that will have an influence on student achievement.

Improving relationships with students and teachers has positive implications for students. Positive student teacher relationships promote trust that results in students

showing more engagement in learning, behavior, and achieve higher levels academically (Rimm-Kaufman & Sandilos, 2018). These relationships promote students desire to learn and engages them in the learning process. Additionally, it creates opportunities for students to think, analyze, and extend students' prior knowledge.

School culture for collaboration. Establishing a school culture that makes sharing and collaboration ongoing and focused on student and teacher outcomes is a priority in a learning organization (Makopoulou & Armour, 2104). The culture of the environment consists of the attitudes, beliefs, assumptions, habits and ways of doing things shared within a community. Teachers' beliefs are intimately related to the ways teachers work with colleagues (Tam, 2015). Teachers who experience a positive work ethic feel empowered using active and reflective problem solving and self-regulation strategies to proactively hand stressful interaction and challenges (Pyhalto, Pietarinen, & Soini, 2015).

Teachers who focus on collaboration will likely have a high functioning PLC team (Owen, 2014). Educators in such a school will tend to reflect on the roles of student learning and teacher collaboration in their school (Vescio, Ross, & Adams, 2008). A collective culture consists of teachers willing to use inquiry in the quest for new knowledge (Wennergren, 2016). The school culture will improve through the increase in collaboration, empowerment, authority, and continuous learning and will lead to higher performing students (Jones et al., 2013). School culture positively affects instruction, reduces teacher isolation, and improves organizational capacity, all of which results in a culture of high quality instruction (Woodland & Mazur, 2015).

PLC Implementation Outcomes

PLC team members use the PLC to provide opportunities to improve teacher and student learning. Based on a review of the literature, Stewart (2014) identified the aspects of PLCs that improve teaching and learning. Collaborative teams identify the strengths, weaknesses, and achievement gaps in student learning. Stewart stated that successful PLCs are composed of teachers who participate in collaborative training while selecting their learning objectives.

Leclerc, Moreau, Dumouchel, & Sallafranques-St-Louis (2012) in their qualitative multi case study, identified the essential factors for implementing a PLC. The researchers used an interpretive research design to acquire a deeper understanding of the PLC process in six elementary schools. The researchers interviewed 98 teachers with an average teaching experience of 12.78 years. The teachers were interviewed for one hour, focusing on explaining the issues that influence the functioning of schools as PLCs. The researchers identified the developmental stages and indicators of progress crucial in evaluating a school with PLCs. They found that the culture, leadership, vision, topics addressed, and decision making based on accurate data necessary for evaluating PLCs.

If a PLC is implemented with fidelity, numerous positive results occur. Administrators have noticed an increase in teacher retention and job satisfaction. Teacher retention and higher levels of job satisfactions are noted when teachers engage with their peers in an educational setting (Hoaglund, Birkenfeld, & Box, 2014). Teachers, who work in innovative communities, expressed more satisfying careers and a greater professional growth (Gray, Mitchell & Tarter, 2014). PLCs implemented

correctly reduce teacher isolation resulting in higher job satisfaction. Teachers who experienced high levels of support from colleagues were found to be less likely to leave the profession. Such teachers tended to engage in collaborative inquiry and felt comfortable to challenge their pedagogical practices (Thornton & Cherrington, 2014). When trusting relationships are developed, teachers increase their learning and learning transfers to the student population and results in improved academic achievement.

Students benefit from learning in a school that adopts and implements a PLC. When a PLC is adopted and used, teachers expose students to strategies focused on improving critical thinking, higher order thinking skills, making inferences, problem solving, and connecting concepts (Nguyen & Nguyen, 2017). Teachers encourage students to make connections from prior learning, reflect on what they are taught, and apply what they have learned to solve real problems. In comparison to schools without a PLC, students taught in a PLC school have lower rates of absenteeism, increased learning, greater academic gains, and smaller achievement gaps between students from different backgrounds (Escobar, 2106, p. 56). High quality student learning is attained in classrooms through instruction, and students of all social backgrounds benefit equally despite race, gender, or socioeconomic status.

Implications

Schools continue to seek solutions to improve teacher professional development that leads to better student learning. Based on the anticipated findings, this evaluative study provided information to stakeholders within a local Title 1 School on the implementation of collaboration and collective inquiry and the influence they have on

student achievement. The interviews and documents collected qualitatively provided information about the PLC and whether it met its goals on collaboration and collective inquiry. The project deliverable was a program evaluation report that informed school personnel of the strengths and weaknesses of collaboration and collective inquiry. The study will be made available to the teachers, administration, and learning coaches.

Summary

In section one, I identified the local problem that students in Grades 3-5 are performing below the state expectations in reading, writing, and mathematics at the elementary level. To address this problem, the district and local school administration decided to adopt and use a PLC. The PLC is a staff development approach implemented by administrators and teachers at the research site to increase student academic achievement. The literature review includes program evaluation models, a full description of the PLC model, program evaluation model, and a theoretical framework. Furthermore, the effect of PLCs on student learning, federal policies, teacher professional development types, and PLC were discussed in the literature review. Positive social change featuring collective inquiry and collaboration will be addressed through program recommendations.

The research methodology for this study is explained in section two. Additionally, the design of the study, sample, and why the sample was chosen were explained. The privacy roles of the researcher and methods used to ensure the ethical protection of participants, data collection and analysis, and reporting methods were outlined.

Section 2: The Methodology

Introduction

A modified formative objectives oriented program evaluation was used to explore whether the goals and objectives of collaboration and collective inquiry were met in the PLC. To date no evaluation was conducted on any of the goals. A qualitative methodology was used to collect data from participants and to review documents to understand the views of participants who were involved in the implementation of the PLC. This section will focus on the methodology, research design, setting, sample, data collection as well as procedures for data collection and analysis, and limitations.

Qualitative Research Design and Approach

A qualitative research design was used to conduct a modified formative objectives oriented program evaluation. This program evaluation model was used to document whether the goals of collaboration and collective inquiry were met in the implementation of the PLC. Objectives oriented approach is used by researchers as a guide to measure whether goals have been achieved (Fitzpatrick et al., 2011). The evaluator uses characteristics of the program, and its objectives on which the progam is based to identify which evaluation questions will be used. Modified objective oriented approaches can be used for a formative evaluation or summative evaluation.

I made two modifications to this program evaluation model. First, this program evaluation was not used to evaluate the entire PLC program, but only on whether the goals and objectives of collective inquiry and collaboration were met. Second, in a typical program evaluation may include both quantitative and qualitative measures. Due

to the nature of the problem and the research questions used to investigate the problem, only a qualitative study was used. Data were collected through interviews with and team meeting notes from PLC teams that participated in the implementation of the PLC in 2015 and 2016.

Research Questions

The questions guiding this research were:

1. How do PLC team members develop and maintain collaboration using the PLC to close the achievement gap and improve student achievment?
2. How do PLC team members use collective inquiry to improve student performance?

The topic explored in this modified evaluation is how PLC team members develop and maintain collaboration and collective inquiry to improve student performance. A semistructured interview protocol was used with open ended questions. Participants shared their perspectives of the PLC's regarding collective inquiry and collaboration. The semistructured format was used to obtain lengthy and descriptive answers to build insight into a topic, beyond the scope of the planned questions (Lodico et al., 2010).

Qualitative Research Design and Approach

Rationale for Research Design

A qualitative case study design was used to conduct a modified formative objective oriented program evaluation of the PLC. A case study involves the study of an issue explored through a specific setting (Creswell, 2012). The case study is appropriate for this evaluation to provide an in depth understanding of how PLC team members

develop and maintain collaboration, and collective inquiry to improve student achievement.

The phenomenological research design was not chosen because I was not concerned how the context influenced the experiences of the individuals or to understand human behavior through the eyes of the participants (Creswell, 2012, p. 462). The research questions were developed to explore how participants develop and maintain collaboration and collective inquiry to improve student achievement. Additionally, grounded theory was not a feasible choice because it is used to generate or discover a theory, and to provide a framework for further research (Creswell, 2012). The research questions focused on discovering how collaboration and collective inquiry were used to improve student achievement, not to discover a theory or to provide a framework for further studies. Ethnographic research study focuses on an entire group and trying to understand behavior and culture while they are doing what they are doing (Creswell, 2012). The research focused only on specific individuals who have participated in the implementation of the PLC and not observing them throughout the entire process. The historical research study involves focusing on the past events to make predictions about the future (Creswell, 2012). This type of study was not appropriate because I did not gather extensive information about the participant's life. These approaches of qualitative research were considered but did not answer the questions in this study.

Program Evaluation Model

The primary purpose of the modified objectives oriented component of the evaluation was to provide information for program improvement based primarily on the

evaluation framework (Fitzpatrick, Sanders, & Worthen, 2011) in meeting its stated PLC goals and objectives of collective inquiry and collaboration. This program evaluation was not intended to evaluate the entire PLC program, but only on whether the goals and objectives of collective inquiry and collaboration were met. Two modifications were made to this program evaluation model. First, I did not evaluate the entire PLC program in this formative evaluation. Second, I only evaluated whether the goals of collective inquiry and collaboration were met. Given the fact that the PLC initiative at the research site is one aimed at a long term change of the school's culture and had only been in place one year, this evaluation was formative rather than summative in nature to provide for ongoing modifications focusing on improving student and teacher learning.

Several types of program evaluation methods were considered for the study. Since the purpose of this study was not to judge the quality of the PLC, the expertise oriented and consumer oriented evaluations were not appropriate. The teachers, administration, and learning coaches shared information about the implementation of the PLC so a decision oriented evaluation could be used; however, the focus was not to judge the program's activities, but to determine whether the objectives were met (Fitzpatrick et al., 2011).

A modified objectives oriented formative program evaluation model was chosen after evaluating the local problem and identifying that the goals and objectives of the PLC were never evaluated. The intent of the objectives oriented formative program evaluation is to gather data that will provide an in depth look into whether the objectives have been met, or have the potential to be met (Fitzpatrick et al., 2011). Team meeting

notes were used to collect information on the implementation of the PLC and must align with the RQs. The objectives oriented program evaluation is an appropriate choice since the purpose of this study was to determine whether the goals and objectives were met (Fitzpatrick et al., 2011).

Participants

This research study focused on how PLC members developed and maintained collaboration and collective inquiry in the implementation of the PLC for the years of 2015 and 2016. For this evaluation, participants were chosen for the study if they were active members during the PLC implementation period. Participants were selected using purposeful sampling because they have knowledge of the implementation of the PLC. Participants were chosen from Grades K-2 and 4-5. I excluded Grade 3 because I was a participant member of that PLC team. Fitzpatrick, Sanders, and Worthen (2011) acknowledged that purposeful sampling is appropriate to select individuals who have specific knowledge of the phenomenon or key concepts. Purposive sampling is frequently used in evaluation to explore and learn about a specific issue or concern (Fitzpatrick et al., 2011). Participants in this study included 10 elementary teachers, the learning coach, the principal, and the assistant principal who participated in the implementation of the PLC between the years of 2015 and 2016. This sample was chosen because they can provide insight on how collective inquiry and collaboration have affected student achievement. Employees who did not participate in the PLC during the 2015-2016 school year were excluded. An email request for interviews was sent to all participants who participated in the implementation of the PLC.

This study was conducted at the K-5 school where I teach. I submitted my proposal to Walden University Institutional Review Board (IRB) and obtain permission to conduct the program evaluation. After obtaining approval from Walden' IRB, (IRB# 29-18-001923011, expiration 11-28-2019), I submitted a letter to the principal requesting permission to conduct the study at the local site. The principal completed a Letter of Cooperation and returned it to me. After receiving permission to conduct research from the school principal, an email was sent to the 13 teachers, principal, assistant principal, and literacy coach. Using participants' public school e-mail address, I sent a letter explaining the research study and requesting participation. One week after receiving the letter of invitation, participants responded their willingness to participate by email. Participants were emailed an informed consent form and asked for their permission to audio record their interviews. Prior to signing the consent form, I gave participants the opportunity to ask any questions or concerns they may have via email. Participants had one week to return consent forms via email to me. Interviews were scheduled at the convenience of the teachers, principals, and learning coach.

Methods of Establishing a Researcher-Participant Relationship

As a researcher and member of the teaching staff, existing professional relationships facilitate establishing positive study relationships (Rubin & Rubin, 2012). Once the participants were selected, I treated them with respect and established trust, as mandated by the National Institutes of Health Office of Extramural Research (2011). I did not pressure participants to participate and told them that at any time they could cease the interview. I established trust through open and ongoing communication. I informed

participants of their rights and the purpose of the research project. I respected the needs of all participants, including their availability to schedule interviews. It was important to have transparency throughout the process to ensure that all parties understood my role as a researcher.

Individuals who agreed to participate in the study received a follow up email or face to face visit thanking them for agreeing to participate, and to set up times for the interviews to take place. The emails were sent through their district email, to which I have access.

Protection of Human Subjects

Protecting the participants and ensuring that the research process will not cause any harm to the participants is an important part of research (Creswell, 2012). As a researcher, I took extra precautions to ensure that potential participants remain protected. I participated in the training through the National Institute of Health via a web based course called *Protecting Human Research Participants.* This evaluation posed minimal risk to participants, and all potentially identifying information was removed or changed. I advised the participants that participation in the study is voluntary, and their personal information will be confidential and that names were eliminated using an alphanumeric coding system. The identification code consisted of their grade level and first letter of their title. For example: Teacher 1 in Grade 3 will be T13. I notified participants that for any reason they would like to discontinue participating in the study, they were free to withdraw. Participants were given an informed consent form and asked for permission to audio record their interviews. The informed consent form contained my contact

information as well as the contact information of my advisor and Walden University's IRB approval numbers.

Data Collection

This modified objectives oriented program evaluation was used to identify how team members develop and maintain collaboration and collective inquiry to close the achievement gap and improve student achievement. The data collection for this study consisted of interviews using semistructured open ended questions and a document review of the team meeting notes. The data were collected from teachers, assistant principal, principal, and learning coach who participated in the implementation of the PLC from its inception. A semistructured interview was used for participants to share their perspectives about collaboration and collective inquiry and how they affect student achievement. When using a semistructured interview, the researcher prepares questions ahead of time and allows participants the autonomy to express their views (Creswell, 2012). Open-ended interview questions were appropriate for the participants in this study. Semistructured interviews were appropriate for the study because of the nature of the problem. The questions were constructed to stimulate in-depth descriptions of the implementation of the PLC based on the framework and aligned with the research questions.

Document Analysis

Documents are a valuable source that can provide important information for understanding the phenomena in qualitative studies (Creswell, 2012). Teachers had weekly PLC meetings with their grade level team and interventionists, who are licensed

teachers and provide additional support for students in mathematics, writing, and reading. Teachers were required to complete an agenda that include objectives, action steps, and the focus for the next meeting. K-5 grade level teams were required to submit weekly team meeting notes to the principal. Each week the team leader submitted summaries of the meeting to the principal. In each summary the team leader included objectives identifying what the group wants students to know, evidence of student learning, how the team will respond when students achieve the skills, and when they need extra support. The team determined how and what data were used, and the instructional changes were included in the team meeting notes. Team meeting notes from the year 2016/17 were used for this study, because team meeting notes were not collected during the PLC implementation year 2015/2016.

I contacted the principal in person for team meeting notes. The team meeting notes were delivered to me in a jump drive that I provided. After collection, I examined the notes to identify how teams collaborated and used collective inquiry to improve student achievement. I examined the PLC form that each team submitted. Fitzpatrick, Sanders, and Worthen (2011) placed emphasis on the collection of existing information, documents, or records that might answer the evaluation questions. I collected the documents after I received permission to conduct the study from Walden's IRB and the school principal. I obtained a signed permission letter and data use agreement from the local principal.

Interview Procedures

The teachers, administration, and learning coaches were interviewed with open-ended questions regarding collective inquiry and collaboration in the PLC. Semistructured interviews were conducted with the teachers, learning coach, assistant principal, and principal at the local site. Qualitative research uses the natural setting where the researcher attempts to observe, describe, and interpret the meanings of events for the individuals who experience them (Patton, 1990, p. 55). Qualitative interviews featured open ended questions that allowed individuals to describe their experiences with the implementation of the PLC. Teachers, learning coach, and the principals had separate interview questions. Interview questions were designed to allow participants to provide detailed descriptions about collaboration and collective responsibilities in the PLC. The interviews were scheduled over two months, with one to two interviews occurring each week.

At the beginning of the interview, I thanked each participant for participating in the study. I reviewed their rights and informed consent. I asked each participant if they were ready to begin the interview. The interviews were audio recorded using an IPAD and were interviewed once for 45-60 minutes. All interviews occurred in the school's conference room at convenient times for the participants. A Do Not Disturb Interviews in Progress sign was placed on the conference room door to ensure that there were no interruptions during the interviews. Each participant in the group was asked the same questions following the interview protocol. I asked probing and or follow up questions as necessary. An example of these questions is included in the interview protocol for

teachers, learning coach, assistant principal, and principal. After the completion of the interview, I thanked the participant participating in the interview.

Storage and Handling Data

Team-meeting notes were collected from the principal immediately after IRB approval. I collected team meeting notes for the 2016/17 school year. Electornic team-meeting notes were stored on a flash drive by month, date, and year. Interviews were conducted at the local site. Once the interviews were completed, the interview data were downloaded and stored by grade level in a locked file on a password protected computer at my home. No one else had access to the data. An alphanumeric identification code was assigned to each participant. The identification codes consisted of their grade levels and first letters of their titles. For example: Teacher 1 in Grade 3 will be T13. Data will be kept for five years and then destroyed using a paper shredder. Recorded interviews were saved on a flash drive will be kept for five years beyond completion of this study and then erased.

Role of the Researcher

My professional position at the research site is a third-grade teacher and PLC member employed with the district for the last 3 years at the research site. I participate in weekly PLC meetings with the Grade 3 team. I collaborate with my teammates and identify instructional strategies, create and teach lessons, and participate in discussions to improve student achievement. I know the program that is being evaluated due to my position. As a PLC team member and teacher, data collection was not affected. Data were collected from PLC team members in Grades 1, 2, 4, and 5. I excluded myself from

data collection on the third grade PLC team that I serve. The principal was supportive of the program being evaluated.

I have a professional relationship will all the potential participants. The relationship with the principal and assistant principal is supervisory. The principal supervises me and provides instructional feedback and suggestions to improve academic achievement. The assistant principal was and is responsible for providing support and feedback on instructional practices, student behavior concerns, and positive behavior programs. The professional relationship with the learning coach was and is collegial. The learning coach provided support for classroom instruction, resources, and suggestions for improving student achievement. Furthermore, I have a collegial relationship with the teachers. We attend trainings and staff meetings and collaborate to improve instruction. We do not have a personal relationship outside of school. My professional relationships with the participants did not affect data collection, analysis, and reporting of the data.

I have extensive experience in professional learning communities. I know the program being evaluated due to my position in the school. I participated in PLC workshops, trainings, and meetings for over 10 years. Additionally, I participated in the implementation of various professional development programs and new programs adopted by the district and district committees for over 24 years. I developed course curriculum, classroom activities, and professional development for teachers. I was a member of the PLC district committee. To reduce potential bias in analyzing and

reporting the data, I conducted member-checking and triangulation. Each of these procedures are described in detail under Evidence of Quality.

Potential Bias

As the researcher and teacher at the K-5 school, I have a bias regarding the implementation of the PLC. It might be difficult to maintain objectivity because of my role in the program; therefore, I used two strategies to prevent my bias affecting data analysis and reporting the findings. Researcher bias was minimized by conducting member checking and triangulating the data. Member checking were used to ensure that bias does not have affect the interpretation of the data (Lodico et al., 2010).

Data Analysis

Thematic analysis was used to analyze team meeting notes and interviews. Braun and Clarke (2006) described thematic analysis as the process of identifying, analyzing, and reporting themes within data. Miles, Huberman, and Saldana (2014) suggested that qualitative data analysis consist of data reduction, data display, and analysis. Documents and interviews were analyzed using thematic analysis and analysis took place immediately after they were collected. The qualitative data analysis for this program evaluation consisted of reading interview transcripts and team-meeting notes to identify and code temporary patterns or themes. A priori codes based on the frameworks and related literature and open and axials codes, which I derived from the data, were used to analyze the data. Miles et al. defined codes as the labels that assign symbolic meaning to the descriptive information compiled during a study. Once the labels were created, I grouped them into themes.

Document Analysis

The qualitative document data were analyzed using thematic analysis and a document review protocol. Braun and Clark (2006) defined thematic analysis as a method that is used in qualitative research to identify, analyze, and report patterns in data. Furthermore, thematic analysis is simple to use, can be used with any theory, and allows rich, detailed, and complex description of data. Thematic analysis using a priori, open, and axial codes were used to analyze PLC team meeting notes and interview data. In this three step analysis, I used a priori coding, based on the conceptual framework and relevant literature, followed by open and axial coding strategies to explore how the categories from coded data relate to each other. I analyzed all documents before the interviews were conducted. Documents are a valuable source that can provide important data in qualitative studies (Creswell, 2012). Creswell's six steps of data analysis was used for this study. The six steps include to (a) become familiar with the data, (b) organize the data, (c) code the data, (d) establish themes, (e) report the findings, and (f) use validation procedures to ensure the findings are accurate.

Step 1: Becoming familiar with the data. The first step in data analysis is to become familiar with the data and to make sure that the data are in a form that can be easily analyzed (Lodico et al., 2010). Qualitative researchers immerse themselves in the data to conduct a preliminary exploratory analysis to gain an overview of the data collected and to see if there is sufficient data (Creswell, 2012). Qualitative researchers may engage in multiple readings to develop a sense of the overall flow and structure of the data (Lodico et al.). I read the documents to become familiar with the data. I wrote

notes in the margins about key concepts, phrases, and ideas that relate to collective inquiry and collaboration.

Step 2: Organizing the data. Researchers must decide on a way to organize the large amounts of data (Lodico et al., 2010). I organized the data by participant groups - learning coach, teachers, and administrators. Second, I organized team meeting notes by grade level teams. There are six PLC teams; Grade 3 was excluded because I am on that team. A Microsoft Word table was used to organize team meeting notes by grade level and participant interviews. This table assisted me when determining patterns and interrelationships among categories at the axial coding stage.

Step 3: Coding the data. Coding is an inductive process that involves identifying segments of data that describe the phenomena and labeling those parts with categories (Lodico et al., 2010). It is a process that involves examining data, reducing data to manageable chunks, and identifying connections for analysis. Lodico et al. described the coding sequence as (a) selecting document data or interview data to review, (b) reviewing the data to think about ideas or issues that seem important, (c) highlighting the part of the data that relates to research questions and creating a code word or phrase, (d) continuing to create codes, and (e) making a list of the codes. First, I selected the team meeting notes to examine. Second, I re-examined the data to think about ideas that related to collaboration and collective inquiry. Third, I manually coded the team meeting notes in two stages. In stage one, I read the documents to identify key words and develop a priori codes derived from the conceptual framework on collective inquiry and collaboration. This resulted in many codes that were reduced in the second stage of

coding. For stage two, I used open and axial coding once a priori coding was completed. In open coding, events, actions, and interactions are compared for similarities and differences and searched for repetition of words and phrases (Strauss & Corbin, 1990). During the second level of coding, I open coded the a priori codes, examining the a priori codes for repetition and similarity of concepts. Then following open coding, axial coding involved generating categories and investigating possible connections found in the documents. The codes were compared, refined, and merged to form meaningful categories and to reduce the number of codes. I examined the categories for patterns to generate themes that address the research questions. I examined the codes and extracted text segments that relate to collaboration and collective inquiry.

Step 4: Themes. Themes are the deeper analysis that combines the codes in a way that allows the researchers to organize ideas to explain what they have learned from the study (Lodico et al., 2010). Themes emerged from the axial coded data based on patterns and relationships among the codes. The theme is a description of ideas, patterns, and assumptions based on the data (Lodico et al.). I reduced the number of codes and identified themes that accurately describe the data. I re-read all the data to ensure that the coded data fit into the themes and created a thematic map. The visual representation helped me to sort the codes into themes.

Step 5: Reporting findings. Qualitative researchers write a report that includes the researcher's interpretation of what the data means, and that information is reported in a non-quantitative, narrative manner (Lodico et al., 2010). I created a visual diagram to represent the themes that emerged from the data. I examined excerpts from team meeting

notes. I organized the report by theme and addressed the research questions. I used direct quotes from interviews and documents as evidence to support the findings. I summarized the results using a narrative approach.

Step 6: Validation of findings. Member checks and triangulation were used to validate the findings. Validation of the findings will be explained in detail under Evidence of Quality.

Interview Data Analysis

As mentioned earlier I used Creswell's six steps of data analysis for the interviews. Step 1, becoming familiar with the data. I audio recorded the participant interviews and then transcribed the recordings. First, I familiarized myself with the data by reading the raw data numerous times. Merriam (2009) suggested that each piece of data should be analyzed soon after it is collected. Recordings of the interviews were listened to and transcripts were read numerous times to become familiar with the data. Second, the teachers, learning coach, and administrators' interview transcripts were analyzed separately.

Step 2: Organizing the data. I organized the data by participant groups - learning coach, teachers, and administrators. Second, I organized team meeting notes by grade level teams.

Step 3: Coding the data. After the interviews were completed, I selected transcripts to be analyzed. I reviewed the documents to examine connections that relate to collaboration and collective inquiry. Transcripts were manually coded in two stages. In stage one, I read the transcripts to identify key words and develop a priori codes based

on DuFour, DuFour, Eaker, and Many's (2006) conceptual framework on collective inquiry and collaboration. This resulted in many codes that were reduced in the second stage of coding. For stage two, I used open and axial coding once a priori coding was completed. In open coding, events, actions, and interactions are searched for repetition of words and phrases. Following open coding, axial coding involved generating categories and investigating possible relationships between the data and the codes. The codes were compared, refined, and merged to form meaningful categories and to reduce the numbers of codes. I examined the categories for patterns to generate temporary themes that address the research questions. I examined the codes and extracted text segments that relate to collaboration and collective inquiry.

Step 4: Themes. I examined the axial codes in relation to the data. Themes emerged from the axial coded data based on the patterns and relationships among the codes. I reduced the number of codes and identified themes that accurately described the data. The data were reviewed and reread to ensure that the coded data fit into themes and a thematic map was created to provide a visual of the themes and relative data. Themes emerged from the documents and interview data based on the theoretical concept and literature review.

Step 5: Report findings. I analyzed the data for themes that emerged and reported the findings. I created a conceptual map to represent the themes that emerged from the data analysis. I organized the report by themes and addressed the research questions. I reported the findings by using direct quotes from the interviews.

Step 6: Validation of findings. I used member checks and triangulation to ensure the findings are accurate. Validation of the findings are explained in detail under Evidence of Quality.

Evidence of Quality

Steps were taken to ensure the credibility and accuracy of the data and findings. Member checks were used to support evidence of quality by returning the findings to the participants to verify the interpretations for accuracy of their data (Creswell, 2012). Once analysis was completed, I emailed participants a two page summary of my findings and instructed them to check the findings for accuracy of their data. Participants were given one week to respond whether they located inaccuracies of their data. No inaccuracies were noted by the participants.

Lodico, Spaulding, and Voegtle (2010) stated that confirming evidence is obtained through triangulation, the process of comparing different sources of data. Merriam (2009) conveyed that credibility is supported through triangulation by providing various sources. This process validates that there is sufficient evidence from all sources to substantiate the themes that have emerged. The findings from the interviews and team meeting notes from the teachers, learning coach, and administration were crosschecked to ensure there is corroboration between the document and interview data.

Discrepant or Nonconforming Cases

During the data analysis phase of the research, I may encounter information that challenges the findings. When conflicting perspectives are found, qualitative researchers must reexamine other data sources to see if the differences can be resolved (Lodico et al.,

2010). I examined the data for contradictions that did not support collective inquiry and collaboration. Because there were no negative instances identified, no further analysis was required.

Limitations

The qualitative research method and data collection methods are a limitation to the study. First, qualitative research is a limitation because it is used to gain understanding of the underlying reasons of the phenomenon through collection of narrative data. Quantitative research uses numerical data that can be transformed into usable statistics. The conclusions and generalizations that are formulated at the end of the study have a predetermined degree of certainty (Lodico et al., 2010). Quantitative data collection methods are more structured than qualitative methods. Qualitative data does not generalize to the general population (Lodico et al.). To address transferability, I used rich, thick descriptions and excerpts from transcripts and documents. Mixed methods uses qualitative and quantitative data to communicate the results and findings (Miles, Huberman, & Saldana, 2014). Using both types of approaches provides additional support and evidence for the findings.

Data collection is a limitation. By restricting the program evaluation to only qualitative research method, team meeting notes, and interviews were the only data used. Words were the primary source for data analysis used to reach a conclusion of whether or not the goals of collaboration and collective inquiry were met. No quantitative data were collected to substantiate whether the achievement gap was closed and student achievment improved.

Findings

Research findings for this study are based on team meeting notes and open-ended interview data from teachers, learning coach, and administration. The participants were asked questions pertaining to their perceptions regarding the implementation of the PLC on whether the goals of collective inquiry and collaboration were achieved. All qualitative data were analyzed using thematic analysis and were coded using a priori, open, and axial coding strategies.

In an effort to improve teacher and student learning, a professional development program based on the PLC model was implemented at the target school for the 2015/16 school year. The selected site was performing below state level expectations in reading, writing, and mathematics. Using a PLC to increase student achievement and close the achievement gap did not produce the outcomes desired by school leaders. There was a need for formative evaluation of collaboration and collective inquiry goals, because students continue to fail to meet grade level state expectations. The following research questions were created to evaluate teacher collaboration and collective inquiry at the research site:

Research Question 1: How do PLC team members develop and maintain collaboration using the PLC to close the achievement gap and improve student achievment?

Research Question 2: How do PLC team members use collective inquiry to improve student performance?

Documents

Team meeting notes were collected, recorded on the document review protocol, stored on my personal, password protected computer, and were analyzed thematically. I sorted team meeting notes by participant groups and grade levels and analyzed them using a two-step process. Step 1: analyzed data by grade level and participant group (teachers, learning coach, and administrators). Step 2: analyzed the data for all participants. I read the documents to become familiar with the data and to think about ideas and issues that relate to collective inquiry and collaboration.

In the initial stage of analysis, I highlighted data that were linked to the a priori codes: collaboration (yellow) and collective inquiry (green) from the framework and related literature review.

Table 3 shows an example of a priori codes applied to the documents. The left column contains the a priori code, the middle column indicates the participant group (teachers, learning coach, and administration), and the right column contains excerpt examples from the documents.

Table 3

A Priori Coding Example for collaboration and Collective Inquiry

Collaboration		
Code	***Group***	***Excerpt***
Instructional planning on standards and curriculum	Teachers	Created learning target: I can name the main idea/topic with details.
Identify what students need to know and how educators will address these challenges	Learning Coach	Discussed data collection and graphing activities
Data Dialogue	Administration	DIBELS progress monitoring
Collective Inquiry		
Code	***Group***	***Excerpt***
Participate in continuous learning.	Teachers	DIBELS progress monitoring
Teachers interact to hear multiple perspectives, challenge practices, acquire new understanding about the curriculum	Learning Coach	Met with Learning Coach to go over data, read naturally, and future reading ideas.
Principal instructional leadership	Administration	Emailed meeting notes to principal.

This resulted in many codes that I reduced using open coding. In the second stage of coding, I open coded the a priori codes by searching for repetitions of words and phrases. I labeled the repeated words with a term that defines the open code. Table 4 is an example of open coding applied to the documents. The left column contains the open code, the middle column indicates the participant group, and the right column contains an excerpt from the documents.

Table 4

Open Coding Example for Collaboration and Collective Inquiry

Collaboration		
Code	***Group***	***Excerpt***
Instructional planning on standards and curriculum	Teachers	Extend and enrich learning
Improve teaching	Learning Coach	Conversations with learning coach, ELL, and SPED.
Data-driven Decision making	Administration	Looked at progress monitoring and benchmark scores
Collective Inquiry		
Code	***Group***	***Excerpt***
Team tools	Teacher	Created checklists
Common Formative Assessments: Analyzing data	Learning Coach	Collaborated on district program assessments
Instructional Leadership	Administration	Requested principal to come teach a research day in their classrooms

During the third stage of coding, I used axial coding to make connections between the data and the open codes. I searched for relationships among the open codes and grouped similar codes into categories. The categories for collaboration focused on student learning, teachers working together, data driven decision making, and improved instruction (Appendix F). The axial codes for collective inquiry focused on improving student learning, collaboration to improve instruction, and data to improve student achievement (Appendix F). Table 5 shows examples of how axial coding was applied to the document data. The left column contains the axial code, the middle column indicates

the participant group (teachers, learning coach, and administration), and the right column contains an excerpt from the documents that supports the code.

Table 5

Axial Coding Example for Collaboration and Collective Inquiry

Collaboration

Code	***Group***	***Excerpt***
Focusing on teacher instruction	Teachers	Creating groups and intervention schedules.
Focusing on improving student learning and achievement	Learning Coach	Interventions
Data driven decision making	Administrations	Review data

Collective Inquiry

Code	***Group***	***Excerpt***
Focus on improving student learning.	Teachers	Created checklists and rubrics
Focus on collaboration to improve instruction	Learning Coach	Modeling
Focus on data to improve student achievement	Administration	Examined student data

Interviews

The teachers, administration, and learning coach were interviewed using open-ended questions that allowed the participants to describe their experiences with the implementation of the PLC. Teachers, administration, and the learning coach had separate interview questions that were designed to allow participants to provide detailed descriptions about collaboration and collective inquiry. The interviews were transcribed

manually in Word documents. In the initial stage of coding, I sorted team meeting notes and analyzed them using a two-step process: Step 1: analyzed data by grade level and participant group (teachers, learning coach, and administrators). Step 2: analyzed the data for all participants. I read the interviews to become familiar with the data and to think about ideas and issues that related to collective inquiry and collaboration.

A priori codes were used for the first stage of coding for collective inquiry and collaboration. A priori codes based on the conceptual framework and relevant literature were developed prior to examining the data (Saldana, 2013). I highlighted the data that related to the predetermined a priori codes: collaboration (yellow) and collective inquiry (green) from the framework and related literature review. Table 6 shows an example of a priori codes applied to the data from interviews. The left column contains the a priori code, the middle column indicates the participant group (teachers, learning coach, and administration), and the right column contains an excerpt from the transcripts.

Table 6

A Priori Coding Example for Collaboration and Collective Inquiry

Collaboration		
Code	***Group***	***Excerpt***
Instructional planning on standards and curriculum	Teachers	Teams struggle with identifying the power standards and what they want to focus on.
Identify what students need to know and how educators will address these challenges.	Learning Coach	Looked at previous year's data and determined what the kids needed the most.
Common Formative Assessments	Administration	Retested students so we can see if instruction was effective.
Collective Inquiry		
Code	***Group***	***Excerpt***
Participate in continuous learning	Teachers	Collaborative conversations with team members on instruction practices
Share ideas- reflect on effective ways of teaching	Learning Coach	Collaborative conversations focused on student performance- What do you see your kids doing?
Engage in reflective dialogue	Administration	Identified how teachers taught, retaught, and identified strategies other teachers are using.

In the second stage of coding, I open coded the a priori codes. I searched for repetitions of words and phrases among the a priori codes. I labeled the repeated words with a term that defines the open code. This process resulted in 14 open codes (Appendix G). Table 7 shows an example of open coding applied to the interview transcripts. The

left column contains the open code, the middle column indicates the participant group (teachers, learning coach, and administration), and the right column contains an excerpt from the transcripts.

Table 7

Open Coding Example for Collective Inquiry and Collaboration

Collaboration		
Code	***Group***	***Excerpt***
Standards	Teachers	Discussed grade level standards with teammates
Data-driven decision making discussions	Learning Coach	Attend and participate in monthly Think Tank meetings to make sure people are looking at their data to drive instruction.
Improve Teaching Practice	Administration	Provide support for teachers to analyze data.
Collective Inquiry		
Code	***Group***	***Excerpt***
Strategies to improve teaching	Teachers	Researched the internet and shared those ideas with team members
PLC discussions	Learning Coach	Talking through difficulties teachers are having in the classroom with teammates who are more experienced in specific subject areas.
Instructional Leadership	Administration	Principal provides subs so that we can go around and watch other teachers or visit schools.

During the third stage of coding, I used axial coding to make connections between the data and the open codes (Appendix H). I searched for relationships among the open codes and grouped similar codes into categories. Table 8 shows examples of how axial coding was applied to the interview data. The left column contains the axial code, the middle column indicates the participant group (teachers, learning coach and administration), and the right column contains an excerpt from the transcripts.

Table 8

Axial Coding Example for Collective Inquiry and Collaboration

Collaboration		
Code	***Group***	***Excerpt***
Using collective inquiry to improve teaching	Teachers	Improve teaching practices
Commitment to continuous student improvement	Learning coach	Data driven decision making
Sharing teaching experiences to improve student learning	Administration	PLC discussions
Collective Inquiry		
Code	***Group***	***Excerpt***
Identifying and clarifying student knowledge, skills, and learning needs	Teachers	Reviewed common formative assessment data and student performance.
Leadership emphasis on building share knowledge, collaboration and improving teacher learning and student achievement	Administration	Teachers discuss what they see on the data whether positive or negative and then use that discussion to change teaching practice.
Data driven decision making focused on improving instruction and student learning	Learning Coach	We look at our standards and determine where the weakest standards are so that we can come up teaching methods.
Collaborating to improve teacher practice	Administration	Principals engage teachers with instructional strategies, support for teacher development, instructional choice, giving suggestions, and maintaining a focus on improving instruction and student learning

I returned to the categories and searched the axial codes to identify temporary themes. To move from categories to themes, I examined the axial codes for patterns among the coded data to develop themes. Saldana (2013) stated that themes identify the major concepts or issues that the researcher uses to interpret and explain the data. Three themes emerged from qualitative research question 1: "How do team members develop and maintain collaboration to close the achievement gap?" The themes that emerged were:

1. The PLC team researched and shared new strategies, activities, and resources used by teachers.
2. The PLC team used data driven decision making to identify gaps in student learning and academic skills to adjust instructional practices.
3. The PLC team build trusting relationships among team members.

One theme emerged from research question 2, "How do PLC team members use collective inquiry to improve student performance?" The theme that emerged was:

1. PLC team used collaborative conversations and reflective dialogue during team and think tank meetings to analyze student data and alter instruction.

Table 9 identifies the four themes identified. The left column contains the categories and the right column contains the themes identified from the data.

Table 9

Themes

Axial Categories	Themes
Develop collaboration	The PLC team researched, and shared new strategies, activities, and resources used by teachers
	The PLC team used data driven decision making to identify gaps in student learning and academic skills and to adjust instructional practices.
Maintain collaboration	The PLC team built trusting relationships among team members
Collective inquiry to improve student achievement	The PLC team used collaborative conversations and reflective dialogue during team and think tank meetings to analyze student data and alter instruction.

Theme 1: The PLC team researched and shared new strategies, activities, and resources used by the teachers.

Sharing strategies

The first theme relates to the research question one: How do PLC team members develop and maintain collaboration to close the achievement gap and improve student achievement? Teachers from all grade levels identified that sharing knowledge, experiences, and suggestions for trying new strategies influenced student achievement. Individual teachers identified ideas and instructional strategies that worked in the classroom. The following responses denoted the participants' comments concerning the sharing of strategies. T42 (fourth grade teacher) shared strategies to teach standards, "I pulled …information that goes with specific standards and tie[d] it to an actual book." All

grade level teams shared strategies to teach concepts and identify grade level goals. T43 (fourth grade teacher) stated, "We talk about what skills students need, what we are doing, and how we can improve student achievement." Evidence from the document review identified teachers working together to seek ways to improve teaching.

Sharing expertise to improve teaching skills and academic performance supports the framework. Kelly and Cherkowski (2015) indicated that teachers share expertise to increase knowledge on what is working in the classroom and the need for change to improve student learning. Riveros, et al. (2015) identified that collaborative practices that provide instructional support improves teaching and student achievement.

The PLC team identified that collaborating during the PLC team meeting changed their teaching practice. During team meetings teachers volunteered ideas and strategies that worked or brainstormed ideas and strategies for specific skills or grade level expectations. T42 (fourth grade teacher) stated, "We learn from each other… and identify practices … that are working. This helps [us] to implement them so [teachers] and students can improve." Volunteering ideas and strategies is supported by the framework. DuFour et al., (2010) identified that one of the main goals of continuous improvement is for teachers to learn new strategies while creating an environment that encourages lifelong learning, innovation, and experimentation. Teachers planned instructional goals with grade level teams to determine what skills will be taught. Although administrators did not direct PLC teams to use the strategies, they did direct teachers to share ideas and strategies during the PLC team meeting. A1 (administrator) asked teachers to "[identify] some of the strategies that you are using because clearly

your kids have it." This type of collaboration is supported by the framework. Kelly and Cherkowski (2015) reported that collaboration provides teachers the opportunities to work together to expand their expertise, discuss challenges, and actively learn about their practices with their colleagues. As evidenced in the PLC team meeting notes, the PLC team identified what students need to know, created learning targets and checklists, and created common goals to improve student achievment.

The PLC team worked together to align instruction, curriculum, and assessment to create clear and consistent expectations for student learning. The following responses denoted the participants' comments concerning teachers collaboratively working together focused on improving instructional practice. T11 (first grade teacher) stated, "we brainstormed different ideas, strategies, taking it back to our classroom and trying it… [to] see if it is making a difference in our students." T51 (fifth grade teacher), "we all have our…specific skills… [and we] share what we are good at." Collaborating among PLC team members to create clear expectations for student learning is supported by the framework. Kelly and Cherkowski (2015) recognized that teachers use evidence of student learning to collaborate and reflect on their teaching practice, evaluate the success of their efforts, identify specific goals, and develop strategies to achieve the goals. DuFour (2015) believed that teachers meet to gather evidence of student learning, develop and implement strategies, discover effective strategies, and then apply those strategies in a continuous cycle of improvement. The PLC team met in weekly PLC meetings to collaborate on instructional practices, close the achievement gap, and improve student achievement. T43 (fourth grade teacher) stated, "we discuss what we

think is going well, what is not, and what someone did that was new." When teachers collaborate to increase their pedagogical knowledge, they possess a clearer understanding on what is working in the classroom and the need for change to improve student learning (Kelly & Cherkowski, 2015). The PLC team collaborating to share strategies to change instruction supports the district goals of collaboration and collective inquiry. The PLC team meet in meaningful teams to discuss student achievement, share knowledge, and identify strategies to improve student achievement. Teachers changed the way they taught specific activities based on the PLC team meeting discussions.

To summarize, the PLC team reported benefiting from identifying and sharing strategies during weekly PLC team meetings to improve instruction and student achievement. The PLC team engaged in conversations with teammates to align instruction and clear expectations for student learning. PLC team members collaboratively engaged in conversations across grade levels to improve instructional practices.

Sharing activities

The PLC team shared activities and observed teachers to identify activities to improve student achievement and close the achievement gap. The learning coach encouraged PLC team members to share activities that worked in their classrooms. The following responses denoted the participants' comments concerning the sharing of activities. Teachers shared reading activities based on specific standards to close the achievement gap and improve student achievement. Teachers used grade level readers to teach specific skills. T23 (second grade teacher) shared an activity to support student

skills, “I used the level reader to support main idea.” T23 (second grade teacher) stated, “we build…skills that they need…[by] bringing in a nonfiction text into our small group or that kids can do independently.” T15 (first grade teacher) shared, "I used to stick strictly to the district approved curriculum, another teacher taught me how to do small group instruction using novels.” Evidence from the team meeting notes identified that the PLC team shared ideas and concerns for advanced writers.

Teachers observed other teachers to see how they were teaching specific lessons and identified ideas for activities they were using in their classrooms. T11 (first grade teacher) stated, “I have observed my other teammates teaching specific lessons.” T51 (fifth grade teacher) stated, “You have the opportunity to go around the school and sit in and watch someone teach a lesson.” The administration provided time for teachers to observe other schools and teachers. Teachers visited other schools to identify new activities that would improve student achievement. T51 (fifth grade teacher) stated, “I went to another school to see if we could implement some new [ideas].” Teachers identified successful instructional techniques to replicate in their instruction. T21 (second grade teacher) stated, “to see what one teacher is doing that is successful and…replicate that in our instruction.” Darling-Hammond, Hyler, and Gardner (2017) stated that teachers engage in opportunities to use models of effective practice by observing peer teachers and colleagues, participating in a cohort of teachers, and mentoring. This supports the district goal of collaboration because teachers learn from one another and share those activities they learned in their teams to improve teaching

practice. The PLC teachers observed peer teachers and colleagues to identify activities they could use to improve their teaching practice.

To summarize, the PLC teachers observed other teachers and visited schools to identify new instructional ideas they could use in their classroom. To improve reading instruction, teachers shared grade level activities using leveled and nonfiction texts based on specific grade level standards. Successful teaching instruction was replicated and implemented by team members to improve student achievement.

Sharing resources

Teachers identified coteachers' knowledge and experience, collaborative conversations, instructional materials, and the internet as resources to improve student learning and close the achievement gap. Teachers engaged in collaborative conversations to discover new teaching resources. The following responses denoted the participants' comments concerning the sharing of resources to improve student achievement.

Teachers engaged in conversations with co-teachers to share knowledge and experience. T22 (second grade teacher) stated, "We are always …working together and teaching each other how to teach it." Teachers shared their knowledge and teaching experience as resources to improve student achievement. T42 (fourth grade teacher) stated, "giving each other ideas …where to go and get more training…and [to]teach you different ways to approach things." T43 (fourth grade teacher) stated, "we have one person on our team who is really good with different reading skills…, has a lot of knowledge in reading, what works and does not, and is always up on new techniques." Teachers need new opportunities to learn to teach more effectively by engaging in

conversations with coteachers to share knowledge and experience (Jones & Dexter, 2014). Collaborative conversations are supported by the framework. Teachers who engage in collaborative conversations have the potential to transform teaching practices that will improve student achievement by discussing ideas, brainstorming, and sharing ideas with their peers.

PLC team members participated in collaborative conversations on instructional planning, standards and curriculum, identifying what students need to know, and how they will improve student achievement. Constructing professional knowledge occurs when teachers are engaged in social interactions and reflections with colleagues or support personnel (Van Lare & Brazer, 2013). These conversations are opportunities for teachers to share resources relative to the elements of teacher planning and teaching. T24 (second grade teacher) identified collaborative conversations as a resource to improve teaching by "giving me new ideas and new ways to approach things." One resource used in the PLC teams was the learning coach. LC1 (learning coach) provided assistance and support to teachers by "giving suggestions where needed and try and support teachers, …and modeling best practices." The learning coach served as viable resource for teachers in the PLCs to share knowledge focused on improving instruction is supported by the framework for collaboration. Sharing knowledge and strategies may provide teachers with opportunities to reflect on their instruction, identify new ways of teaching, address challenges, and receive freeback to improve instruction. Hairon, Goh and Chua (2015) identified teachers, who share strategies with colleagues in collegial and collaborative conversations, promote teacher learning and development, reflect on their

instruction, and change their teaching practice. As evidenced in the team meeting notes, the PLC team shared knowledge to improve teaching practice by discussing ways to improve insturction, clarifying classroom routines that support student learning, and agreeing on how to teach specific concepts.

The PLC team discussed, and shared teaching resources used in their classrooms to improve student achievement. T43 (fourth grade teacher) discussed different resources to improve student achievement, "we talk about…different activities or assessments, exit tickets, small group learning, or using a different program." In the team meeting, T21 (second grade teacher) shared how to use the writing rubric, and a common rubric was developed to improve student writing, "we looked at the writing rubrics and how we were grading them, our expectations, and [made] a common rubric to improve student writing." T24 (second grade teacher) used the district aligned benchmark to identify standards students need to know." We use our district aligned benchmark [to identify] standards that are hit most on the state assessment and work our kids up to that expectation." One teacher searched the internet for resources to improve instruction. T13 (first grade teacher) acknowledged, "here I found this on the internet, we should try it." The admistrators directed discussions about classroom instruction and brainstormed ideas and resources during PLC team meetings. One teacher stated, "they [the administration] are really good at asking us how is this different in our classes…and helping us to brainstorm ideas." As evidenced in the team meeting notes, the PLC team created rubrics and checklists, discussed state released assessment items, and identified what students need to know.

To summarize, collaborative conversations were used by teachers to discover and share resources to improve student achievement. Coteachers' knowledge and experience, collaborative conversations, instructional and internet resources were resources teachers used to share knowledge and experience to improve student achievement. Additionally, the learning coach was used as an instructional resource to support teachers and model best instructional practices. Sharing instructional resources supports the district goal for collaboration. Teaching practice is transformed when PLC team members collaborate with peers to share resources to improve student achievement.

Theme 2: The PLC team used data-driven decision making to identify gaps in student learning and academic skills and to adjust instructional practices. The second theme relates to the research question one: How do PLC team members develop and maintain collaboration to close the achievement gap and improve student achievement? The PLC team reported using data to inform teaching practice and to identify how students are progressing academically.

Identifying Gaps in Student Learning and Achievement

The PLC team used district benchmark assessments, common formative assessments, and progress monitoring to identify gaps in student learning and achievement. The following responses denoted the participants' comments concerning identifying gaps in student learning. The PLC team collaborated to analyze data, identify gaps in student learning, and improve student achievement.

Teachers identified how students performed on district benchmark assessments to determine gaps in student learning. T42 (fourth grade teacher) stated, "we bring our data

to the meeting, go through each class individually, and then take a look at which students met or exceeded the expectation… [or] fell below [grade level expectations]." T12 (first grade teacher) stated, "we come together with specific data for the students, and we look at what students are doing well, which students are not doing so well." Using student data to identify gaps in student learning and achievement is supported by the framework. The PLC team analyzed data and then respond to the data by collaboratively identifying strategies to improve student achievment. During data discussions, the learning coach helped teachers to identify how students perfomed on meeting grade level standards. The administration suggested using student grouping to improve study achievement. As evidenced in the team meeting notes, the PLC team used data driven decision making to identify student progress on benchmark assessments.

The PLC team used common formative assessments to measure, monitor, and identify student progress in meeting grade level expectations and for their grade level and teacher designed assessments tied to grade level standards. T11 (first grade teacher) identified how student errors are determined to improve student achievement. "We give assessments…quarterly, we break them down based on the types of errors they are making, growth, or if they are making new errors, or continued error patterns. A1 (administration) identified the importance of using data to "… differentiate groups that have it [mastered the content] and do not have it, need additional support, and how teachers can group students." During team meetings the administration assisted teachers in making decisions to improve student learning by suggesting student grouping strategies. Lastly, the learning coach helped teachers analyze data to determine how

students performed on meeting grade level standards. Teachers created common formative assessment to identify gaps in student academic skills. T43 (fourth grade teacher) commented, “as a team we look at what skills our kids need to work on, and we create different assessments [to monitor student achievement].”

Teachers use progress monitoring data for English Language Arts. Students are monitored based on how they are performing. Students may be monitored weekly, bi-weekly, or monthly. Teachers also used progress monitoring data to measure the academic needs of individual students in reading, writing, and mathematics. T42 (fourth grade teacher) stated, " we…identify the most significant area of need and base our assessments… on improving that area.” T13 (first grade teacher) stated, “we look at the data and try to and really look at each kid and what they need to do to improve.” After reviewing the data, the PLC team identified skills students had not mastered to meet grade level expectations.

In summary, the PLC team used a variety of assessment formats to identify gaps in student learning and achievement. The assessment data were used to identify student progress, common errors, and performance according to grade level standards. The team discussed student data to determine their next instructional steps to improve student performance. Additionally, teachers reassessed students to determine if they were making academic improvement and close the achievement gap. Using data to drive instruction is supported by the PLC goals of collective inquiry and collaboration. Jones et al. (2013) and Williams (2013) supported collecting and analyzing student data to guide instruction.

Adjust Instructional Practices

During PLC team meetings, teachers used data to adjust instruction by identifying students who need extra support and used small group instruction and ability grouping to address student needs. Using data to adjust instruction is supported by the district goal of collaboration and collective inquiry. The PLC team analyzed student data, and then collaboratively discussed student performance to identify instructional supports to improve student achievement. LC1 (Learning Coach) stated how teachers use collaborative conversations in the PLC meeting to change teaching instruction. “Teachers go over their FCA [formative common assessments] data and discussed whether it [the data] is positive or negative, and then use that discussion to change teaching practice." The administration engaged teachers in collaborative data discussions to make instructional changes. One administrator stated, “you’re doing all of these things but as you look at the data…what are we going to do different?” The notion of using data to make instructional decisions is echoed by Thessin (2015) who supported using data to identify which students need extra support, and which students have mastered the skills. Also, teachers used small and ability grouping to reteach and differentiate instruction. The following responses denoted the participants’ comments concerning adjusting instructional practices. T42 (fourth grade teacher) identified how teachers used their data to adjust their instruction, "We look at the data, [and identify] what has worked in the past.” T41 (fourth grade teacher) stated, “we look at data to identify whether or not the instructional practice was working [and use small group and ability grouping to change instruction]." As evidenced in the team meeting notes, the PLC team discussed student

performance, created intervention groups, and monitored student progress to improve student achievement.

Teachers shared knowledge and made adjustments to teaching practice based on how students were performing. T22 (second grade teacher) shared how teachers use knowledge from their grade level teams to adjust their teaching practice, "we share knowledge, take a look and see if someone is consistently having better scores, …and then we have that person share out what… they are doing so that the others can change their practice." Adjusting teaching practices to improve student learning is supported by the framework. In a collegial culture, teachers learn from each other to adjust their teaching practices (Ho, Lee, & Teng, 2016). T11 (first grade teacher) identified how instruction was changed based on the academic success of students in other classes. "Last time that we met one of us had a big group of kids making one type of error and the others didn't have as many, so we talked about how we taught." Attard (2012) identified that professional dialogue aims to enable teachers to change teaching practice so that student learning is maximized. Adjusting instruction supports the district goal of collective inquiry.

Not only did the PLC teachers share knowledge to make instructional changes, the learning coach recommended adjusting instructional practices to improve student achievement. LC1 (Learning Coach) stated how teachers are supported in the PLC meeting to change teaching instruction. "Teachers go over their common formative assessments [CFA] data and discuss what [they] see on that data whether it is positive or negative, and then use that discussion to change teaching practice." The learning coach

helped teachers to change their teaching practice by identifying standards that students were not proficient and identified teaching methods that teachers could use to change their instruction.

In summary, teachers adjusted instructional practices to improve student achievement by placing students in small groups based on their ability. Based on student data, teachers identified what instructional techniques worked to improve student learning. Teachers shared knowledge on successful instructional practices to adjust their teaching to meet the individual needs of their students. The learning coach supported teachers by analyzing student data and determining teaching methods that teachers could use to change their teaching practice. The administration engaged teachers in collaborative data discussions focused on making changes to their instruction. Sharing knowledge to change teaching practice is supported by the district goals of collaboration and collective inquiry. Teachers have to collaborate in order to share and respond to student data.

Theme 3: The PLC team demonstrated trusting relationships among team members. The third theme relates to Research Question 1: How do PLC team members develop and maintain collaboration to close the achievement gap and improve student achievement? PLC team members identified that trusting relationships influenced collaboration, professional relationships, and risk taking to improve student achievement. The following responses denoted the participants' comments concerning trusting relationships among team members. PLC members identified trusting relationships influenced collaboration and improved student achievement. T43 (fourth grade teacher)

stated, “We can be honest with each other, …we really don’t hurt each other’s feelings because we trust each other.” The PLC team members felt that trust affects collaboration to improve student achievement. T42 (fourth grade teacher) stated, "I think trust goes along with the team. If you do not trust the people you work with, you are not going to collaborate very well, and not able to move the kids as well as you would want."

PLC members that formed trusting relationships with teammates were able to collaborate to improve student achievement. T22 (second grade teacher) believed that "you have to have trust to…collaborate meaningfully. If I did not trust, I would not try his practices in the classroom because I would not be sure he knew what he was doing." T43 (fourth grade teacher) acknowledged, “we trust each other that they are going to do what is best for all of our kids not just their own." As a result of trusting relationships, PLC team members engaged in supportive and productive interactions to improve student achievement. Trusting relations are supported by the framework. Team members who trust and respect each other participate in supportive and productive interactions with each other focused on improving achievement and learning (Ning, Lee, & Lee, 2015). Trusting relationships support the district goal of collaboration. The nature of the PLC requires trust among colleagues. When a trusting environment is present, PLC team members are more likely to engage with each other in the learning process and take risks to improve student achievement.

Teachers were willing to take risks and trust colleagues to improve student achievement. T42 (fourth grade teacher) stated, “I think because we have trust with each other, we are willing to go that extra mile and take risks to build the community and help

each other." T43 (fourth grade teacher) stated, "I feel very fortunate that the teams have trust …so that if we need to share students, we trust each other that the students are going to get what they need from our team." T41 (fourth grade teacher) stated, "We all bring something different to the team, … [an] activity or ideas to do with the kids, so we trust each other that they are going to do what is best for all of our kids, not just their class." Teachers believed that they learned more when they interacted with teachers who they trusted enough to share problems, seek advice, and continue to develop closed and sustained bonds with other colleagues who shared the same insights (Buchanan, 2012).

In summary, as PLC team members work collaboratively, trust influenced their interactions and relationships. As a result of trusting relationships, teachers engaged in supportive and productive interactions to improve student achievement. Teachers who formed trusting relationships with team members were willing to take risks by trying different classroom practices and sharing students with each other to improve student achievement.

Theme 4: The PLC team used collaborative conversations and reflective dialogue during the team and Think Tank meetings to analyze student data and alter instruction. The fourth theme relates to Research Question 2: How do PLC team members use collective inquiry to improve student performance? The PLC team used collaborative conversations and reflective dialogue during team and think tank meetings to analyze student data and alter instruction to improve student performance. Teachers, the learning coach, the administration, and interventionists met in monthly meetings referred to as "think tank meetings" to engage in collaborative conversations to improve

student achievement. The following responses denoted the participants' comments concerning collaborative conversations and reflective dialogue during Think Tank Meetings to analyze student data and alter instruction.

The administration and learning coach engaged teachers in collaborative conversations using reflective dialogue by asking questions, giving suggestions and strategies, and connecting teaching methods to best practices. Teachers engaged in collaborative conversations to share instructional practices during PLC and think tank meetings. Teachers worked together interdependently to influence their classroom practice to improve student achievement. T11 (first grade teacher) identified how collaborative conversations were used in the PLC meeting, "Keeping [focused] conversations around the targets has really helped." T43 (fourth grade teacher) stated, "We have people on our PLC who are very seasoned teachers and have a lot of background knowledge… so, we work together to learn from each other." Additionally, principals engaged teachers in collaborative conversations and reflective dialogue during think tank meetings to improve student achievement. A1 (administration) stated, "I use instructional leadership in team meetings through questioning, … connecting it to best practices, giving suggestions, and strategies." Reflective dialogue is supported by the framework. PLC and think tank meetings provided the opportunity for teachers to share how they teach, listen to team members, and then reflect on how they might change their instruction.

PLC team members met during PLC and think tank meetings to share expertise, explore new concepts, and engage in collective problem solving to improve teaching

practice. T51 (fifth grade teacher) shared that using knowledge and experiences has "improved my teaching." Reflective dialogues are conversations where teachers exchange knowledge, experience, conceptualize learning from problems in teacher practice to enhance understanding and problem solving (Schaap & de Brujin, 2018). T51 (fifth grade teacher) shared how reflective dialogue was used to exchange knowledge and experience on instructional strategies, "Using knowledge and experience from previous years [on] what worked and did not." T 24 (second grade teacher) identified how teachers learn together to improve teaching practice, "It is really good to have different ideas so that you try things from another teacher's perspective and teaching style." T41 (fourth grade teacher) identified, "I think [best] practices work for most people and being able to sit and talk with my team. Helps to broaden how I can become better at teaching…[and] make it better for kids." Teachers used reflective dialogue to seek new ways of teaching, learning, and provide alternative way of thinking to improve student achievement. T11 (first grade teacher) shared questions they ask to engage in reflective dialogue with teammates to improve student achievement, "How are you teaching, how are you reteaching, and what strategies are you noticing your kids are using? Teachers who engage in conversations hear multiple perspectives, solve problems, and acquire new understanding about the curriculum. Tam (2015) identified that when teachers discuss, brainstorm, and use reflective dialogue they are able to identify solutions to solve problems of practice. Additionally, this enables teachers to reconsider and revise their classroom practice. The administration and learning coach engaged teachers in collaborative conversations using reflective dialogue by asking questions, giving

suggestions and strategies, and connecting teaching methods to best practices. As evidenced in the team meeting notes, the PLC team agreed on how to teach specific concepts and changed the way they taught specific activities.

Teachers expressed ideas to improve collective inquiry during the PLC and think tank meetings. Teachers identified vertical and horizontal planning would help them obtain instructional resources to improve student achievement. T42 (fourth grade teacher) stated, "It would be nice to do some vertical teaming…[to] get some ideas outside of our team."

In summary, the PLC team used reflective dialogue in collaborative conversations to analyze student data and change teaching practice during team meetings and think tank meetings. Teachers engaged in collaborative conversations to share instructional strategies to improve teaching practice and student achievement. Teachers used collective inquiry to exchange knowledge, experience, and discuss problems they encounter in teacher practice. Feldman and Fataar (2014) stated that, “educators use collective inquiry to examine student data, understand their teaching and student learning, and identify evidence of learning to guide their instruction.” Although these researchers referred to the PLC, the think tank has a specific purpose within the PLC at the research site. Think tank meetings are used by teachers, the learning coach, and administration at the local site to examine student data and determine instructional steps, and student support to improve student achievement. The administration and learning coach supported teachers by asking questions, giving suggestions and strategies, and connecting

teaching methods to best practices. Teachers expressed that vertical and horizontal planning would benefit them in improving collective inquiry in PLC team meetings.

Summary of Findings

Findings from the document review supported the findings of the interviews. I examined the findings from the team meeting notes and interviews to validate the information from these sources. Four themes emerged from the analysis of the findings. The four themes are:

Theme 1: The PLC team researched and shared new strategies, activities, and resources used by teachers.

Theme 2: The PLC team used data driven decision making to identify gaps in student learning and academic skills and to adjust instructional practices.

Theme 3: The PLC team demonstrated trusting relationships among team members.

Theme 4: The PLC team used collaborative conversations and reflective dialogue during the team and Think Tank meetings to analyze student data and alter instruction.

The ultimate outcome for the district's PLC was that collaborative efforts of the PLC team members would produce increased student achievement and improve teaching quality using researched based instructional practices. Based on the findings, one benefit identified in the program evaluation was the PLC team's use of collaborative conversations to research and share strategies to improve instruction. Also, teachers observed other teachers at the research site and at other schools to identify teaching strategies and methods they could replicate and implement in their classrooms.

Collaborative conversations were used by teachers, learning coach, and administration to share resources, using coteachers' knowledge, and experience, instruction, internet resources, and the learning coach as an instructional resource to support teachers and model best instructional practices.

Another benefit that emerged from this program evaluation was that the PLC team used a variety of assessments to identify student progress, gaps in student learning, and performance on grade-level standards. Using collaborative conversations, the PLC team analyzed assessment data to determine student progress in meeting grade level expectations, most significant areas of need, and types of errors students were making. To address these needs, teachers created common formative assessments to monitor student achievement. Progress monitoring was used by teachers to measure student performance in reading, writing, and mathematics. Teachers in the PLC teams reassessed students' performance to determine if they were making academic progress to close the achievement gap.

An additional benefit showed that trust influenced the interactions and relationships among team members as they engaged in collaborative conversations to improve student achievement. The PLC team benefited by engaging in supportive and productive interactions, and teachers were willing to take risks by trying different practices and sharing students with other teachers to improve student achievement.

Furthermore, PLC teams benefited from using reflective dialogue in collaborative conversations to analyze student data during PLC and think tank meetings. By participating in these meetings, the PLC team shared instructional strategies to improve

teaching practice and student achievement. The PLC team used collective inquiry during collaborative conversations to exchange knowledge, experiences, and discuss problems teachers encountered in the classroom.

Even though collaborative conversations and collective inquiry were beneficial, teachers in the PLC teams believed that collective inquiry could be strengthened. Teachers identified horizontal and vertical planning as a recommendation to improve collective inquiry when they were involved in PLC and think tank meetings. If vertical and horizontal planning would be infused in these meetings, teachers might learn additional instructional resources and teaching strategies to improve instruction. Teachers in the lower grades may offer insight on the skills students struggled and excelled; whereas, teachers in upper grades may clarify what skills and knowledge students must have as they enter their grade level. Teachers may benefit from collaborating with teachers between grades to align curriculum, create clear expectations for student learning, and address challenges related to student learning and instruction.

In the narrative above, I mentioned the overall intent of the district's PLC and the benefits gleaned from the data. Both items beg the question whether the goals were met for this program evaluation. Based on the findings of this study, the goals for collective inquiry and collaboration were met but not for the district indicators.

District personnel developed five indicators based on DuFour's PLC model to confirm whether the goals were met. Even though the indicators were not part of the study, they are discussed here in the summary of the findings. The five indicators are:

Indicator 1: Clarify essential learning outcomes

Indicator 2: Monitor student learning through common formative assessments

Indicator 3: Analyze and use the results to improve instruction and target intervention

Indicator 4: Establish and monitor progress on team goals

Indicator 5: Innovate responsibly based on action research

The indicator for meeting *clarifying essential learning outcomes* for collaboration and collective inquiry goals were met when teachers worked together in grade level teams to identify standards, select learning targets, align instruction, establish common scoring criteria, and used data to identify teacher effectiveness. The PLC teams worked together to align instruction to create clear expectations for student learning, plan instruction, identify student needs, and address how they would address these challenges to improve student achievement. To align instruction, PLC team members met in weekly grade level meetings to identify instructional practices, share knowledge, and identify strategies to improve student achievement. The PLC teams used district benchmark assessment to determine what standards students needed to know, identify the weakest standards, and the standards most often used on the state assessment. Instructional goals were determined based on the skills students needed to improve student achievement. Based on the document review and interviews, grade level teams collaborated to identify teaching methods, share resources, and strategies aligned to grade level reading standards to improve instruction. Additionally, teachers shared how they used the writing rubric, and then developed a common writing rubric.

The collaboration and collective inquiry indicator for *monitoring student learning through common formative assessments* (CFAs) were met by PLC team members developing and using formative assessments to identify student achievement, monitor student performance, and discuss strategies to improve instruction. Teachers met in PLC meetings to review their common formative assessments to identify student progress, common errors, discuss gaps in student learning and skills, and areas students performed proficiently, and discussed next instructional steps. The learning coach helped teachers to identify standards that students were not proficient on to assist teachers in identifying teaching methods to change their instruction.

The indicator to *analyze and use the results to improve instruction and target interventions* were met for collaboration and collective inquiry by teachers using data-driven decision making to identify gaps in student learning and academic skills to adjust their instruction. The PLC team used and discussed benchmark assessments, common formative assessments, and progress monitoring to identify gaps in student learning, change teaching practice, and to improve student achievement. Collaborating with PLC team members and sharing successful teaching practices helped teachers to adjust their teaching practices based on student outcomes. Progress monitoring was used by the PLC team to measure students' improvement and performance in reading, from benchmark and common formative assessments to evaluate the effectiveness of their teaching and make instructional decisions. The PLC team identified gaps in student learning from benchmark assessments, adjusted instructional practice using small group, ability grouping, reteaching, and differentiated instruction.

The indicator for *establishing and monitoring team goals* was not met for collaboration and collective inquiry. There was no evidence that the PLC team created or aligned the missions and vision of the team with the actions needed to improve student achievement. DuFour et al., (2006) identified that clarifying collective commitments is one of the most important strategies in building an effective PLC team. PLC teams identified goals for student improvement; however, teams did not identify team goals and a process for monitoring those goals. By creating team goals and a process for monitoring those goals, PLC team members would hold each other accountable in meeting the team's desired outcome of improving student achievement.

The indicator for *innovate responsibly based on action research* was met for collaboration and collective inquiry through participants using reflective dialogue during team and think tank meetings. The PLC team intentionally used collaboration and collective inquiry during the team and think tank meetings to share knowledge, learn together, analyze student data, and alter instruction focused on closing the achievement gap and improving student achievement. Through trusting relationships, team members engaged in supportive and productive collaborative conversations to refine their instructional practice. Teams benefited from creating an environment that encouraged innovation and experimentation. Team members felt safe to share their teaching practices, learn from one another, and were willing to take risks by trying different teaching practices. Teachers modified and refined their instructional practices to make it suitable for their classroom teaching and learning. The administration provided instructional leadership by engaging teachers in collaborative conversations and

reflective dialogue to translate learning from PLC conversations to successful teaching practices.

Project Deliverable

The project deliverable will be a program evaluation report that evaluated the PLC goals of collaboration and collective inquiry in a K-5 low performing Title 1 school. Results will be shared in a general faculty meeting scheduled after school and will last approximately 45 minutes. At this meeting, I will provide faculty with a 20-page executive summary report of the findings, a recommendation on the indicator not met based on the findings, a recommendation from the teachers, and field any questions. Data from the interviews and team meeting notes were used to inform the program evaluation report. The four themes identified are:

1. The PLC team researched, and shared new strategies, activities, and resources used by teachers.
2. The PLC team used data driven decision making to identify gaps in student learning and academic skills and to adjust instructional practices.
3. The PLC team built trusting relationships among team members.
4. The PLC team used collaborative conversations and reflective dialogue during team and Think Tank meetings to analyze student data and alter instruction.

Stakeholders can use the evaluation report to make decisions and identify changes they could make to improve collective inquiry and collaboration at the local site. Stakeholders will be responsible for making all decisions, and through collaborative conversations decide whether to implement the recommendations.

Conclusion

The research methodology, data collection, and analysis were described in Section 2. A qualitative program evaluation was used to determine whether the goals of collaboration and collective inquiry were met during the implementation of the PLC during the 2015/16 school year. The role of the researcher and methods for handling data were discussed. Data collection included semistructured interviews using open-ended questions and a document review of team meeting notes.

The project for this study is a program evaluation report. The goals and rationale for the project are discussed in section 3. A review of literature on program evaluations is provided. The method of evaluating the project, and implications for social change are included.

Section 3: The Project

Introduction

The purpose of this study was to evaluate the implementation of the PLC and whether the PLC goals of collective inquiry and collaboration were met. Poskitt (2014) identified that many schools have implemented PLCs to improve teaching pedagogies and increase student achievement. Schools are implementing PLCs as a staff development approach; however, they are not evaluating their effectiveness. This study was conducted to evaluate whether the goals of collaboration and collective inquiry were met at the local site during the academic year 2015/2016. In Section 1, the project study, rationale for the study design, review program evaluation current literature, and implications of the study are discussed.

Description and Goals

The project deliverable for this study is a formative objectives-oriented evaluation report on whether the PLC goals of collaboration and collective inquiry were met. The evaluation report contains formative data designed to document and evaluate the goals of collective inquiry and collaboration. This program evaluation was not intended to evaluate the entire PLC program, but only whether the goals of collective inquiry and collaboration were met. Given the fact that the PLC initiative at the research site is one aimed at a long term change of the school's culture and had only been in place one year, this evaluation is formative rather than summative in nature to provide for ongoing modifications focusing on improving student and teacher learning. The goals for the proposed project are based on DuFour's PLC model adopted by the local site. The

expectation is that the collaborative effort will produce ongoing student achievement, and teacher learning and are evidenced in the following district goals.

The goals were:

- District Goal 1: Meet in meaningful teams (collaboration)to improve professional practice.
- District Goal 2: Analyze and respond to data (collective inquiry).

During the faculty meeting, I will present the findings of the study to faculty and allow for open dialogue with participants. The following areas were examined and are explained in the program evaluation report (Appendix A).

1. Participants' perceptions of how the PLC researched, shared new strategies, activities, and resources.
2. Participants' perceptions on data-driven decision making to identify gaps in student learning and adjust instructional practices.
3. Participants' perceptions on how the PLC team built trusting relationships among team members.
4. Participants' perceptions on how the PLC team used collaborative conversations and reflective dialogue to analyze student data and alter instruction.

Rationale

The PLC was implemented at the K-5 school in 2015 for the academic year 2015/2016 to address low achievement and improve instruction. The PLC is a professional development strategy used to improve teacher learning and student

achievement (DuFour, 2015). Students in Grades 3-5 continue to perform below state level expectations despite the implementation of the PLC since September 2015. The goal of this program evaluation was to evaluate whether the goals of collective inquiry and collaboration were met. The goals of this PLC at the research site examined in this study have never been evaluated to determine whether they are effective.

For this study, a modified objectives-oriented program evaluation was used to determine whether the goals of collaboration and collective inquiry were met. The program evaluation was guided by two research questions to develop an understanding of whether the goals of collective inquiry and collaboration were achieved. The two research questions are:

RQ1: How do PLC team members develop and maintain collaboration to close the achievement gap and improve student achievement?

RQ2: How do PLC team members use collective inquiry to improve student performance? The findings from this program evaluation are intended to provide information about the program's implementation and potential success.

Review of the Literature

The purpose of this section is to present a review of literature on program evaluations. The literature review for this project student will also include information on the conceptual framework to guide the study and the use of collaboration and collective inquiry. An iterative process was used to retrieve articles and studies from ERIC, ProQuest Central, Sage, and Google Scholar. Keywords used for this review

included *program evaluation, objectives-oriented program evaluation, professional learning community,* and *modified program evaluations*.

In this section, I describe the project study, rationale for the design of the study, review current literature related to program evaluations, differences in evaluation and research, formative and summative evaluations, objectives oriented program evaluations, project description, and explain the implications of the study.

The local elementary school implemented the PLC to improve student achievement and close the achievement gap. PLC team members meet in weekly team meetings to share ideas and strategies to improve student achievement and teacher learning. Teachers use reflective dialogue, collaboration, and a collective focus on student learning to improve student achievement.

At the time of this study, DuFour's model (1998) was adopted by the local school district to improve teaching and student achievement. The teachers, learning coach, and administration participated in weekly PLC meetings to improve student achievement and teacher learning. The PLC team worked collectively to improve learning, offer professional knowledge, and learn from each other.

Program Evaluations

Formative program evaluations are used to judge the value of a program and is needed to monitor whether the objectives are met. Program evaluations are conducted for decision making purposes to determine their worth and make recommendations for refinement and success of the intended outcomes (Spaulding, 2013). Education programs need to be evaluated to examine their effectiveness, make recommendations, and refined

for success (Lodico et al., 2010). Creswell (2012) stated that a program evaluation should be used to gain knowledge, make improvements, or decision making. School personnel make choices and decisions based on information from valid and reliable sources regarding the educational programs used to improve student achievement. To make intelligent decisions, stakeholders rely on quality knowledge sources as well as good information about the effectiveness of programs (Fitzpatrick et al., 2011).

Evaluators use program evaluations for identification, clarification, and application of defensible criteria to determine the value in relation to those criteria. (Fitzpatrick et al.). One important role of an evaluator is to help stakeholders determine whether the program should be adopted, continued, or expanded. Fitzpatrick, Sanders and Worthen identified the following inquiry and judgement methods: (a) determine the quality and standards, (b) collecting relevant information, (c) applying the standards to determine value, quality, significance, and effectiveness.

Not only are program evaluators essential in a program evaluation, the program stakeholders play a critical role to the program's success or failure. Stakeholders are the various individuals and groups who have a direct interest in the program and are affected by the program evaluation and the results (Fitzpatrick et al.). Stakeholders make changes to the program based on the results.

Differences in Evaluation and Research

Research and evaluations have different purposes and seek different results. Fitzpatrick et al. (2011) stated that the purpose of research is to advance knowledge and contribute to theory. In contrast, the primary purpose of an evaluation is to provide

stakeholders with useful information on what is evaluated that will help them to make decisions and judgments about a program. Another difference between research and evaluation is the generalizability of the results. Program evaluations are concerned with making judgments about a specific program in a particular setting and are not concerned with generalizing to different settings (Fitzpatrick et al.). In contrast, the research methods are designed to generalize findings to or transfer the findings to many different settings.

Formative and Summative Evaluations

Formative and summative are types of evaluation. The purpose of a formative evaluation is to gather information that can be used to improve or strengthen the implementation of a program (Fitzpatrick et al., 2011). A summative evaluation is used to determine whether the program should be continued or replicated. Additionally, formative evaluations collect data from the implementation of a program, while summative data are analyzed at the end of the review cycle (Spaulding, 2013). Spaulding (2013) stated that formative data (a) are collected from participants to measure outcomes, (b) are intended to help evaluators to address the program's effectiveness, and (c) can result in recommendations for improvement. In this study, the program evaluation is formative due to the recent adoption and implementation of the PLC.

Objectives-Oriented Program Evaluations

Objectives-oriented program evaluations are used to determine whether the goals and objectives of a program are met (Fitzpatrick et al., 2011). The goals of this program evaluation are to provide an in depth understanding of how PLC team members develop

and maintain collaboration and collective inquiry to improve student achievement. I collected qualitative data to determine if the goals were met.

In a program evaluation, qualitative, quantitative, and mixed methods can be used as research methods. In qualitative studies, focus group discussions, observations, interviews using open ended questions, and document analysis are useful data collection methods. The evaluator may develop an interview protocol that contains open-ended questions that are linked to the evaluation objectives (Kyale & Brinkman, 2008). (Creswell, 2012). Quantitative data collection strategies include clinical trials, surveys, interviews, and questionnaires that collect numerical data by using closed-ended questions. In mixed methods research, the evaluator uses a combination of qualitative and quantitative data (Miles, Huberman, & Saldana, 2014). For the purpose of this program evaluation, a qualitative research design was chosen and described to research the problem.

Shufflebeam (2007) stated that an objectives based study is the most prevalent approach in program evaluation. This program evaluation model was used to document whether the goals of collaboration and collective inquiry were met in the implementation of the PLC. This program evaluation is the best choice for an evaluation report, because it provides an in depth understanding of how PLC team members developed and maintained collaboration and collective inquiry to improve student achievement. This formative evaluation may determine how this school's PLC has achieved its goals to date and what improvements need to be implemented.

Project Description

My project, an evaluation report, includes a 20-page report that explains the purpose of the evaluation, criteria for data collection, major outcomes of the goals, and addresses the local needs of improving student achievement and closing the achievement gap. Spaulding (2013) ascertained that program evaluation findings are presented in an evaluation report and given directly to the stakeholders. The administration serves as the primary audience and support for this project and want to know whether the project's goals were met. Limited resources will be needed to release the report to program stakeholders. Resources needed include meeting space in the media center, presentation handouts, and promethean board to display the report. Barriers to implementation may include availability of scheduling a meeting after school that is convenient for teachers, learning coach, and administrators to attend. One solution would be to propose dates that would be optimal for stakeholders to attend. Another barrier is teacher commitment for the continuation of the PLC to improve how collaboration and collective inquiry are used during PLC team meetings. Teachers may not see the benefits of improving collective inquiry and collaboration during the PLC team meeting. One solution may be to offer PLC teachers autonomy in decision making for these goals.

I will formally share the evaluation report and propose recommendations with the stakeholders. A meeting will be scheduled during the 2019-2020 school year to share the evaluation report and recommendations of the program evaluation. The meeting will take place after school and will last approximately 45 minutes. The teachers, learning coach, and administration will have the opportunity to review the evaluation report. Based on

the findings, teachers recommended that planning with different grade levels would help them to obtain instructional resources to improve student achievement.

As a researcher, my role and responsibility are to develop and share findings of the evaluation. I will ask permission from the principal to hold a faculty meeting in the media center. After obtaining approval, I will schedule the meeting with the technology coordinator to use the media center and have access to the promethean board to display the report. I will send an email inviting all PLC teams to attend. The setting is familiar to the participants allowing all participants to feel comfortable in asking questions or making comments. The responsibility of the participants is to be actively engaged in the meeting and discussions as they relate to the project.

Implications Including Social Change

Local Community

This project study holds many possibilities for social change. The PLC is relatively new to the school, and educators continue to look for ways to improve collective inquiry and collaboration. The results of the data analysis revealed that collaboration and collective inquiry were used during the implementation of the PLC to improve student achievement. Relative to the PLC goals, I determined that establishing and monitoring team goals was an indicator that was not met during the implementation of the PLC. The PLC team could develop, implement, and monitor progress team goals. PLC teams could set goals by collaborating to identify what they want to accomplish, steps to accomplish the task, and a timeline to complete the task. The PLC team could develop a continuous improvement plan focused on improving student achievement.

Additionally, the learning coach could support teachers by helping them to set long term goals for student achievement, short-term goals for student growth, and assist teachers to identify best practices to improve instruction and teacher learning. The teachers could establish and monitor short term and long term goals to improve student achievement.

The PLC team could engage in collaborative conversations in identifying evidence of effectiveness and to determine the next instructional steps to improve student achievement. The learning coach is responsible for (a) teacher learning relative to the team goals, (b) reviewing and monitoring team progress on goals, and (c) how teachers transferred knowledge from the PLC into their practice. The administration could consistently monitor evidence of student performance and conduct classroom observations to determine how PLC instructional decisions were implemented in classrooms to improve student achievement.

Far-Reaching

This formative program evaluation has the potential to be a contribution of knowledge for schools adopting the PLC model by providing information regarding collaboration and collective inquiry. Teachers and students may benefit from this study. Teachers may learn how to successfully use collaboration to share strategies, activities, and resources to improve instruction and student learning. Adjusting instruction by using data driven decisions may benefit teachers to improve student achievement. Additionally, they may gain insight on how collaborative conversations and reflective dialogues are used to analyze student data and change teaching practice. Students may

benefit from instruction that is designed to meet their individual needs and improve their achievement.

Long-term benefits of the evaluation may include a transformation in the way teachers collaborate and increase collective inquiry. Teachers may change the way they teach to improve student learning, if teachers view their role as collaborative. The proposed outcomes are improved teacher and student learning, collaboration and collective inquiry among the teachers, learning coach, and administration to improve student achievement.

Conclusion

In Section 3, I provided a description and goals on program evaluation, provided rationale for the program evaluation, reviewed relevant literature, program evaluation model, project description, and identified the implications for social change. Additionally, the proposed workshop and implementation plan, support and barriers are included. The implications for social change were described that are intended to be achieved through the adoption and execution of the evaluation report. In Section 4, I will present the strengths along with limitations of my project. I will complete this section with a summary of what I gained from the experience.

Section 4: Reflections and Conclusions

Introduction

In this section, I discuss the strengths and limitations of the program evaluation whether the goals of collaboration and collective inquiry were met. Additionally, it will include a self reflection of what I learned from conducting this study, by examining myself through the lens of a researcher, scholar, practitioner, and project developer. I reflect how this study may influence social change both locally and in a broader context. Finally, I consider possible areas for future research. The program evaluation report was designed to provide the administration with results on whether the goals of collective inquiry and collaboration were met during the implementation of the PLC. The study was developed to allow the local site to make evidence-based decisions as the PLC moves forward. Finally, I summarize the key points of my work and provide my conclusions.

Project Strengths

This program evaluation project had several strengths. First, it addressed the need for an evaluation of the first year of the implementation of the PLC and whether the goals of collective inquiry and collaboration were met. Stakeholders use program evaluations to make decisions and determine the success of a program (Fitzpatrick et al., 2011). The administration makes the ultimate decision to implement changes to improve student achievement. Farley-Ripple and Buttram (2014) identified that leadership may effectively support and create opportunities for change by building a school culture that supports collective inquiry and collaboration. Another strength of this project was to

provide participants with the recommendation to monitor and evaluate progress on team goals, and the recommendation to include vertical and horizontal planning. Teachers take collective responsibility for students to learn the essential knowledge and skills to improve student achievement. In order to achieve this goal, PLC team members must hold each other accountable to improve teacher and student learning. During the evaluation report meeting, participants will be provided recommendations to improve collaboration by monitoring and evaluating progress on team goals.

Project Limitations

The limitation to this program evaluation is that it did not evaluate all of the goals. Only the goals of collaboration and collective inquiry were evaluated. Fitzpatrick, Sanders, and Worthen (2011) identified that a limitation to objectives-oriented program evaluations only focus on objectives. Additionally, objectives oriented program evaluations do not use a program description which is needed to gain an understanding of the program. Another limitation to this program evaluation was only using one research method to study the problem. A qualitative research method was used to explore the phenomenon, using only a document review and team meeting notes as data.

Recommendations for Remediation of Limitations

The problem addressed in this study was whether the goals of collaboration and collective inquiry were met to improve student achievement and close the achievement gap. In this program evaluation, only two goals (collaboration and collective inquiry) were evaluated. A goal free evaluation or decision oriented program evaluations are different approaches that could be used to evaluate the PLC.

A modified program evaluation was used to address the guiding questions of this study. A goal free evaluation could have been another approach for this evaluation. Scriven (2012) believed that a goal free evaluation reduces the bias from knowing program goals and the ability to judge the program as a whole. Using a goal free evaluation would have helped to identify the actual outcomes rather than the intended outcomes. The intended outcomes of the program were to identify how collaboration and collective inquiry were used to improve student achievement and close the achievement gap among students.

Another possibility was to use the decision oriented evaluation approach. Shufflebeam (2002) described decision oriented approach as the process of explaining, obtaining, and providing useful information for judging decisions. He developed the Context Input Process Produce (CIPP model which includes four elements: C-Context, I-Input, P- Process, and P-Produce. First the context element helps to determine the needs to be addressed. The need identified at the local site was to improve student achievement and close the achievement gap. Next, the input element helps the administrators to select and implement a particular strategy. This could have helped to identify the resources, and teaching skills that teachers need for effective teaching and learning. Next, the process element identifies the changes, barriers, and revisions that are needed to improve the program. Using the process element would allow the administrators to identify the approaches used by the school to improve student achievement. Finally, the product element provides guidance for continuing, modifying, or terminating the program. The

product element would help administration to identify how teachers will implement what they have learned.

Scholarship, Project Development, and Leadership and Change

Scholarship

Throughout my process in this EdD journey, I developed scholarly skills. Throughout this process, I learned that scholars apply advanced research skills. The process taught me how to read critically, draw conclusions, and synthesize information from literature. I have learned the skills necessary to define a problem, identify relevant resources, synthesize literature, and cite the works of others. Scholars must understand the connection among ideas and inconsistencies, and the ability to approach problems in a systemic way. Researchers locate numerous articles and gather information about a topic. I learned how to gather information and understand the main points, analyze data, and make connections to draw conclusions using higher level thinking skills. I learned that reflection requires scholars to learn from experience, think about what happened, and decide how to do it differently next time.

I developed a clearer understanding of academic writing, which requires developing a clear understanding of writing mechanics and paying attention to detail. In scholarly writing, scholars must be specific about their word choice and must use precise and clear language to support their work. Scholarly writing requires careful citations of the sources used to support assertations. Scholarly writing requires researchers to determine which information is most relevant to their purpose. In addition, I learned the importance of incorporating evidence and avoiding bias.

Project Development

This project began as an idea to evaluate the implementation of the PLC and determine how collective inquiry and collaboration were used to improve student achievement. In order to develop the project, I collected and analyzed data to determine the findings.

To write a program evaluation report, there were numerous components that needed to be included. First, I had to decide on the type of evaluation report that I would use. Next, I needed to know how to write the executive summary that contains a brief description of the evaluation, program description, evaluation questions, design, key findings, and recommendations. In addition, a program description is required to provide the context of my evaluation for the stakeholders (teachers, learning coach, and administration). Also, I wrote a description of the data sources and research methods. This required me to identify the method of research, sampling, and data used to understand the phenomenon relative to the implementation of the PLC, and credibility of data. The final step is discussing the results, conclusions, recommendations, and interpretations.

Leadership and Change

As I pursued my doctorate, my awareness of leadership in the PLC has developed. Through this process, I have learned that to be a successful PLC leader requires certain skills. First, PLC team members must engage in a collaborative process to identify what students need to know, how we identify how they know it, and what we will do if they do not know it. As a leader, I am helping teammates to share and learn strategies that are

effective in improving student learning. I have changed this aspect during my team meetings by asking teammates to share how they are teaching specific lessons. Additionally, I learned that a successful leader in the PLC ensures that the team is focused on continually improving their teaching and student achievement. To achieve this goal, I will collaborate with team members to negotiate an agenda that outlines what will be discussed in the PLC meeting.

Analysis of Self as Scholar

When I began my doctoral journey, I did not view myself as a scholar. Prior to starting this journey, I was not exposed to scholarly writing until the beginning of my dissertation. In the beginning, I was overwhelmed with locating journals that were relevant to my topic. I was concerned whether I had the writing skills necessary to produce scholarly writing. This process provided me with the skills to pay attention to detail and use clear and concise vocabulary in my writing. I learned how to analyze data and make connections. Additionally, my professional reading has changed through this process. I continue to read peer reviewed journals and articles focused on improving my teaching practice to improve student achievement. This has been beneficial to me and provides me the opportunity to share information with colleagues on specific topics. This process taught me perseverance, strength, and patience. I have always been a teacher, problem solver, and lifelong learner. I now realize those words describe a scholar. I will continue to study and research to encourage social change.

Analysis of Self as Practitioner

I have grown from being a classroom teacher to a practitioner throughout this journey. I have become actively involved in the PLC. As a practitioner, this evaluation project has informed my professional work. I learned the importance of using scholarly inquiry to make changes to my teaching practice. I have learned how to research topics that are relevant to teaching and discovering research-based strategies to improve my teaching and student learning. As an educator, I am constantly faced with improving student achievement. Through this process, I can identify a problem and then immediately apply research strategies to find a solution. My writing has improved through this process. I have improved my ability to write clear statements that provide supporting evidence. I am more focused on the word choice that I use when writing correspondence to parents and coworkers.

Analysis of Self as Project Developer

In the process of developing the project, I learned how to create a project that is based on scholarly research, and the problems and challenges of a school. This project strengthened my ability to develop a program, improve collaboration and collective inquiry, and evaluate those goals. As I moved through the process, I began to understand the importance of being organized, paying attention to detail, and the ability to deal with obstacles. As a project developer, organization is an important trait. The structure and direction of the project depended on my efforts. I made lists to identify the tasks that needed to be completed. Paying attention to detail required me to take the time to identify the errors that I was making and revising my work to ensure that I had made the

necessary changes and apply skills that I was learning. I learned the importance of being flexible and having patience to complete the project. I set aside time to work on the project in small steps. I learned how to limit distractions so that I could focus on the project. When I encountered obstacles, I used perseverance to overcome the challenges. In order to write a program evaluation report, I needed numerous skills. First, I had to identify what elements are in a program evaluation report. I learned how to write the executive summary, program description, methodology, and present the findings.

The Project's Potential Impact on Social Change

Teaching practices improve and student achievement increases when teachers use collaboration and collective inquiry in the PLC. Teachers need effective professional development to improve instruction and student learning. The PLC is a professional development model that many schools have adopted to improve instruction. Positive social change could occur if all PLC teams improved their collaboration and collective inquiry by implementing the recommendations. Teachers identified that horizontal and vertical planning as a recommendation. Next, the recommendation based on the indicators identified that establishing and monitoring progress on team goals could improve teacher learning and student achievement. Teachers may benefit from instructional improvement resulting in student-learning gains. Students may benefit from instruction that is designed to meet their individual needs. The administration and learning coach may benefit from teachers improving their instructional practice resulting in improved student performance. Schools adopting the PLC model may benefit by understanding how collaboration and collective inquiry were used during the PLC

meeting. The potential effect on social change could improve collaboration and collective inquiry and how it is used in the PLC at the local site. Positive social change could occur if all PLC teams improved collaboration and collective inquiry to identify successful instructional practices resulting in improved teacher learning, closing the achievement gap among students, and improving student learning.

Beyond the local level, the project's potential influence could help administrators transform the way collective inquiry and collaboration are used during PLC meetings. The desired outcomes for all PLCs are to work collaboratively to engage in reflective practice using collective inquiry focused on improving teacher learning and student achievement.

Implications, Applications, and Directions for Future Research

Implications for future research include a comprehensive evaluation that identifies the importance of shared leadership and its effect on the PLC and student learning. For reform to occur, teachers must be part of the change. A qualitative study using observations and interviews could be used to explore teacher leadership in PLCs. Additionally, further research is needed on how to sustain the PLC. Schools must communicate and implement effective dimensions of their PLCs to maintain sustainability. DuFour et al. (2010) recommended that PLC teams should have a shared vision and mission, shared leadership, supportive conditions, focus on student learning, and a culture that promotes shared practice to sustain the PLC. A qualitative case study could be used to explore the perceptions of teachers, the learning coach, and administration on these dimensions.

Conclusion

A modified objectives oriented program evaluation was used to explore whether the goals of collaboration and collective inquiry were met during the implementation of the PLC. The recommendations based on the findings were prepared for the stakeholders. Teachers identified one recommendation to improve collaboration and collective inquiry by using vertical and team planning to improve instruction and student achievement. The recommendation based on the indicators identified that collaboration could improve teacher learning and student achievement through teachers establishing and monitoring progress on PLC team goals.

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Appendix A: Executive Summary

A Program Evaluation

An Evaluation of Collaboration and Collective Inquiry Goals in an Elementary PLC

Evaluator

Susan Lazor

Table of Contents

Executive Summary

I conducted this program evaluation (PE) on whether the goals of collaboration and collective inquiry were met during the implementation of the professional learning community. This PE was specifically designed to evaluate the professional learning community (PLC) goals, collaboration and collective inquiry, at a K-5 elementary school located in the Western region of the United States. The PLC model was implemented at the target school in September 2015 for the academic year 2015/2016 to improve the quality of teaching and student achievement. The purpose of this evaluation was to determine how collaboration and collective inquiry were used to close the achievement gap and improve student achievement. The expectation was that the collaborative effort would produce ongoing student achievement and teacher learning, which are evidenced in the following district goals: (1) meet in meaningful teams (collaboration) to improve professional practice, (2) analyze and respond to data (collective inquiry).

DuFour's model (2006) informed this program evaluation for the PLC. I conducted a modified objectives-oriented program evaluation to collect data for this study. The data included team meeting notes and interviews from PLC teams that participated in the implementation of the PLC in 2015 and 2016. Based on the findings of this study, the goals for collective inquiry and collaboration were not met. Although the PLC teams developed and maintained collaboration as a practice and analyzed and responded to data, the PLC teams need to make further adjustments based on the district's goal indicators. District personnel developed five indicators based on DuFour's PLC model to confirm whether all PLC goals are met. These goals are to clarify essential

learning outcomes, monitor student learning through common formative assessments, analyze and use the results to improve instruction and target interventions, establish and monitor progress on team goals, and innovate responsibly based on action research.

The program evaluation report provides a summary of the findings, a recommendation for the not met PLC indicator and a recommendation from teachers. This information will allow the stakeholders to make decisions and identify changes to improve collective inquiry and collaboration at the local site. Through collaborative conversations, the stakeholders will decide whether to implement the recommendations.

The positive social change anticipated from this study is to transform the way teachers, administrators, and the learning coach collaborated and used collective inquiry during the PLC team meeting to improve instruction resulting in student-learning gains. Positive social change could occur if all PLC teams improved collaboration and collective inquiry to identify successful instructional practices resulting in improved teacher learning, closing the achievement gap among students, and improving student learning. Specifically, teachers could change the way they collaborate and use reflective dialogue to improve instruction, change teaching practice, analyze student data, share strategies, activities, and resources. Teachers would benefit by meeting with other grade level teams to align curriculum, create clear expectations for student learning, and address challenges related to student learning and teacher instruction. Students may benefit from instruction that is designed to meet their individual needs and improve achievement. The administration and learning coach may benefit from teachers improving their instructional practice resulting in improved student performance.

Introduction to Program Evaluation

Program evaluations are conducted for decision making purposes to determine their worth and make recommendations for refinement and success of the intended outcomes (Spaulding, 2013). To make effective decisions, stakeholders need good information about the effectiveness of adopted and implemented programs (Fitzpatrick, Sanders, & Worthen, 2011). For this study, a modified objectives-oriented program evaluation was used to determine whether the goals of collaboration and collective inquiry were met. Two research questions were developed to evaluate the PLC goals.

The problem that prompted this evaluation was the continued student failure to meet grade level expectations. To address low achievement, the school administration adopted and implemented PLC goals to improve instruction and student academic outcomes. There was a need for a formative evaluation of the PLC goals, collaboration and collective inquiry, because they were never evaluated. This formative program evaluation was used to identify how team members developed and maintained collaboration and collective inquiry to close the achievement gap and improve student achievement.

Stakeholders/Audience

The administration, teachers, and learning coach (stakeholders) are the intended audience for this program evaluation. The administration served as the primary support for the implementation of the PLC because of their responsibility to make decisions and implement changes to improve student achievement. Teachers take collective responsibility for students to learn the essential knowledge and skills to improve student

achievement. The learning coach provided and will continue to mentor teachers on how to use collaboration and collective inquiry during the PLC team meetings. This information may assist stakeholders in making decisions and identifying changes to improve the PLC goals during the team meetings.

Data Collection

The data collection for this study consisted of interviews using semistructured open- ended questions and a document review of team meeting notes. The data were collected from 10 teachers, the learning coach, and two administrators who participated in the implementation of the PLC during the 2015/16 school year. Document review data, consisting of PLC team meeting notes were collected from grades K-3 and 5. Interview data were gathered from PLC teams for those respective grades. Interviews were recorded, transcribed, and manually coded to determine themes. I excluded the grade 4 PLC team because I was a team member.

Documents

Team meeting notes from the 2016/2017 school year were collected for this study. Grade level teams weekly submitted a summary of team meeting notes to the principal that included student objectives, evidence of student learning, how the team responded to data, and identified struggling and excelling students. In addition, team members included the instructional changes teachers would make to improve student achievement.

Interviews

Semistructured interviews were conducted using purposeful sampling and open-ended questions. Participants in this study included 10 elementary teachers, the learning

coach, the principal, and the assistant principal who participated in the implementation of the PLC between the years of 2015 and 2016. This sample was chosen because they could provide insight on how collaboration was developed and maintained to close the achievement gap and improve student achievment, and how collective inquiry was used to improve student performance. Employees who did not participate in the PLC during the 2015-2016 school year were excluded.

Semistructured interviews were conducted with the teachers, learning coach, assistant principal, and principal at the local site. Qualitative interviews featured questions that allowed individuals to describe their experiences with the implementation of the PLC. Each participant within the same group (teachers, learning coach, and administration) was asked the same questions. The interviews were scheduled over two months, were audio recorded, and lasted for 45-60 minutes.

Evidence of Quality

Steps were taken to ensure the credibility and accuracy of data and findings. Member checks were used to support evidence of quality by returning the findings to the participants to check the findings for accuracy of their data (Creswell, 2012). Once the data collection was completed, I emailed the participants a two-page summary of my findings. Participants did not find, nor did they notify me of any inaccuracies of their data.

Lodico, Spaulding, and Voegtle (2010) stated that confirming evidence is obtained through triangulation, a strategy to test for validity using different sources of

data. I verified the document findings with the interview findings. I examined these findings for convergence of information from these two sources.

Data Analysis

Documents and interviews were analyzed using thematic analysis immediately after they were collected. Braun and Clarke (2006) explained thematic analysis as the process of identifying, analyzing, and reporting themes within data. The analysis process consisted of reading interview transcripts and team-meeting notes to identify patterns that became themes. A priori, open, and axial codes were used to analyze PLC team meeting notes and interview data. A priori codes based on the framework and related literature and open and axial codes, which were derived from the data, were used to analyze the data. Themes emerge from patterns among the axial codes.

Document Analysis

Team meeting notes were collected and recorded on a document review protocol. I sorted team meeting notes and analyzed them using a two-step process. In step 1, I analyzed the data by participant groups (teachers, learning coach, and administrators). In step 2, I analyzed the data by grade level teams. Thematic analysis using a prior, open, and axial codes were used to analyze PLC team meeting notes. I read the documents and highlighted data that were linked to the a priori codes collaboration (yellow), and collective inquiry (green) from the framework and related literature review. This resulted in many codes that I reduced using open coding. I open coded the a priori codes by searching for repetitions of words and phrases. I labeled the repeated words with a term that defined the open code. Next, I searched for relationships among the open codes and

grouped similar codes into categories to create the axial codes. The categories identified for collaboration focused on student learning, teachers working together, data-driven decision making, and improved instruction. The axial codes identified for collective inquiry focused on improving student learning, collaboration to improve instruction, and data to improve student achievement. I examined the categories for patterns and generated themes that addressed the research questions. I examined the codes and extracted text segments that related to collaboration and collective inquiry. I reread all the data and ensured that the coded data fit into the themes.

Interview Data Analysis

The teachers, administration, and learning coach were interviewed using open-ended questions that allowed the participants to describe their experiences with the implementation of the PLC. Teachers, administration, and the learning coach had separate interview questions. Participant interviews were audio-recorded and transcribed. The teachers, learning coach, and administrators interview transcripts were analyzed separately. The data were analyzed by participant groups (teachers, learning coach, and administration), and then by grade level teams. Transcripts were manually coded in two stages. First, I read the transcripts and used the a priori codes to identify text segments based on DuFour, DuFour, Eaker, and Many (2006) conceptual framework. This resulted in many codes that were reduced in the second stage of coding. For stage two, I used open and axial coding. In open coding, events, actions, and interactions were searched for repeated words and phrases which resulted in 14 open codes. Following open coding, I used axial coding to make connections between the data and open codes and grouped

similar codes into categories. To move from categories to themes, I examined the axial codes for patterns among the coded data. Saldana (2013) stated that themes identify the major concepts or issues that the researcher uses to interpret and explain the data. Three themes emerged from qualitative research question 1: "How do team members develop and maintain collaboration to close the achievement gap?" The themes that emerged were:

The PLC team researched and shared new strategies, activities, and resources used by teachers.

The PLC team used data-driven decision making to identify gaps in student learning and academic skills to adjust instructional practices.

The PLC team built trusting relationships among team members.

One theme emerged from research question 2: "How do PLC team members use collective inquiry to improve student performance?" The theme that emerged was: The PLC team used collaborative conversations and reflective dialogue during the team and think tank meetings to analyze student data and alter instruction.

Discussion of Results

Research findings for this study were examined through team meeting notes and open-ended interviews with teachers, learning coach, and administration. The participants were asked questions pertaining to their perceptions of collective inquiry and collaboration during the implementation of the PLC. The themes were analyzed based on the research questions.

Theme 1: The PLC team researched, and shared new strategies, activities, and resources used by the teachers.

Sharing strategies. The PLC team researched, and shared new strategies, activities, and resources used by teachers. PLC teams identified that sharing knowledge, experiences, and suggestions for trying new strategies influenced student achievement. Grade level teachers took the initiative to research and share what they had learned with their PLC teams. Teachers met in weekly PLC meetings and discussed student achievement, shared knowledge, and identified strategies to improve student achievement. One teacher stated, "we all have our…specific skills… [and we] share what we are good at." By engaging in conversations with teammates, teachers aligned instruction, created clear expectations for student learning, and determined grade level skills. Teachers identified that collaborating during the PLC team meeting changed their teaching practice by volunteering ideas and strategies. One teacher stated, "We learn from each other… and identify practices … that are working. This helps [us] to implement so [teachers] and students can improve." The learning coach assisted PLC teams in researching instructional practices to improve student achievement. Although administrators did not direct PLC teams to use specific strategies, they did direct teachers to share ideas and strategies during the PLC team meetings.

Sharing activities. The PLC team shared activities and observed teachers to identify activities that would improve student achievement and close the achievement gap. Specifically, the learning coach encouraged PLC team members to engage in

conversations and share activities that were working in their classroom. Teachers explained how reading activities and teaching in small groups could improve classroom teaching. For example, to improve reading instruction, teachers shared how using leveled and nonfiction texts based on specific grade level standards would improve reading comprehension. One teacher stated, "I used to stick strictly to the district approved curriculum, another teacher taught me how to do small group instruction using novels."

Classroom observations were important to improving instruction and student learning. Teachers observed other teachers and visited schools to identify new instructional ideas they could use in their classroom. One teacher stated, "I went to another school to see if we could implement some new [ideas in our classrooms]." From these observations, teachers identified successful instructional techniques to replicate in their instruction. The administrators provided time for teachers to observe other teachers and teachers in other schools.

Sharing resources. The PLC team researched and shared teaching resources, knowledge, and experiences. Teachers identified coteachers' knowledge and experiences, collaborative conversations, instructional materials, and the internet as resources to improve student learning and close the achievement gap. Teachers engaged in conversations with co-teachers to share knowledge and experiences. One teacher shared, "We are always …working together and teaching each other how to teach it." PLC team members participated in collaborative conversations on instructional planning, standards and curriculum, identifying what students need to know, and how they will improve student achievement. These conversations were opportunities for team members

to share resources relative to the elements for teacher planning and instruction. One teacher identified collaborative conversations as a resource to improve teaching by "giving me new ideas and new ways to approach things." Teachers discussed and shared teaching resources used in their classrooms to improve student achievement. One teacher discussed different resources to improve student achievement, "we talk about…different activities or assessments, exit tickets, small group learning, or using a different program." As an instructional resource, the learning coach gave suggestions to improve teaching practice, and modeled instructional practice. The admistrators brainstormed ideas and resources during PLC team meetings. One teacher stated, "they [the administration] are really good at asking us how is this different in our classes…and helping us to brainstorm ideas."

Theme 2: The PLC team used data-driven decision making to identify gaps in student learning and academic skills and to adjust instructional practices.

Data-driven decision making used to identify gaps in student learning and achievement. PLC team members used data-driven decision making to identify gaps in student learning and achievement. First, teachers used benchmark, common formative assessments, and progress monitoring to identify gaps in student learning and achievement. Once teachers collected assessment data, the PLC team reviewed and discussed the data to decide what teachers should feature in their instruction. One teacher stated, "We bring our data to the meeting, go through each class individually, and then take a look at which students met or exceeded the expectation,… [or] fell below [grade level expectations]." Once teachers reviewed the data, they identified grade level

standards that students needed to master. Teachers used formative assessments to measure whether grade level standards were mastered. One teacher commented, "as a team we look at what skills our kids need to work on and we create different assessments [to monitor student achievement]." Teachers reassessed students to see whether they had mastered the academic skills that were identified as a gap in their learning. During team meetings the administration assisted teachers in making decisions to improve student by suggesting student grouping strategies. Lastly, the learning coach helped teachers analyze data to determine how students performed on meeting grade level standards. The learning coach stated, "…we look at our standards and determine … the weakest standards [based on student performance.]"

Data-driven decision making used to adjust instructional practices. The PLC team used data-driven decision making to adjust instructional practices by identifying students who need extra support and instructional strategies to improve student achievement. Teachers used small group and ability grouping to adjust instructional practices. One teacher stated, "We look at data to identify whether or not the instructional practice was working [and use small group and ability grouping to change instruction]." One teacher identified how data-driven decision making was used to change instruction. "Last time that we met, one of us had a big group of kids making one type of error and the others didn't have as many, so we talked about how we taught." LC1 (Learning Coach) stated how teachers use collaborative conversations in the PLC meeting to change teaching instruction. "Teachers go over their FCA data and discuss what you see on that data whether it is positive or negative, and then use that discussion

to change teaching practice." Administration engaged teachers in collaborative data discussions to make instructional changes. One administrator stated, “you’re doing all of these things but as you look at the data…what are we going to do different?”

Theme 3: The PLC team demonstrated trusting relationships among team members.

PLC team members worked collaboratively and identified that trust influenced their interactions and relationships. As a result of trusting relationships, PLC team members engaged in supportive and productive interactions to improve student achievement. One teacher stated, “We can be honest with each other, …we really don’t hurt each other’s feelings because we trust each other.” Teachers who formed trusting relationships with team members were willing to take risks by trying different classroom practices and sharing students with each other to improve student achievement. One teacher stated, "I think trust goes along with the team. If you do not trust the people you work with, you are not going to collaborate very well, and not able to move the kids as well as you would want."

Theme 4: The PLC team used collaborative conversations and reflective dialogue during the team and think tank meetings to analyze student data and alter instruction.

PLC team members used reflective dialogue in collaborative conversations during team meetings and think tank meetings to analyze student data and change teaching practice. Student data were analyzed then the PLC team engaged in collaborative conversations using reflective dialogue to identify instructional practices to improve

student achievement. One teacher stated how collaborative conversations were used during the PLC team meeting to identify instructional practices, "We have people on our PLC who are very seasoned teachers and have a lot of background knowledge… so, we work together to learn from each other."

The PLC team collaborated during team meetings to share expertise, explore new concepts, and engage in collective problem solving to improve teaching practice. After analyzing student data, teachers used collective inquiry to seek new ways of teaching, learning, and provide alternative ways of thinking to improve student achievement. One teacher shared questions they ask to engage in reflective dialogue with teammates to address student performance based on data discussion, "How are you teaching, how are you reteaching, and what strategies are you noticing your kids using?" Teachers used reflective dialogue during the PLC team meeting to identify ideas to improve collective inquiry. Teachers identifed that vertical and horizontal planning would benefit them in improving collective inquiry in PLC team meetings. The administration and learning coach engaged teachers in collaborative conversations using reflective dialogue by asking questions, giving suggestions and strategies, and connecting teaching methods to best practices.

PLC Goal Indicators

District personnel developed five indicators based on DuFour's PLC. To confirm whether the goals were met, I used the district developed indicators based on DuFour's PLC model. The five indicators were:

Indicator 1: Clarify essential learning outcomes

Indicator 2: Monitor student learning through common formative assessments

Indicator 3: Analyze and use the results to improve instruction and target intervention

Indicator 4: Establish and monitor progress on team goals

Indicator 5: Innovate responsibly based on action research

Indicator 1 was met for collaboration and collective inquiry goals, because teachers worked together in grade level teams to identify standards, selected learning targets, aligned instruction, established common scoring criteria, and used data to identify teacher effectiveness. Indicator 2 was met for collaboration and collective inquiry goals, because PLC team members developed and used common formative assessments to identify student achievement, monitor student performance, and discussed strategies to improve instruction. Indicator 3 was met for the collaboration and collective inquiry goals, because the PLC team used data-driven decision making to identify gaps in student learning and academic skills to adjust their instruction. Indicator 4 was not met for collaboration and collective inquiry goals, because there was no evidence that the PLC team established or monitored progress on team goals. Indicator 5 was met for the collaboration and collective inquiry goals, because PLC team members used reflective dialogue during team and think tank meetings.

Conclusion

The ultimate outcome for the district's PLC was that collaborative efforts of the PLC team members would produce increased student achievement and improve teaching

quality using research-based instructional practices. Based on the findings of this study, the goals for collective inquiry and collaboration were not met; however, there were several benefits that emerged from the findings. One benefit identified in the program evaluation was teachers used collaborative conversations to research and share strategies to improve instruction. Another benefit that emerged was that teachers used a variety of assessments to identify student progress, gaps in student learning, performance on grade level standards. An additional benefit showed that trust influenced the interactions and relationships with team members as they engaged in collaborative conversations to improve student achievement. Furthermore, PLC teams benefited from using reflective dialogue in collaborative conversations to analyze student data during PLC and think tank meetings.

For Further Research

For this study, data were collected from teachers, administration, and the learning coach. A document review of team meeting notes and interviews from 13 participants were analyzed. Team meeting notes were submitted to the principal weekly that included student objectives, evidence of student learning, how the team responded to data, struggling and excelling students, and instructional changes teachers would make to improve student achievement. The interviews included 10 teachers, the learning coach, and 2 administrators who participated in the implementation of the PLC. The teachers, administration, and learning coach were interviewed with open-ended questions regarding collective inquiry and collaboration in the PLC. The findings may be used to

make decisions on how to improve collective inquiry and collaboration during the PLC meetings.

Further research should include a comprehensive evaluation that identifies the importance of shared leadership and its influence on the PLC and student learning. For reform to occur, teachers must be part of the change. Observations and interviews could be used to explore teachers' shared leadership in PLCs. Additionally, further research is needed on how vertical and horizontal planning is used to improve teacher learning and student achievement. A similar study could be used to explore the benefits on these dimensions.

The data gathered from these studies would help administrators and stakeholders to identify changes they could make to improve the PLC. These studies would benefit the local school by transforming the ways collaboration and collective inquiry are used in the PLC meetings. Additionally, the results may help administrators prioritize goals to support teacher and student learning.

Summary of Recommendations

Two recommendations are presented to improve collective inquiry and collaboration. First, teachers identified horizontal and vertical planning as a recommendation to improve collective inquiry. By infusing vertical and horizontal planning in team meetings, teachers may obtain additional instructional resources and strategies that could improve instruction. Furthermore, teachers in previous grades may offer insight on the skills students struggled and excelled; whereas, teachers in following grades may clarify what skills and knowledge student must have as they enter their grade

level. Additionally, teachers may benefit from collaborating with teachers between grades to align curriculum, create clear expectations for student learning, and address challenges related to student learning and instruction. Next, the recommendation based on the indicators identified that collaboration could improve teacher learning and student achievement through teachers establishing and monitoring progress on PLC team goals. The two recommendations are presented in Table 1. In the left column, the recommendations are listed. Suggestions to improve these recommendations are presented in the right column

Table 1

Summary of Recommendations for the Professional Learning Community

Recommendations	• Suggestions
Horizontal and Vertical Planning	• Meet with grade level below to gain insight on the skills students struggled with and excelled with. • Meet with grade level above to clarify what skills and knowledge students must have as they enter their grade. • Collaborating with teachers between grades to: • Align instruction • Create clear expectations • Address challenges related to student learning. • Address challenges related to teacher learning. • Discuss teaching strategies • Share resources
Establish and Monitor Goals	• Collaboratively develop a team mission, vision and values. • Set team norms focused on improving the collaborative team process. • Set and monitor goals focused on improving student learning. • Establish benchmarks to monitor progress • Review and respond to progress on goals. • Use common formative assessments to improve teaching and learning. • Respond to data with targeted interventions.

Conclusion

This program evaluation was the first formative evaluation on whether the goals of collaboration and collective inquiry were met. Based on the findings, the goals for collaboration and collective inquiry were not met. However, the PLC teams engaged in collaborative conversations using reflective dialogue to research and share strategies and used data-driven decision making to improve instruction and student achievement. Two recommendations were made to improve collective inquiry and collaboration. First, the PLC teams need to establish and monitor goals. Second, PLC teams would benefit from using horizontal and vertical planning to improve instruction and student learning. The information gained from this program evaluation report provides stakeholders with information to make evidenced-based decisions as the PLC moves forward.

Appendix B: Interview Protocol Teachers

Interview Protocol

Title of Study: Implementation of the Professional Learning Community

Date:

Time of Interview:

Interviewer: Susan Lazor

Interviewee:

Location of Interview:

"Hello and Welcome: My name is Susan Lazor. I am the 3rd grade teacher at the local school and currently finishing my third year with the district. Thank you so much for agreeing to participate in this study. I appreciate and respect the time you're willing to give to this project, and hope that you will find the experience to be valuable." I emailed the "Informed Consent" form to you.

Qualifications & Informed Consent Check:

☐ Confirm qualifications:

____Participated in the implementation of the PLC during the 2015/2016 school year.

☐ Informed Consent Check:(Have extra copies on hand)

____ "Did you bring the Informed Consent Form I sent you?"

____ Make sure it's signed.

☐

Review rights,

"Do you have any questions for me about the study, or information contained on the Informed Consent Form?

Ground Rules:

Thank you for consent to participate in the program evaluation study.

- It is important that you speak for yourself and from your own perspective, and to avoid speaking for others.
- Please respect the privacy of students, parents, families, as well as other colleagues and others where this is no need to disclose specific names of individuals.

"Do you have any questions?"

Purpose

"The interview is designed to help you describe and share your experiences, ideas, and perspectives of collaboration and collective inquiry during the Implementation of the Professional Learning Community implemented in the 2015/2016 school year. I invite you to feel free to relate your experience in an open manner. The more details you can provide the better. I will be recording the interview, so you do not need to worry that I'll miss something or that you are providing too much detail. The questions are intended for you to talk about your experiences. I might provide questions that seek clarification about what you've described or ask you to prove examples or elaborate on certain aspects of the topic."

"Do you have any questions?"

Questions:

Collaboration

1. How is the PLC used to improve student achievement and close the achievement gap?

2. How is collaboration used in the PLC team meeting to improve student achievement?

3. How has your PLC collaborated to change your teaching practice?

4. How does your PLC collaborate to create common formative assessments to improve student achievement?

5. How does the PLC team collaborate to identify essential learning outcomes to improve student achievement?

6. How does the PLC team collaborate to analyze student data to improve student achievement?

7. How does trust affect collaboration to improve student achievement?

8. How are you using collaboration with the PLC team to improve student learning?

9. How does your PLC team collaborate to support the school's mission?

Collective Inquiry

1. How does your PLC team use collective inquiry to improve student achievement?
2. How does your PLC team use collective inquiry to support the school's mission?
3. What recommendations do you have to improve collective inquiry during the PLC team meeting?
4. How does the administration use instructional leadership to support teacher's collective inquiry during the PLC team meeting?

5. When using collective inquiry, how did examining student data guide your instruction?
6. How does collective inquiry with your PLC team members help you to improve teaching and learning?
7. How does collective inquiry guide your instruction to improve student achievement?
8. How do you use collective inquiry, to examine student data and guide your instruction?

Probing Question examples:

- **Could you please tell me more about…**
- **Can you give me an example of…**
- **Could you tell me about that?**
- **What makes you feel that way?**

Time Check: _____

1.

Time Check: _____

Thank you for this powerful and fascinating experience.

In conclusion, I would like to express my sincere appreciation and thank you for your participation in this study and taking the time to share your perspective. I want to assure

you again that your responses are confidential. And just as a reminder, if needed, we would like to request your permission to contact you for follow up information.

Appendix C: Interview Protocol Learning Coach

Title of Study: Implementation of the Professional Learning Community

Date:

Time of Interview:

Interviewer: Susan Lazor

Interviewee:

Location of Interview:

"Hello and Welcome: My name is Susan Lazor. I am the 3rd grade teacher at the local school and currently finishing my third year with the district. Thank you so much for agreeing to participate in this study. I appreciate and respect the time you're willing to give to this project, and hope that you will find the experience to be valuable." I emailed the "Informed Consent" form to you.

Qualifications & Informed Consent Check:

☐ Confirm qualifications:

____Participated in the implementation of the PLC during the 2015/2016 school year.

☐ Informed Consent Check:(Have extra copies on hand)

____ "Did you bring the Informed Consent Form I sent you?"

____ Make sure it's signed.

☐

Review rights,

"Do you have any questions for me about the study, or information contained on the Informed Consent Form?

Ground Rules:

Thank you for consent to participate in the program evaluation study.

- It is important that you speak for yourself and from your own perspective, and to avoid speaking for others.
- Please respect the privacy of students, parents, families, as well as other colleagues and others where this is no need to disclose specific names of individuals.

"Do you have any questions?"

Purpose

"The interview is designed to help you describe and share your experiences, ideas, and perspectives of collaboration and collective inquiry during the Implementation of the Professional Learning Community implemented in the 2015/2016 school year. I invite you to feel free to relate your experience in an open manner. The more details you can provide the better. I will be recording the interview, so you do not need to worry that I'll miss something or that you are providing too much detail. The questions are intended for you to talk about your experiences. I might provide questions that seek clarification about what you've described or ask you to prove examples or elaborate on certain aspects of the topic."

"Do you have any questions?"

Questions:

1. How is collaboration used to improve teaching practice during the PLC?
2. How is collaboration used during the PLC to improve professional learning?
3. How is collaboration used during the PLC team meeting create common formative assessments?
4. How is collaboration used to support teachers throughout the process of analyzing student data?
5. What is the role of the learning coach in collaboration to analyze data?
6. What actions do you feel are needed to improve collaboration during the PLC?
7. What actions do you feel are needed to improve collective inquiry during the PLC?
8. How do you ensure team members collaborate to improve student learning?
9. How do you ensure team members use collective inquiry to improve student learning?
10. How do you collaborate with teachers to focus on the school's mission to improve student achievement?
11. How do you guide teachers to use collective inquiry to change their teaching practices?

Probing Question examples:

- **Could you please tell me more about…**

- **Can you give me an example of…**
- **I'm not quite sure I understand…Could you tell me about that?**
- **What makes you feel that way?**

Time Check: _____

2.

Time Check: _____

Thank you for this powerful and fascinating experience.

In conclusion, I would like to express my sincere appreciation and thank you for your participation in this study and taking the time to share your perspective. I want to assure you again that your responses are confidential. And just as a reminder, if needed, we would like to request your permission to contact you for follow up information.

Appendix D: Interview Protocol Administration

Interview Protocol

Title of Study: Implementation of the Professional Learning Community

Date:

Time of Interview:

Interviewer: Susan Lazor

Interviewee:

Location of Interview:

"Hello and Welcome: My name is Susan Lazor. I am the 3rd grade teacher at the local school and currently finishing my third year with the district. Thank you so much for agreeing to participate in this study. I appreciate and respect the time you're willing to give to this project, and hope that you will find the experience to be valuable." I emailed the "Informed Consent" form to you.

Qualifications & Informed Consent Check:

☐ Confirm qualifications:

____Participated in the implementation of the PLC during the 2015/2016 school year.

☐ Informed Consent Check: (Have extra copies on hand)

____ "Did you bring the Informed Consent Form I sent you?"

____ Make sure it's signed.

☐

Review rights:

"Do you have any questions for me about the study, or information contained on the Informed Consent Form?

Ground Rules:

Thank you for consent to participate in the program evaluation study.

- It is important that you speak for yourself and from your own perspective, and to avoid speaking for others.
- Please respect the privacy of students, parents, families, as well as other colleagues and others where this is no need to disclose specific names of individuals.

"Do you have any questions?"

Purpose

"The interview is designed to help you describe and share your experiences, ideas, and perspectives of collaboration and collective inquiry during the Implementation of the Professional Learning Community implemented in the 2015/2016 school year. I invite you to feel free to relate your experience in an open manner. The more details you can provide the better. I will be recording the interview, so you do not need to worry that I'll miss something or that you are providing too much detail. The questions are intended for you to talk about your experiences. I might provide questions that seek clarification about what you've described or ask you to prove examples or elaborate on certain aspects of the topic."

"Do you have any questions?"

Questions:

1. How do you ensure that teachers use collaboration to examine and improve their teaching practice?
2. How do you ensure that teachers collaborate to improve their professional learning?
3. How do you support teachers to collaboratively analyze student data?
4. What is the role of the administrator to ensure collaboration during the PLC team meeting?
5. What is the role of the administrator to ensure collective inquiry?
6. What is the role of the administrator to ensure team members collaborate?
7. How do you collaborate with teachers the school's mission to improve student achievement?
8. How do you use instructional leadership to collaborate with teachers during the team meeting?
9. How do you guide teachers to use collective inquiry to guide teaching practices during the PLC team meeting?
10. How do you collaborate with teachers to improve their teaching and learning during the PLC team meeting?
11. How do you collaborate with teachers to ensure they are using evidence of learning to guide instruction and improve student achievement?

Probing Question examples:

- Could you please tell me more about…
- Can you give me an example of…
- I'm not quite sure I understand…Could you tell me about that?
- What makes you feel that way?

Time Check: _____

1.

Time Check: _____

Thank you for this powerful and fascinating experience.

In conclusion, I would like to express my sincere appreciation and thank you for your participation in this study and taking the time to share your perspective. I want to assure you again that your responses are confidential. And just as a reminder, if needed, we would like to request your permission to contact you for follow up information.

Appendix E: Document Review

Document Review Protocol

Collaboration	
A priori Codes	Notes
Instructional planning on standards and curriculum	
Identify what students need to know and how educators will address these challenges	
Data dialogue	
Common formative assessments	

Make changes to improve teaching, learning, and student achievement	
Conversations regarding best teaching and learning practices	
Team members identify how their students are performing-evidence of learning	
Identify support for students that need extra support and acceleration	
Vertical planning	

Horizontal planning	
Conversations with SPED, ELL, Speech team members	
Identify student goals	
Collective Inquiry	
Professional development needs	
Participate in continuous learning	

Engage in conversations about students	
Share ideas-reflect on effective ways of teaching	
Teaching Rounds	
Examine student data	
Engage in reflective dialogue	

Teachers interact to hear multiple perspectives, challenge practices, acquire new understanding about the curriculum	
Relationships- strengthen communication and interactions	
Identified mission focused on improving learning for students and teachers	
Principal instructional leadership- communicating a clear vision and expectation	

Feedback to improve instruction	
Collective actions of group have a positive effect on problem solving and decision making, sharing information	
Discuss alternative view points	

Appendix F: Collaboration open codes

Standards
Data-Driven Decision Making
Improve Student Achievement
Improving Teaching Practice
Instructional Practice
PLC Discussions- Teacher experience
PLC Meeting Types
Student Learning Needs
Identifying Student Skills
Improving Student Performance
Assessments Used in DDDM
Common Formative Assessment Use

Appendix F: Collaboration Axial Codes

Commitment to Learning
Commitment to Student Learning
Commitment to Continuous Student Improvement
Using Collective Inquiry to Improve Teaching
Sharing Teaching Experiences to Improve Student Learning

Appendix G: Collective Inquiry Codes

PLC Discussions- collaborative conversations
PLC team member trust relationships
Common Formative Assessments
Analyzing Data
Responding to Data
Strategies to improve teaching
Mission focused on improving learning for all students
Student learning needs
What students need to know based on district standards and grade level expectations
Teacher view of instructional leadership support, decision making on instructional strategies and teacher learning.
Principals view engage teachers with instructional strategies, support for teacher development, instructional choice, giving suggestions, and maintaining a focus on improving instruction and student learning.
Developing and sustaining the school's professional development through collaborative conversation, implication for teaching and learning, and promoting professional growth.

Appendix H: Collective Inquiry Axial Codes

Collaborating to improve teacher practice
Data-driven decision making focused on improving instruction and student learning
Identifying and clarifying student knowledge, skills, and learning needs
Leadership emphasis on building shared knowledge, collaboration and improving teacher learning and student achievement.