CALIFORNIA STATE UNIVERSITY SAN MARCOS

THESIS SIGNATURE PAGE

THESIS SUBMITTED IN PARTIAL FULFILLMENT
OF THE REQUIREMENTS FOR THE DEGREE

MASTER OF ARTS

IN

EDUCATIONAL ADMINISTRATION

THESIS TITLE: From the Perspective of Teachers: Utilizing Professional Learning Communities as a Catalyst for Instructional Change

AUTHOR: Hans Schmitz

DATE OF SUCCESSFUL DEFENSE: 12/02/2019

THE THESIS HAS BEEN ACCEPTED BY THE THESIS COMMITTEE IN
PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF ARTS IN
EDUCATIONAL ADMINISTRATION

Dr. Brooke Soles THESIS COMMITTEE CHAIR	Brooke Soles SIGNATURE	12/2/19 DATE
Dr. Carol Van Vooren THESIS COMMITTEE MEMBER	C Van Vooren SIGNATURE	12/2/19 DATE
THESIS COMMITTEE MEMBER	SIGNATURE	DATE

From the Perspective of Teachers: Utilizing Professional Learning Communities as a Catalyst for Instructional Change

by

Hans Schmitz

California State University San Marcos

Abstract

This study explores the effects of participation in professional learning communities on the instructional programs of teachers. Using, as a guide, the works of Hattie, Marzano, and DuFour in addition to other smaller studies, it explores to what extent participating in PLCs has changed the instructional programs of teachers. This study was conducted at an American high school and looked at the PLCs of five subject areas at that school: English, Math, Social Science, Foreign Language, and Science. Each teacher participated in a Likert-scale survey to ask about the implementation and ongoing training of PLCs, PLC focus, instructional changes by teachers, and student achievement. In addition to this, qualitative interviews were conducted post-survey to help triangulate the results of the survey. The results of the study found the instructional change of teachers at the school to be limited. While the quantitative results indicated that a small set of teachers believed they had made significant changes, the qualitative results presented would suggest that the majority of instructional changes were limited and presented a number of barriers that suggest areas for further investigation.

Keywords: professional learning community, PLC, instructional program

Acknowledgements

This study took an incredible amount of time and effort to complete. I would like to thank my committee members for answer my many questions and providing invaluable feedback along the way. I would also like to thank my wife, Mellissa, and daughters, Madison and Alexa, for the extreme patients and understanding they had through this process as it demanded much of my attention and time. Their support was invaluable.

Table of Contents

Chapter 1: Introduction

The educational standards taught at California public schools changed with the introduction of the Math and English Common Core State Standards (CCSS). In comparison to the former state standards, the CCSS were asking teachers to teach less, but with much more depth. Due to this, teachers at Airport High School (AHS) in the Central Valley of California needed to have a more profound understanding of pedagogical content knowledge. This new need presented an issue for the school and district which needed to find a way to provide teachers with the proper training and resources to make this shift with limited time and money to provide that training. There were many ways that the district decided to approach this such as optional district-based trainings and the adoption of new curriculums. However, at the school level, AHS decided that the adoption of Professional Learning Communities (PLCs) to facilitate this transition would be one of their main solutions to coping with this change. The hope was that teachers would use this time to explore the new standards, curriculums, and ultimately understand together how to best adjust their instructional programs in order to accommodate the new needs for students. Over the last three years, AHS has seen a stagnation in math scores on the California Assessment of Student Performance and Progress (CASPP), students who are graduating meeting A-G requirements, and a ten-point drop in English scores on the CASPP. While the use of the PLCs model and these scores are not necessarily causal, PLCs are were these issues are most discussed and dealt with by way of instructional practice. Curriculum, assessments, and instructional practices that lead to greater student success are at the center of the conversations that are supposed to be occurring in PLCs.

Throughout this study, I use the work of Richard and Rebecca Dufour, John Hatti, Robert Marzano, and other education researchers to guide my own research to understand if teachers are

using PLCs as a catalyst for instructional change and whether the effective implementation of PLCs actually lead to a change in instruction at AHS in the Central Valley of California.

PLCs are designed in a way that allows teachers to collaborate. This collaboration allows teachers to draw on the many years, experience, and ideas of their colleagues and promotes intellectual discourse designed to improve the instructional program of all those involved. Through my research I seek to understand the answer to following question:

- To what extent has the implementation of Professional Learning Communities affected teachers' instructional programs?

Purpose of Study

In the 2012-2013 school year AHS transitioned to using PLCs as their main form of professional development. Knowing that the transition to the CCSS brought with it a need to have a deeper pedagogical knowledge by teachers, AHS was hoping to leverage the collective knowledge of the many teachers on campus to assist each other in deepening their knowledge and strengthening their practices in order to effect greater student achievement. While AHS experienced an initial spike in students who “met” and “exceeded” standards on the CASPP assessment, they have seen a ten-point decline in English Language Arts in the past three years. Since the outset of PLCs, Math scores have remained relatively stagnant, averaging only about 25% of students having “met” or “exceeded” the standards over the last four years. In addition to these scores the percent of students graduating having met all A-G requirements has remained stagnant at roughly 30%. As stated before, these numbers are not directly caused by PLCs, but PLCs are the main venue for the discussion of the factors that go into these scores and numbers. With the stagnation and decline of these numbers, an essential question at AHS is: is instruction

changing to meet the new demands of the CCSS and needs of students? Since PLCs are the main vehicle that AHS has chosen to address this need, one has to explore to what extent participating in PLCs has shifted teachers' instructional practices.

Through this study, I explore how well the English, Math, Science, Social Science, and Foreign Language departments originally implemented the PLC structure. In addition, I explore if a strong PLC meeting structure has remained in place since the original implementation, and if participation in PLCs has changed the instructional programs of teachers.

Preview Literature

In the course of researching PLCs, I found a broad range of research by several educational researchers. While the works of John Hattie, Richard and Rebecca DuFour, and Robert Marzano stood out, many other researchers added to the base of research used for this project by weaving together three overarching themes:

1. In order to have the most successful PLC's, the work they do must be rooted in a common mission and vision for the school and all work that is done with PLCs must be in pursuit of this mission and vision.
2. PLCs must have a pre-determined focus. The thinking on what that focus is diverges from researcher to researcher, but there is general agreement on the fact that work must remain focused. Most research suggest that this focus should be centered around student work and teacher practice.
3. PLCs must be outcome driven. The ultimate outcome of PLCs is higher student achievement and that is accomplished by a data driven focus on student work and teacher practice through collaborative inquiry.

Hattie (2012), Marzano (2017), DuFour et al. (2008), and others have slightly varying definitions and components for PLCs, but all entail a community of practice that aims to increase teaching effectiveness through collaborative inquiry. Successful participation in PLCs requires vulnerability, an openness to change your practice, and willing participation in the community.

Preview Methodology

This study is a sequential mixed-methods study designed to understand to what extent PLCs have affected teachers' instructional practices at AHS. Through a combination of a survey and interviews, I study how the establishment, focus, and outcomes of PLCs have helped to shift the practices of teachers at AHS.

Initially, the teachers of the English, Math, Social Science, Science, and Foreign Language departments were given an online survey. The survey consisted of four demographic questions and thirty-two question Likert-scale questions and was administered online via the Qualtrics survey software. Once the survey was completed, it was broken into four categories – implementation and ongoing training of PLCs, PLC focus, instructional changes by teachers, and student achievement. Once disaggregated, the data was analyzed, and follow-up interview questions were developed based on survey results. Interviews were then conducted with three teachers in order to further explore themes and triangulate data. Two surveys were conducted via email while one interview was conducted in-person.

Significance of Study

Education is a dynamic and ever-changing field. Teachers must be lifelong learners themselves and constantly absorb new curriculums, new standards, new best practices, and understand how to shift their practices to accommodate for these changes as well as a constantly changing society and student population. In order to keep up with the changes and demands, teachers must adjust their instructional programs regularly and doing this alone can be a daunting task. Educators need to understand the best ways to lean on their community in order to do this together.

This study draws on an already existing base of research to understand how PLCs can be used to facilitate this learning and change in instructional practices. It builds on studies that examine the structure, focus, and outcomes of PLCs by taking a local and authentic look at how PLCs affect the instructional practices of teachers. This study can be used by not only AHS to consider how to proceed with PLCs but can be used by other schools and districts to help decide if is using PLCs in a similar vein will accomplish their goals.

Conclusion

Teachers must constantly adapt to a changing environment. While research has shown that PLCs can be an effective way to collaborate and focus on student achievement (DuFour et al. 2008, DuFour et al. 2016; Hattie, 2012; Marzano, 2017) it is important to understand to what extent participation in PLCs changes the instructional practices of teachers. This study will explore the already existing research base that outlines how successful PLCs are implemented, the focus they take, and how they can be used to drive student outcomes. Through my own

sequential mixed-methods study, I will explore to what degree AHS has successfully implemented PLCs and to what extent it has changed teachers' instructional practices.

Chapter 2: Literature Review

With the introduction of the Math and English CCSS, many states transitioned from teaching a broad spectrum of standards with little depth to teaching fewer standards with much greater depth. In order to make this transition successfully, teachers must have a far deeper grasp of pedagogical knowledge. Districts began to grapple with the problem of how to properly support teachers through this transition and provide meaningful professional development. One model that has emerged has been one that incorporates PLCs (Popp & Goldman, 2016). There is no precise definition of a PLC (Stoll et al., 2006). However, most descriptions include a combination of elements in which "teachers critically interrogating their practice in ongoing, reflective and collaborative ways" (Stoll & Louis, 2007, p. 2) with the aim of increasing student achievement (DuFour et al., 2016). In addition, PLC's are groups typically structured by subject area or grade level (Richmond & Manokore, 2010; Carpenter 2014; Philpott & Oats, 2017; Schapp & Bruijn 2017).

PLCs are implemented with the postulation that pedagogical knowledge is strengthened through collegial discourse that assists in teachers building knowledge (Popp & Goldman, 2016). The building of this knowledge will allow them to become more effective at teaching their content and in turn, increase student achievement (Hattie, 2012; Marzano, 2017; Popp & Goldman, 2016). Furthermore, Popp and Goldman (2016) note that "PLCs are designed with the assumption that individual and collective pedagogical understandings are deepened through social interactions and discourse that fosters the collective construction of knowledge" (p. 347). PLCs have a design that allow teachers to discuss, with great depth, their practice of teaching. Participants have the opportunity to understand their strengths, shortcomings, and where they

need assistance through this social interaction with other teachers. Teachers' level of knowledge differs greatly. In a traditional professional development model in which all teachers attend the same training it typically does not allow for differentiation. A PLC model allows teachers to interact with each other and each contribute and take from the group what they need to be successful (Goldring & Berrands, 2009; Marzano, 2017).

Overview of the Context of Literature Review

When reviewing the literature, the aim is to understand how PLCs can be implemented in a way that promotes collaborative inquiry and in turn increasing teacher effectiveness in a way that will boost student achievement by affecting teachers' instructional programs. The research question guiding this literature review is as follows: To what extent has the implementation of professional learning communities affected teachers' instructional programs? In order to answer this question fully it is vital to understand how PLCs should be implemented and conducted in order to facilitate this shift.

To investigate this question, I will use a sequential mixed-methods study. This study will examine five PLCs at AHS which launched their use of the PLC model in 2012. Since their launch, AHS has conducted PLC meetings on average three times a month at one hour per session. The PLCs are subject-matter based and the PLCs sizes ranges from 5-11 teachers each. The experience of the teachers ranges from 2 years to over 20 years and most all teachers were new to the idea of PLCs when they launched. I will administer a questionnaire utilizing a Likert-scale to understand how teachers perceived the way in which PLCs were implemented at the school, if their PLCS are focused, if their participation has changed their instructional practices, and if they believe that there has been an increase in student achievement since the

implementation of the PLC model. Based on the results, follow-up interviews will be conducted to triangulate and give context to the data collected.

The forthcoming literature review is framed in the context of the research question above. When reviewing the literature regarding PLCs, three major themes emerged: The importance of implementation efficacy, the focus of PLCs, and how critical it is to define outcomes. This literature review will examine each of these themes in detail.

Theme 1: the establishment of PLCs

Many researchers suggest that the initial establishment of PLCs are vital to their success (Carpenter, 2014; Richmond, 2010; Schaap & Bruijn, 2017; Philpot & Oates, 2017; Richmond & Manokore, 2010). Many researchers also concur that in order to establish an effective PLC, leadership must work with their staff to develop a shared vision in which all work and conversations must be rooted (Carpenter, 2014; Richmond, 2010). Schaap and Bruijn (2017) delve deeper into this idea when they explain that teams must "share a common vision about their aims and professionalization" (p. 126). This common vision leads to a higher level of investment from teachers who participate in those PLCs due to the fact they are working toward a common goal and their PLC provides the space for some of that work to get done (Schaap & Bruijn, 2017; Richmond, 2010). In addition, research suggests that

> "it seems that not any shared vision or values will do, it needs to be a particular mandated vision and values… values [must encompass] a comprehensive range of issues, including the legitimacy of current curricular goals and measures of success, and the desirability of certain forms of collaboration" (Philpot & Oates, 2017, p. 213).

This sentiment assists in focusing the work a PLC does to increase student achievement. The word mandated may not be the best here as the goals should be developed collaboratively (Hattie, 2012; Marzano, 2017; Riggleman & Ruben, 2012; Carpenter, 2017) . In addition to grounding the work of PLCs to a common mission and vision, researchers recognize the importance to the group composition: PLC membership should consist of teachers who work in the same grade level or with the same content area as each other (Richmond & Manokore, 2010; Schaap & Brujin, 2017).

Finding divergent thought on the establishment of PLCs is difficult. As is apparent from this theme, when reviewing the literature, the need for a shared mission and vision before engaging in the work of PLCs is recurring. Even if mentioned briefly, it is discussed in most of the literature found on PLCs. It is due to this that the establishment of PLCs has been extracted as major theme and included in this review.

Theme 2: the focus of PLCs

While many researchers agree that a common vision is important to the establishment of PLCs, what those PLCs focus on is vaguer in the literature. While much research suggests that there should be a focus (Philpot & Oates, 2017; Popp & Goldman, 2016; Riggleman & Ruben, 2012; Farley-Ripple & Buttram, 2013) there are discrepancies on the specificity of that focus within their research. Philpott and Oates (2017) discuss “problems of practice” in their research and suggest that PLCs should work to identify what specifically is limiting students from achieving more based on evidence. In the research completed by Philpott and Oates (2017), this problem would be identified in a PLC and evidence would be collected during a learning (or instructional) round. Marzano (2017) dives deeper into this idea when he suggests that “In the past, the primary purpose of collaborative teams has been to design common formative

assessments…collaborative teams can also help team member develop their skills in specific instructional strategies" (p. 106). While some research zeros in on instructional practices, other research suggest that the focus of a PLC should lay elsewhere. Popp and Goldman (2016) suggest that "Analyses indicated significantly more knowledge building in meetings focused on assessment systems as compared to meetings focused on instructional practices" (Popp & Goldman, 2016, p. 347). In their research, Popp and Goldman (2016) continue discussing that when meetings focus on instructional practices, when meetings revolved more around teacher action as opposed to student achievement, the discussions were not as productive. However, when meetings focused on assessment systems, more objective student data was discussed and the meeting worked more effectively to boost student achievement. The two major trends that are discussed throughout the literature reviewed regarding PLC meeting focus are in stark contrast to one another. While some research suggest that the focus of PLCs can vary (Goldring & Berends, 2009; Marzano, 2017; Prenger et al., 2017) other research finds that concentrating on assessment systems will produce greater student achievement (Popp & Goldman, 2016).

Theme 3: the outcomes of PLCs

While the research on the focus of PLCs diverges in comparison to the key findings about the establishment of PLCs, when outcomes are discussed, researcher begins aligning again. In discussing the outcomes of PLCs, much of the literature focuses on boosting student achievement as the ultimate goal (Hattie, 2012; Philpott & Oates, 2017; Popp & Goldman, 2016; Richmond & Manokore, 2010; Shaap & Bruijn, 2017). While student achievement may be the ultimate outcome, it is contingent on one other major aspect of PLCs: collaborative inquiry by teachers (Marzano, 2017; Riggleman & Ruben, 2012; Carpenter, 2017). Carpenter (2017) defines collaborative inquiry as "when educators share common teaching and learning outcomes

based on instructional practices and student performance" (p.1069). This sharing is centered around intellectual discourse that openly explores learning innovations and examines the teaching practices of participants (DuFour et al., 2008; Carpenter, 2017). Hattie (2012) states that "increases in student achievement occur only as a consequence of improvements in the level of content, teachers' knowledge and skills…" (p.69) which highlights Richmond and Mankore's (2010) notion that like-minded educators must have the time to come together and collaborate about issues related to teaching and learning in order to improve. These outcomes illustration the importance of the focus of PLCs. For the meetings to be as effective as possible, teachers cannot get sidetracked from discussing teaching and learning or they may miss opportunities to bring change to their instructional practices (Mu et al., 2018). Teachers' openness and commitment to engage in this process is vital for its success (Lee et al., 2011). This need for commitment highlights the importance of rooting the work PLCs do in a common mission and vision. This focus on a collaborative inquiry and commitment to the process can result in increased student achievement which much of literature cites as one of the main purposes behind PLCs (Carpenter, 2017; Hattie, 2012; Marzano, 2017 ; Popp & Goldman, 2016; Prenger et al., 2017).

This theme is a quality demonstration of the interconnectedness of the three themes. The work being rooted in a common mission and vision is vital for teacher buy-in. This buy-in must be high since the work of PLCs is highly personal and requires educators to be vulnerable, open, and honest about their practice and how to continue to innovate and improve that practice. Based on the literature, when teachers are committed and focused on their teaching in learning student achievement should benefit from this process.

Conclusion

Research is clear: the establishment, focus, and outcomes of a PLC are vital to their success. The research in this review is consistent and aligns a great deal across two of the three themes. Regarding the establishment of PLCs, it is essential that their cornerstone is a shared vision by the participants of what their work will be grounded in. Once this is complete, it is imperative that PLCs focus on specific topics regarding teaching and learning. While they can focus on a variety of topics, the most successful ones focus on data that can be acted upon by teachers moving forward. As well, ultimately the majority of researchers agree across the board that the overarching goal of PLCs is to increase student achievement. In order to ensure the success of PLCs, educational leaders should pay close attention to the establishment, ongoing focus, and outcomes of their staff's PLCs.

Chapter 3: Methodology

When participating in PLCs, teachers participate in intellectual discourse that assists them in exploring learning innovations and examine their teaching practices (DuFour et al., 2008; Carpenter, 2017). As a result, Hatti (2012) suggests that patriating in PLCs should improve and shift a teachers' instructional practices and improve their content knowledge. In chapter 1, I explained that AHS implemented PLCs as their main form of Professional Development in the 2012-2013 school year. Since then, there has not been any formal follow-up to understand if teacher collaboration has changed the instruction of teachers at the school. With no common assessments to provide longitudinal data, a sequential mixed-methods case study is the best approach to gauge to what extent the instructional programs of teachers have shifted since the implementation of PLCs.

The purpose of this mixed-methods study is to answer the following question regarding PLCs: To what extent has the implementation of Professional Learning Communities affected teachers' instructional programs? In this chapter, I will outline the methodology I used to conduct this study, describe the participants, describe the setting of the study, the instruments used, procedures, and how I analyzed the data.

Design

The most appropriate approach to this study is the Case Study model discussed in Mertler and Charles' (2011) book *Introduction to Educational Research*. A case study is "an in-depth analysis of a single entity" (Mertler & Charles, 2011, p. 205). This case study will focus on what instructional changes teachers have made as a result of beginning PLCs as their main form of professional development.

To gather this information, I developed a web-based Likert-scale survey. Given that AHS is heavily invested in technology and teachers are expected to use that technology regularly, a web-based survey would be most convenient for teachers. In addition, the technology used will assist in the calculation of data after it has been collected in order to ensure accuracy in the computation of numbers. The cross-sectional survey, conducted via the Qualtrics survey software, consists of 36 questions. Four demographics questions, and 32 that are on a Likert-scale and included questions which are attitudinal in nature and help to understand how teachers perceive PLCs were implemented and run, the focus of those PLCs, how PLCs have shifted their instruction, and to assess if any have seen any increase in student achievement. Given that I am comparing and contrasting the attitudes and practices of various teachers at one given point in time, a cross-sectional survey of various departments is appropriate in this study (Mertler & Charles, 2011). After the surveys were completed, interviews were conducted with three randomly selected teachers from different departments to help triangulate the data collected in the surveys. The interviews consisted of questions designed after the survey was taken to dive deeper into the instructional changes and variances in data.

Participants

This study will include the following subject-area PLCs: Mathematics, English, Science, Social Science, and Foreign Language. These subjects were selected as they make-up the bulk of required course material for entrance into a four-year institution after high school. Each teacher who participated in the study at AHS was asked in person to participate in the study. In total there were 30 teachers who participated: Six Math teachers, nine English teachers, three Science teachers, seven Social Science teachers, and five Foreign Language teachers. Of the participants 14 were female and 16 were male. One teacher had completed only their bachelors,

12 had a bachelors degree and their teaching credential, and 17 had a Masters degree or higher. One teacher had been teaching less than two years, four teachers have been teaching between two and five years, five teachers had been teaching between six and ten years, two teachers had been teaching between 11 and 15 years, and 18 teachers had been teaching for more than 15 years.

Each teacher participated of their own accord and was not compensated in any way. As well, each teacher agreed with a consent form that the Institutional Review Board as California State University, San Marcos approved.

Setting

AHS is the newest high school within the city limits. The school sits on the southwest part of the city and is surrounded by some of the newest neighborhoods in the city. It has 4 feeder schools and a school enrollment of approximately 1,350 students in the 2018-2019 academic school year. AHS has consistently had the highest academic scores in the school district it resided in for several years. In the 2017-2018 school year 60% of students' scores

Math Proficiency Distribution		**English Proficiency Distribution**	
Advanced	5%	Advanced	21%
Proficient	18%	Proficient	39%
Basic	35%	Basic	26%
Below or Far Below Basic	43%	Below or Far Below Basic	13%

Figure 3.1 – in this figure, the proficiency rates for Math and English are shown form the 2017-2018 school year at AHS.

proficient or advanced on English CASPP testing. This is 15 points above the district average of 47.5%. In math, 23% scored proficient or advanced on the state test, seven points above the

district average of 16%. Staff member attribute this to its academic focus. Class time is protected with the utmost importance. Very few rallies and whole school events are held during the regular school day so that teachers can focus on teaching and not have their schedules interrupted. Arguably the two biggest rallies of the year, the Lobo Gold Rallies, are fully academic focused. Students are recognized for the GPA's as well as for other notable achievements such as community service. These rallies are often seen as a bright spot for students and they take a great deal of pride in them, especially because they are mostly student produced.

In addition to academic test scores, AHS prides itself on its diversity of Career Technical Education courses and programs. It has a wide variety of classes such as Fashion Design, Video Editing, Broadcast Journalism, Wood Shop, Robotics, a wide variety of agricultural classes, the digital and media arts academy, etc. These programs attract a wide variety of students and help to expose students to a wide assortment of career choices prior to them enrolling in college or a trade school. This exposure is vital since the small community of AHS is in does not offer much in the way of these careers and these classes may be their only way to experience things like.

The demographic breakdown of Sierra's student population is as follows: 55.5% Latino, 19.1% White, 8.6% Asian, 6.7% African American, 5.3% Filipino, 3.4% two or more races, 0.9% Pacific Islander, 0.5% Native American. This demographic breakdown is reflective of the enrollment at the district level. AHS's teaching staff is not reflective of its population and has significantly different ethnic composition: 11% Latino, 1% Filipino, 4% African America, and 84% White. 8% of teachers hold a Baccalaureate degree, 46% hold a Baccalaureate degree plus 30 units of continuing education, 29% hold a Master's degree, 7% hold a Masters degree plus 30

units of continuing education, and 1 teachers holds a Doctorate level degree. The average years of service for AHS teachers is 17 years.

Over the course of AHS's 25-year existence, there have been only 3 principals. The current principal has been in the position for 9 years. In addition to consistent leadership, there is a strong core group of teaches that where at the school when it opened or have been teaching at AHS for over 10 years. Of the six high schools in district, two of their principals began as Assistant Principals at AHS before taking over as principal at their current schools. Through casual observation, the staff appears cohesive and as though they work well together.

This study took place over the course of three weeks. The first week, the survey was conducted and the second week, the follow-up interviews with department chairs were conducted. AHS is a prime candidate for this study as they began utilizing PLC's as their main form of professional development seven years ago. Since then, no formal follow-up has been conducted to understand how instruction has shifted due to this change. The principal of the school is passionate about PLCs and their effectiveness as a tool to drive quality instruction. In addition, no matter how they feel about them, staff are required to participate in PLCs weekly for three Wednesdays per month. The staff is welcoming of the research and administrative team is supportive and excited to see the results of the study as well.

Instruments

For this study, I used both quantitative and qualitative data. During the first week of the study, a web-based survey was sent to each faculty member that agreed to participate. This survey was derived by a combination of compiling questions from existing surveys and the researcher writing their own questions to address factors specific to AHS. Questions were

adapted from two existing surveys. The first survey, entitled "Midyear PLC Survey," was from the book *Building a Professional Learning Community at Work* by Parry Graham and William Ferriter (2010). The second survey, simply titled "Professional Learning Community Survey," was from the School Reform Initiative, an independent non-profit dedicated to coordinating support and collaboration for teachers. The survey addressed the following:

- The demographics of the teaching staff including subjects taught, years teaching, degrees achieved, credentials held, and if they have participated in PLC training and/or PLCs outside of AHS.
- If the critical elements of PLCs have been established during their initial implementation.
- If PLCs continue to have the critical elements of a PLC after their four years of implementation.
- The quality of the structural elements needed for effective PLCs.
- To what extent teachers had changed their instructional practices due to PLCs.
- If teachers have seen an increase in grades and test scores since participating in PLCs.

The survey consisted of thirty-two questions on a Likert-type scale to gauge teachers' perceptions of the aforementioned topics. The topics were chosen based on the literature reviewed that suggested the implementation and focus PLC meetings are critical to teachers increasing their pedagogical content knowledge, shifting their instruction, and effecting student achievement (DuFour et al., 2008; Hattie, 2012; Marzano, 2017; Popp & Goldman, 2016).

In addition to a web-based survey, three randomly selected teachers from separate departments were interviewed. The interviews consisted of questions designed to understand the following topics:

- What were the changes that teachers have either implemented personally or have seen others implement.
- The movement or lack thereof in student grades and test scores.
- The barriers to implementing significant change in their instructional programs.

The aim of this study is to understand to what extent teachers changed their instruction due to participating in PLCs. As such, it is critical to collect data directly from teachers themselves. This survey allows for the collection of far more data than other more manual means such as interviewing every teacher. In addition, using an online tool allows for the Likert-type data to be calculated in real time as surveys come in, ensuring accuracy of the calculations and the data which will be the basis of analysis for this study. For these reasons, this is the most appropriate, efficient, and accurate means of collecting and analyzing data for this study.

Procedures

For this study a sequential mixed methods design was employed. A sequential design allows the data to build on itself and can allow the qualitative data to give context to the quantitative data (Klassen et al., 2012). Gathering data for this study consisted of two phases. Initially, I met with each PLC during their designated time to explain the study and ask for their participation. It was explained that their participation would be completely anonymous and voluntary. Questions were fielded and any concerns that participants may have had at that time were addressed. Once each participant agreed, an email with a link to the survey was generated and sent. Participants were given one week to respond and complete the survey. Throughout the week, two courtesy reminders were sent to participants.

After all surveys were complete, the Likert-type scales were assessed for any areas that showed high level of agreement or disagreement based on the mean, standard deviation, and variance as computed by the survey tool. The areas of strong agreement, disagreement, or variance as well as the themes and commonalities were used in order to formulate the questions for the interviews.

In the second week of the study, three teachers from various departments were interviewed to triangulate the data from the survey responses. By implementing a sequential mixed methods study, I was able to use the quantitative dataset to focus the interviews and better understand the differences in the quantitative results. Klassen et al. (2012) discuss the importance of the interview step in order to gain clarity on the divergence in quantitative data and use the data from the first phase in order to focus the qualitative phase. Each interview was conducted in a written format via email and analyzed for common themes under the categories of implementation, focus, instructional change, and student achievement. This step is important given the variance of perceived effectiveness of the many PLCs on campus at AHS. For full disclosure, it is important to note that I am operating as an insider during this research as I have been teaching at AHS for the over two years at the time of this research.

Analysis

Using an explanatory mixed-methods design for analysis, the analysis process began with the quantitative data (Mertler & Charles, 2011). I first looked at the survey for any questions that had a high rate of agreement with a mean of 4.0 or higher, and questions that had a high rate of disagreement, a mean of 2.0 and below. As well, looked for answers that had either a variance of 1 or more and/or a standard deviation of 1 or more. Clearly identifying these areas allowed the me to identify areas of strength and weakness that exist across all PLCs at AHS.

Once the areas of strength, weakness, and variance were identified, questions were developed for the interviews based on the previously analyzed data. There were 3 simple questions for all interview participants. Each interview was conducted in a written format via email. When interviews were complete, the interviews were analyzed for themes related to following categories: implementation, focus, instructional change, and student achievement.

Conclusion

Based on the works of DuFour et al. (2008), Carpenter (2017), Hatti (2012) teachers who participate in PLCs should be able to meaningfully adjust their instructional practices in order to increase student achievement. This sequential mixed-methods study was designed to understand to what extent the implementation of Professional Learning Communities has affected teachers' instructional programs. AHS is an ideal school for this study as they have been participating in PLCs as their main form of professional development for the last four years with no formal follow-up to understand how PLCs have affected teaching at the school.

Drawing on existing surveys, I was able to develop a Likert-scaled web-based survey that allowed teachers to assess how PLCs were implemented and run, if there is a strong focus, if instructional change has occurred due to participation, and if teachers have seen any movement in student achievement data due to participating in PLCs. Given that teachers cannot explain their specific shifts in instruction via a Likert-scale survey, it was important to interview a sub-set of teachers to gain clarity on the instructional shifts and discrepancies in data (Klassen et al., 2012). In the chapter ahead, the researcher presents and analyzes the data collected and discusses their interpretation of that data.

Chapter 4: Data Analysis

In 2012, AHS implemented PLCs as their main form of professional development. This shift coincided closely with the adoption of the CCSS, the adoption of many new curriculums, and the district "going digital" and providing a laptop for all students to take home with them grades 4-12. With the large amount of changes taking place and resources being limited, leadership had to find a way to support teachers. For AHS, the answer to this was turning to PLCs. Given the limitation of resources in comparison to the needs of teachers to make these transitions, PLCs would provide teachers with a support network of peers with whom they could explore the changing landscape of the teaching practices.

Since PLCs have been implemented, CASPP scores in math have stagnated and English scores have dropped by ten points in the last three years. In addition, the percentage of student who graduate having met the requirements for entrance into the California State University or University of California system has also been stagnant in the high 30% range. While many factors go into these scores and statistics, the backbone of them is the instructional practices of teachers. Since the implementation of PLCs there has been little follow-up to understand how effectively they have been implemented and to what extent they have produced a change in teachers' instructional practices. The aim of this research is to understand the extent to which teachers have changed their instructional practices due to their participation in PLCs.

In the remainder of this chapter I will dive deep into the presentation and analysis of the quantitative data that was collected regarding PLCs at AHS. In the data presentation and data analysis sections, I will explore teacher perceptions about how well PLCs have been implemented and facilitated since their inception. In addition, and most importantly, I will seek to understand if teachers have indeed shifted their instructional practices due to their

participation in these PLCs based on the data. Finally, I will provide my interpretation of the data and summarize my conclusions that will inform the implication, and lessons learned in chapter 5.

Data Presentation

To collect data, I administered a Liker-scale survey to teachers in the Math, English, Social Science, Foreign Language, and Science departments using the Qualtrics survey software. These departments were chosen because they are the core subjects that are considered heavily for admissions to a four-year college institution after high school graduation. In addition, four of these five departments are measured either consequentially or inconsequentially by the CAASPP at time of this research. As described in earlier chapters, a thirty-two question Likert-scale survey was sent to each participating staff member and taken anonymously. This survey was designed to gauge their perceptions about how well their PLC understands and implements the best practices of PLCs, if teachers have adjusted their instruction, and if they believe that adjustment and participation in PLCs have increased their students test scores and grades. A total of thirty-four teachers were asked to take this survey. Of those asked, thirty responded for an 88% response rate.

Upon completion of the quantitative data it was chunked into four categories – PLC implementation and ongoing training, focus, the extent to which instruction has been affected, and student achievement. Based on the data, three qualitative follow-up questions were designed to be asked of teachers in order to triangulate data. These questions were asked of three randomly selected teachers from three separate departments. Two teachers chose to answer these questions in an in-person interview format while two chose to answer in a written interview format. The questions asked and the subsequent responses will be explored later in this chapter.

The quantitative data collected in this survey will be presented first followed by the qualitative data.

Quantitative Data. As discussed in chapter 2, the implementation efficacy of PLCs is critical (Carpenter, 2014; Richmond, 2010; Schaap & Bruijn, 2017; Philpot & Oates, 2017; Richmond & Manokore, 2010). Vital to their establishment are the following conditions: (1) They are rooted in a common mission and vision (Carpenter, 2014; Richmond, 2010), (2) each PLC should have a collaborative focus (Marzano, 2017), and (3) PLCs should be outcome driven, specifically on student success (Hattie, 2012; Philpott & Oates, 2017; Popp & Goldman, 2016; Richmond & Manokore, 2010; Shaap & Bruijn, 2017). Before I could ascertain to what extent participation in PLCs has affected teachers' instructional practices, it was crucial to understand how well PLCs were implemented at AHS.

	Number of Responses					Percent of Respondents				
Questions	5	4	3	2	1	5	4	3	2	1
Q5. Teachers at our school are well trained on how to participate in PLCs	2	23	2	3	0	6.67	76.76	6.7	10	0
Q6 - Teachers understand what makes a PLC successful.	3	20	3	3	1	10	66.67	10	10	3.33
Q7 - When teachers are hired, they are formally trained about the purpose of PLCs.	0	10	10	8	2	0	33.33	33.33	26.67	6.67
Q8 - When teachers are hired, they are formally trained about how to participate in PLCs.	0	8	10	8	4	0	26.67	33.33	26.67	13.33
Q9 - The work done in PLCs is directly tied to our school's mission statement.	8	19	3	0	0	26.67	63.33	10	0	0

Figure 4.1 – The table above shows survey results of questions pertaining to the initial implementation and ongoing training of teachers about PLCs' purpose.

According to the survey, 83.43% teachers who participated in the survey believed that teachers are trained well in how to participate in PLCs. As well, 76.67% of teachers believe that they and their colleagues understand what makes a PLC successful. While teachers believe that they are well trained on PLCs and understand what makes them successful, they believe that when new teachers are hired each year, formal training is lacking; 66.66% of respondents

believe that new teachers are not formally trained on the purpose of PLCs while 73.33% believe that new teacher are not formally trained on how to participate in PLCs.

After understanding how teachers perceived their training and preparedness it was important to understand how their PLCs functioned on a department level and if they were implemented properly after their training. To explore this, a series of questions were given that discussed norms, focus, and time on task regarding instructional practices.

	Number of Responses					Percent of Respondents				
Questions	5	4	3	2	1	5	4	3	2	1
Q10 - Our PLC has agreed-upon norms.	20	10	0	0	0	66.67	33.33	0	0	0
Q11 - Our PLC reviews our norms before each meeting.	2	2	5	8	13	6.67	6.67	16.67	26.67	43.33
Q12 - Our norms help us to have productive, effective conversations.	4	16	5	5	0	13.33	53.33	16.67	16.67	0
Q13 - We have clear tasks to perform at our PLC meetings.	11	16	2	1	0	36.67	53.33	6.67	3.33	0
Q14 - A large majority of our PLC time (80 percent or more) is spent on tasks related to student learning goals.	7	13	4	5	1	23.33	43.33	13.33	16.67	3.33
Q15 - Instructional practices are frequently discussed in our PLC meeting.	9	14	2	4	1	30	46.67	6.67	13.33	3.33
Q16 - During PLC conversations, team members sometimes disagree about ideas or practices.	9	16	2	2	1	30	53.33	6.67	6.67	3.33
Q17 - When team members disagree about ideas or practices, we tend to discuss those disagreements in depth.	10	11	4	4	1	33.33	36.67	13.33	13.33	3.33
Q18 - Within PLC meetings, we try to avoid difficult conversations.	1	5	7	13	4	3.33	16.67	23.33	43.33	13.33
Q19 - Teachers frequently share each other's instructional methods.	12	13	0	4	1	40	43.33	0	13.33	3.33
Q20 - Teachers frequently discuss each other's instructional methods.	7	15	3	5	0	23.33	50	10	16.67	0
Q21 - I feel safe discussing the areas that I need to improve in regard to my instructional practice with my PLC.	13	9	4	2	2	43.33	20	13.33	6.67	6.67

Figure 4.2 – The table above shows survey results of questions pertaining to the focus of PLCs

Figure 4.2 highlights some key information regarding PLCs at AHS. Most notably, it shows 100% of respondents indicating that they believe the work they do in PLCs is directly tied to the mission and vision of AHS which is stressed as one of the most vital factors in their success (Carpenter, 2014; Richmond, 2010; Schaap & Bruijn, 2017; Philpot & Oates, 2017; Richmond & Manokore, 2010). In addition to this, while they may not be revisited each meeting, PLCs do have established norms that help facilitate the conversation among PLCs.

While it is clear from the results that PLCs are tied to AHS' mission and vision, norms are established, and there are clear tasks to be accomplished during PLCs, there begins to be a much wider variance in responses regarding the content and conversations of PLCs. If the ultimate goal is improved student performance, one would expect to see the majority of time spent discussing student learning goals, however, a third of respondents indicated that they were either neutral or disagreed to some degree that at least 80% of time is spent discussing student learning goals.

Furthermore, as respondents continued down the survey, they indicate that teachers sometimes disagree during PLCs. While respondents indicated that these disagreements are discussed, a wider variance in responses begins to emerge and culminates with 80% indicating that when conversations get difficult, the discussion ends. Once the department level implementation and focus was explored, survey questions turned toward exploring to what extent teachers have changed their instructional practice due to PLCs.

	Number of Responses					Percent of Respondents				
Questions	5	4	3	2	1	5	4	3	2	1
Q22 - I often learn something new regarding instructional practices from my PLC.	2	17	6	3	2	6.67	56.67	20	10	6.67
Q23 - I have implemented a new instructional practice due to my participation in my PLC, even if it did not work.	11	13	2	3	1	36.67	43.33	6.67	10	3.33
Q24 - I have made a small but permanent change to my instructional practice due to my participation in my PLC.	9	12	3	6	0	30	40	10	20	0
Q25 - I have made a significant permanent change to my instructional practice due to my participation in my PLC.	5	10	9	3	3	16.67	33.33	30	10	10
Q26 - My participation in PLCs has increased my effectiveness as a teacher.	7	15	2	6	0	23.33	50	6.67	20	0
Q27 - I have tried an instructional strategy that I learned in a PLC and failed at implementing it well.	4	11	8	6	1	13.33	36.67	26.67	20	3.33

	Number of Responses					Percent of Respondents				
Questions	5	4	3	2	1	5	4	3	2	1
Q28 - This failure deterred me from trying other new strategies learned in PLC.	0	2	7	12	9	0	6.67	23.33	40	30
Q29 - I have tried an instructional strategy I learned in a PLC and its implementation went well.	10	14	4	2	0	33.33	46.67	13.33	6.67	0
Q30 - Implementing an instructional strategy learned in my PLC encouraged me to try more new strategies.	12	14	3	1	0	40	46.67	10	3.33	0

Figure 4.3 – The table above shows survey results of questions pertaining to the extent to which PLCs have affected teachers' instruction.

The questions in the section of the survey presented in figure 4.3 opened with a question to gauge if teachers feel as though they do learn during their PLCs. Of those that responded to the survey, 63.34% agreed to some degree that they do often learn new things in their PLC. While not 100%, this is a large portion of respondents and this gives them a basis for change. In addition to this, 73.33% of teachers believe that their participation in PLCs make them a more effective teacher. As teachers progressed, 70% of teachers indicated they have made a small and permanent change to their instructional practice as a result of PLCs. Additionally, 50% of teachers indicated that they made a significant and permanent change to their instruction. Not only have these teachers changed their instruction, but 86.67 of respondents indicated that when they were successful in implementing a new strategy successfully, it encouraged them to try more new strategies.

To finish out the survey, teachers were asked two questions regarding student achievement: have their grades increased and have their test scores increased due to teacher participation in PLCs?

	Number of Responses					Percent of Respondents				
Questions	5	4	3	2	1	5	4	3	2	1
Q31 - My participation in PLCs has increased student test scores in my courses.	1	11	12	6	0	3.33	36.67	40	20	0
Q32 - My participation in PLCs has increased student grades in my courses.	1	10	14	5	0	3.33	33.33	46.67	16.67	0

Figure 4.4 – The table above shows survey results of questions pertaining student achievement.

Survey results indicate that a majority of teachers do not believe that their participation in PLCs have increased their students test scores or grades. Only 40% of teachers believer that PLCs have had an effect on test scores and 37% believe they have had an effect on grades in their courses.

Qualitative Data. In order to better ascertain the extent to which teachers have adjusted their instruction, I interviewed three teachers after the survey. In order to ensure a diversity of responses, I selected one teacher at random from three separate department. Questions were developed after the survey was conducted so that they could be informed by the survey so that data could be triangulated. Teachers were asked the following questions: (1) Over 70% of teachers indicated that they had made some degree of change to their instructional practice, what are some of the changes either you, or teachers in your department have implemented? (2) While 70% of teachers have indicated that they have made a change to their instructional practice, only 40% indicated that student test scores and grades have gone up as a result. If instruction is improving, why do you believe that this is not reflected in grades and test scores? (3) 63% of teachers indicated that they learn something new in their PLCs, and 70% indicated that they have made changes to their instruction due to participating in PLCs. While it appears that many teachers are learning and changing their practice, when we speak informally, there does not seem to be a great deal of enthusiasm or desire to participate in PLCs. What are your thoughts on this disconnect? One teachers were able to answer these questions in an in-person

format while two teachers answered them in a written interview format via e-mail. In order to keep anonymity in-tact and more easily identify participants, I coded their responses as Participant 1 (P1), Participant 2 (P2), and Participant 3 (P3). The following are the data gathered from these interviews.

Question 1 - Over 70% of teachers indicated that they had made some degree of change to their instructional practice, what are some of the changes either you, or teachers in your department have implemented?

All three participants indicated that most of the changes they have made had to do with specific strategies, lesson specific tasks, or technologies. P1 indicates that their curriculum was note entirely settled on in their department and therefore their "PLC experience has resulted in my including more technology in my classes. I use the PLC time with other teachers to learn how to use new district technologies such as illuminate and OneNote in my classes for instruction and testing." P2 and P3 referred to specific strategies learned through their PLC participation with P2 citing that they "have implemented different literacy strategies and more cooperative learning strategies. I have found cooperative learning especially beneficial…" and P3 stating that they "have used my time in my PLC to help my student organize themselves through tools that I see from my colleagues regularly wither through our PLC, or as a follow-up to our PLC time." The strategies that P3 referred to were skill specific strategies within their subject area that help students organize their work in a way that allows them to build on itself throughout the term.

Each participant in this case spoke about specific strategies that were designed to be used with a specific skill or lesson. Of note is the fact that none of the participants spoke of changes that related to larger units, themes, curriculum, sequencing, etc. Each instance was a strategy that typically is used in a singular instance or in isolation within a lesson.

Question 2 - While 70% of teachers have indicated that they have made a change to their instructional practice, only 40% indicated that student test scores and grades have gone up as a result. If instruction is improving, why do you believe that this is not reflected in grades and test scores?

Within this question there were two main themes among answers: time and scope. This question also produced a link to question 1. P2 had an interesting observation that they "believe some teachers implement new instructional practices and focus on the outcome of the lesson and results of the formative assessment (even if it is informal) but not on the summative assessment (which is formal). They state that "if the lesson went well, students were engaged, and if formative assessment went well, the teacher may keep the lesson as is even though results on the summative assessment or grades were not positively impacted." P3's response took this a step further when they stated that :

> "this is a good demonstration of the larger issue that AHS and many high schools have in general. Teachers are very focused on their classroom specifically. They may like to collaborate in some cases, but they do not want to change their instruction in a major way. So, what we see in PLCs is are people focusing on small wins: sharing a graphic organizer, discussing what questions might go on a mid-term or final, discussing a specific strategy. Since our PLCs are focused on small wins, we become focused on small wins in our classroom. Yay, my kids can outline their work better. Yay, my final questions are strong. But, we lack the larger picture of what's happening and our little wins aren't turning into big ones and no one wants to really dive into why."

When asked why they believe people did not want to dive deeper P3 could not determine an exact answer to that simply citing that the staff varies in experience and attitude. P2 and P3 offer

a similar view here that people are indeed making shifts that are allowing their students to learn and execute again specific skills or tasks, but that teachers are lacking the larger discussions that lead to higher gains.

P1 offered a different view of things. They indicated that the schedule of the school and PLCs themselves factor into this lack of larger learning. AHS runs on a four by four block schedule which means students are in one set of four classes from August to December. They spend 90 minutes a day in each class, then, after winter break, they switch into a different set of four classes. This means that teachers must cover a year of curriculum in roughly 90 days. P1 suggested that "This makes the course very rushed and more shallow that it should be. And while PLCs might make my instruction more efficient it actually pulls more instructional time away from an already badly impacted schedule." P1 indicated that since courses feel so rushed that it can lead to unrealized gains in grades, test scores, and overall knowledge in the subject matter.

Question 3 - 63% of teachers indicated that they learn something new in their PLCs, and 70% indicated that they have made changes to their instruction due to participating in PLCs. While it appears that many teachers are learning and changing their practice, when we speak informally, there does not seem to be a great deal of enthusiasm or desire to participate in PLCs. What are your thoughts on this disconnect?

Each of the participants had one commonality within their answers and three unique aspects to their answers. All three participates indicated in some way that PLCs are helpful. They believe that the ability to collaborate, share practices, and work with others has value and can make them better educators. This was common among their answers, however after that nuance is where their answers diverged.

P1 again returned to time indicating that teachers may simply "rather be in [their] classroom engaging with [their] students." Mentioning again that without a solid curriculum and touch point for their department to discuss and analyze student work, PLCs seems like they may not be the best use of time. P1 indicated that with no common assessment or curriculum to rally around, it is hard for PLCs to run properly. P3 took this even further indicating that while PLCs are helpful in some way, it seems as though

> "people just aren't willing to take the plunge together. They are so set on the way *they* do things and they might not be willing to try something new, they do not want to talk about alignment, sequencing, formative assessments, analyzing student work in a meaningful way, etc. These are the things that move us forward. These are the things that will help PLCs have a larger impact. But, if people aren't willing to do it, and no one is going to hold them accountable to do it, then it turns a very valuable tool like PLCs into a much less valuable tool."

P2 offered a view that is similar to P2's but takes a different perspective on why teachers may not find PLCs as valuable. They indicate that "part of the disconnect is not all teachers fully understand the purpose of PLC's and their impact on teacher and learning outcomes. Although we have had a lot of staff attend PLC workshops/conferences, there hasn't been much follow up ...implementing changes during the school year to our PLCs" P2 continues by explaining that "the implementation of PLC's was rushed and not done well in the beginning stages which has led staff to struggle on to how to effectively participate in PLCs." While P1 and P3 indicated attitudinal issues, P3 instead points to a structural issue around the implementation of PLCs at AHS. P3 believes that there were deficiencies from the outset of PLCs and that those

deficiencies have led to confusion and the perception that PLCs are not as valuable as they could be.

Data Analysis

According to quantitative data, teachers suggest that PLCs were established in a strong way: 90% believe the work is tied to the school's mission and vision, 83% believe that teachers were trained well when PLCs were launched, and 76% of teachers believe that they understand what makes a successful PLC. These are many of the key factors to a successful PLC as outlined in chapter 2 of this study. Additionally, a number of the key factors regarding the focus of PLC meetings had favorable response rates: 100% of respondents indicated that their PLC has agreed upon norms, 90% of teachers indicated that there are clear tasks to perform during PLCs, and 83% of teachers responded that instructional methods are discussed frequently.

While these building blocks appear strong, there are some discrepancies between the quantitative data and qualitative data. While only 20% of teachers believed that their PLCs avoids difficult conversations and 73% believe that their PLC discuss disagreements in dept, both P3 and P2 brought up issues around an unwillingness to change or discuss harder topics within PLCs. P2 discussed that "we also have some veteran teachers that do not want to change what they do in the classroom because "it works" for them and see PLC's as another fad in teaching which unfortunately is a hindrance in establishing a positive desire to implement and participate in PLCs." In addition, P3 indicated that some of their PLC members were unwilling to discuss more complex topics and were content with what they did in their individual classroom. Noting these strong building blocks and recognizing this discrepancy are important in setting the context for looking at the questions addressing the research question directly.

At the outset of this project, I sought to explore a single question: to what extent has the implementation of Professional Learning Communities affected teachers' instructional programs? Much of the quantitative data was targeted at understanding the implementation and ongoing training of PLCs in order to help contextualize and understand the answer to this question. The questions that directly relate to the research question of this paper are in figure 4.5.

	Number of Responses					Percent of Respondents				
Questions	5	4	3	2	1	5	4	3	2	1
Q23 - I have implemented a new instructional practice due to my participation in my PLC, even if it did not work.	11	13	2	3	1	36.67	43.33	6.67	10	3.33
Q24 - I have made a small but permanent change to my instructional practice due to my participation in my PLC.	9	12	3	6	0	30	40	10	20	0
Q25 - I have made a significant permanent change to my instructional practice due to my participation in my PLC.	5	10	9	3	3	16.67	33.33	30	10	10

Figure 4.5 – Questions that directly ask about changing instructional practices.

Quantitative data indicated that 80% of all participants in the survey have implemented a new instructional practice due to their participation in PLCs, 70% of participants indicated that they have made a small and permanent change to their instruction due to their participation in PLCs, and 50% have made a significant change to their instruction. Based on these questions, a large majority or teachers have made some changes to their instruction, no matter the size. However, the numbers and permanency begin to decline as the extent to that change grows. Both the quantitative and qualitative data confirm that smaller changes such as new lessons, one-off techniques, and strategies, have been tried and have been successful among teachers. When we look at “significant changes” the data is more limited and appears that teachers have not changed their instructional practices in a significant way.

Looking at the quantitative data solely, it would appear that half the teachers have made a significant change to their instruction, but further investigation of the qualitative data makes one question that result. In the interview process both P1 and P2 discussed a lack of curriculum or a new curriculum and exploring new technologies. They discussed spending time in their PLCs exploring these curriculums and technologies. Based on the qualitative data it appears that the curriculum (or lack thereof) and the technologies used at AHS are the things driving major changes in instructional practices and the PLCs themselves are not the catalyst for this change.

Participation has had an effect on teachers' instructional practices, but that affect has been minor. Not only is there a 20-point difference in the number of teachers who indicated that they have made a minor change versus a major change, but the qualitative data gives insight as to why this may be. Based on qualitative data results it appears as though many teachers have either tried or permanently implemented changes that are related to specific skills or individual lessons. However, when it comes to larger changes around units, summative assessments and other assessment systems, sequencing, vertical and horizontal alignment, or deeply studying student data, the conversations are not as common. Any larger shifts in instruction appear to be driven by curriculum as opposed to the PLC itself. In addition, two of the interview participants specifically cite an explicit unwillingness to change or deep dive into these topics among their PLC group members.

Interpretations

AHS finds itself at a tipping point in regard to PLCs. They have been utilizing them for many years and while they have seen some changes, the extent of those changes is limited to one-off strategies and singular lesson changes. Any larger scale changes regarding assessment systems or overall instruction appears to be driven by the adoption of new curriculum or lack of

curriculum and PLCs have simply been the vehicle for navigating those changes. Based on the data collected in this study, it is apparent that teacher do find PLCs helpful. They have indicated that they learn new strategies, are willing to be vulnerable enough to share their data, and are also willing to try new approaches. However, as Newman (2002) notes:

> "Staff discussions often entail a continuous loop of asking how to improve; trying new approaches; evaluating them; and redesigning the curriculum, assessment, and teaching. This process provoked reconsideration of the goals themselves. But discussion over priorities and possible changes is conducted in a way that reinforces shared understanding and schoolwide consensus." (p. 32)

Based on data collected, what seems to be missing in many PLCs is this loop when discussing the overall curriculum and assessment. Strategies are tried and whether it worked or not is discussed but conversations appear to stall-out there in many PLCs. In order to advance, teachers must be willing to push forward through the immediate to discuss their overarching curriculum and assessment.

Another way to interpret the data is simply that change takes time. Clearly large-scale change does not happen quickly and some may interpret this data as AHS teachers simply taking the first steps. However, in the qualitative data, there was no mention of plans to further develop these larger systems and in some cases, participants indicated a resistance to the larger conversation. Either way, in order to gain a more in-depth understanding of how to move forward, more qualitative data would need to be collected. While the teachers interviewed for this study gave some insight, there are several personalities on campus that may provide a more well-rounded view to the barriers and roadblocks involved in taking these next steps.

Conclusion

Through the data collected is apparent that teachers at AHS are learning from PLCs and making consistent small changes to their instructional practices. By interviewing teachers after their participation in the Likert-scale survey, I was able to more clearly understand the extent to which teachers have changed their instructional practice. While this change has been consistent and teachers feel as though they are learning, the extent to which they are changing their instruction is limited to smaller strategies and lesson-based changes. Larger scale changes regarding assessment and curriculum have yet to materialize through the time spent in PLCs. In the final chapter of this study I will summarize my findings and interpretations, put these finding in context, as well as discuss my lessons learned and limitations.

Chapter 5: Recommendation/Lessons Learned

Since the adoption of the CCSS, California teachers have been asked to teach at a deeper level than with the previous state standards. District across the state chose many ways to help their teachers make this adjustment with limited resources. One of the primary ways that AHS chose to address this need was with the introduction of PLCs. After seven years of implementation, AHS has seen a stagnation in their math scores and a ten-point drop in their English CASPP scores. While the implementation of PLCs and CASPP scores are not directly corelated, the quality of instruction and CASPP scores are. As Hattie (2012), Marzano (2017), and DuFour et al. (2008, 2016) discuss, PLCs are designed to be a catalyst for instructional change. If that is the case, then one must ask to what extent participating in PLCs has affected the instructional program of teachers. That is what this study set-out to do at AHS.

After conducting a sequential qualitative study in which teachers took a Likert-scale survey via the Qualtrics survey software. After analysis of the means, standard deviations, and variances, I followed-up with teachers to collect qualitative data by interviewing three of the participants. In this chapter, I will summarize my findings and interpretations, put these findings in context, as well as discuss the lessons learned and limitations of these findings.

Summary of Findings

The quantitative data collected in this study showed that over 70% of teachers have made at least a small change to their instructional practice due to their participation in PLCs. In addition to this over 50% of teachers indicated that they had made a significant change to their instruction. However, upon further collection of qualitative data, the word significant may have been too vague. When qualitative data was collected via interviews, it became apparent that

many of the changes made by teachers were on a smaller scale. Teachers identified single-lesson changes, instructional strategies, and skills as their main changes.

Teachers did not discuss larger assessment systems or curricular changes due to their participation in PLCs. Teachers did discuss curricular changes, but they were driven primarily by the adoption of a new curriculum by the district and not through their participation in PLCs. Throughout the qualitative interviews, teachers did not indicate that any strong collaborative work had taken place in order to review, assess the effectiveness, or discuss at length their overall instructional program at AHS. In some departments it appeared as tough many teaches remain largely focused on their singular classroom. When discussing instructional programs they are focused on information sharing and lack attempts to align their work either vertically in their course progression or horizontally with other teachers that teach the same courses.

Findings Interpretations

According to quantitative data, AHS has a number of the core building blocks of a successful and robust PLC system according to DuFour et al. (2008, 2016). Over 80% of teachers believe that they were well trained when PLC were implemented and 90% stated that the work is rooted in the school's mission and vision. In addition to this PLCs have norms, clear tasks to perform, and there is a focus on instructional practices during PLC discussions. Teachers also indicated that difficult conversations are not avoided. Based on these responses, PLCs have what they need to be successful, however, they have yet to yield significant change in teachers' instructional practices.

Based on the qualitative data, teachers suggested that there may be some barriers around teacher buy-in and willingness to make larger changes. There is at a minimum, one department

that has many specialized courses and it makes it difficult to collaborate on a level that would allow for significant change given only one instructor teaches those courses. Another department has suffered from a lack of common curriculum and has just recently adopted a new curriculum due to that. Given this, they have spent a great deal of time commiserating around their lack of curriculum and are currently spending their time trying to understand their new curriculum now that they have one. So, what is driving the changes within that department is the adoption of a new curriculum, not the PLC itself. The third department seems to have difficulty striking a balance between teacher autonomy and healthy collaboration. These three unique factors outlined via interviews all present barriers that would make it difficult to move past simple instructional modifications and onto a larger scale change in instruction, curriculum, and assessment. However, to confirm this and delve deeper into those ideas, further research would need to be completed to explore these possible barriers or any other barriers to producing significant changes in teachers' instructional practices. This additional data would either allow for verification and deeper explanation of these findings or invalidate them and allow for AHS to decide how to move forward with the PLC model once a separate explanation was determined.

Findings in Context

In chapter 2 of this study, there were three main themes found within existing literature: (1) The process in which establishment of PLCs is vital, (2) PLCs must be highly focused, and (3) PLCs should be outcome driven. Researchers such as Hattie (2012), Marzano (2017), DuFour et al. (2008. 2016), Schapp and Brujin (2017), and others discuss these elements at length in their work and how critical they are to the success of PLCs and changing instructional practices of teachers as well as increasing student achievement. According to results of the quantitative data, the critical foundation for PLCs success is present at AHS. As previously

discusses, the work is rooted in a common mission and vision, teachers were trained, and there is consistent time set-aside for PLCs.

Chapter 2 also discusses that PLC must be highly focused (Philpot & Oates, 2017; Popp & Goldman, 2016; Riggleman & Ruben, 2012; Farley-Ripple & Buttram, 2013). According to teachers, there are consistent norms, instructional practices are discussed, and PLCs are willing to engage in difficult conversations. Research diverges in what the focus of PLCs should be and some researcher suggest that the focus within PLCs can vary (Goldring & Berends, 2009; Marzano, 2017; Prenger et al., 2017). Based on the qualitative data, AHS has taken the varied approach when it comes to focus. PLCs have freedom from the administrative team to work on what they find valuable as long as it associated with student achievement and instructional practices. The focus may not be as deep as it needs to be to produce significant changes to instructional practices at AHS, but the fact that there is a focus and it is constantly strong is supported by both quantitative and qualitative data within the study.

Researchers indicate the ultimate outcome for PLCs is increased student achievement (Hattie, 2012; Philpott & Oates, 2017; Popp & Goldman, 2016; Richmond & Manokore, 2010; Shaap & Bruijn, 2017). The passion for student success some throughs strong in the qualitative data. Teachers at AHS care about their instruction and their students. Based on that data it does not seem as though there is consensus as to how to achieve that outcome. While the quantitative data would suggest that teachers do not shy away from difficult conversations, the qualitative data shows that when those conversation begin to center around the individual practices of teachers or how to re-shape instructional practices as a whole, the conversations are dropped. This would appear to be a large barrier to AHS moving forward with their PLCs.

Based on the literature review and the finding of previous studies, AHS has good beginning to their implementation of PLCs. While the initial implementation may not have been perfect, it met the requirements as outlined by this review to be strong. PLCs are consistent, focused, and teachers have a strong desire to see student outcomes increase. In addition to having a strong desire to see students succeed, teachers are trying new practices even if they are on a smaller scale due to their participation in PLCs. The larger changes may not be driven by PLCs, and in order to advance their practice to the next level, AHS would need to explore the themes and barriers outlines in this study further.

Lessons Learned

While previous studies have done a great deal to outline what makes a PLC successful and have given specific examples of success, what I failed to glean from these is the complexity that goes into getting PLCs implemented successfully at scale in a secondary setting across subject areas. In studies such as the ones conducted by Popp and Goldman (2016) as well as Richmond and Manokore (2010) the PLCs studied have been of a single grade level or one specific subject area. What is unique and adds to the body of research in the study of AHS is that it looks at a single secondary schoolhouse across multiple subject areas. Each subject has its own unique barriers, resources, and personalities. While the administration has clearly laid the groundwork of PLCs to be successful, there is still something holding teachers back from making significant instructional change in their classrooms. What makes this complex from a leadership standpoint is trying to understand how one gives the entire school this model and then helps each unique department turn it into a useful tool given their unique circumstances.

These complexities are exacerbated by the current lack of resources available at AHS in regard to PLCs. While AHS does allow for a limited number of staff members to attend a PLC

conference over summer, there are no on-going coaches or staff members that can readily be available to assist struggling PLCs with any type of authority, nor is there ongoing professional development regarding PLCs outside of the summer conference previously mentioned. This leaves that task of overseeing and helping PLCs to the administrative team which already have focuses that take their immediate attention from day to day.

Another aspect that would be interesting to investigate would be how the current Department Chair role takes into account ones ability to lead a PLC well or if the lead of a subject matter PLC should be a different role from that of the Department Chair role. As it stands the department chair may not be the leader of the PLC and at times the leader of the PLC changed from week to week. Moving forward, AHS may want to consider how the role of facilitator is determined and ultimately who oversees the success of a PLCs implementation efficacy.

Limitations

A clear limitation of this study was the amount of qualitative data collected. Not only was the number of interviews limited, but the scope of those interviews was limited as well. Based on qualitative data, there were issues that need to be investigated further around teacher buy-in, teacher willingness to change their instructional strategies, who facilitates PLCs, and what the on-going training and professional development around PLCs looks like. With a larger number of interviews, the inclusion of the administrative staff's perspective, and a wider scope, these barriers could be explored in more depth in order to continue to understand why changes in instructional practices have been limited despite having a strong initial implementation of PLCs and teachers indicating that they are learning and willing to try new things instructionally.

Conclusion

Exploring to what extent participating in PLCs has changed teachers' instructional practice at AHS produced a clear result: the change has been limited. Based on the quantitative data, AHS appears to have had a strong initial implementation and the implementation efficacy also appears to remain strong based on the review of literature done in this study. While the quantitative data tells a story that indicates a strong PLC structure, qualitative data suggest that further investigation may need to be done in order to understand the barriers that exist to a larger scale change in instruction. Each department as a unique set of barriers that not only need to be investigated further but will also need a unique solution. In addition to this further investigation, AHS may also want to take a closer look at the facilitation structure of each PLC to understand if it is the most effective way to facilitate PLCs.

While this study may have been limited in its qualitative data, it is a good indicator of where AHS can go from here as outlined above. This study also made clear that the complexities of running PLCs that involve many subject matter areas in a single schoolhouse are many. This study not only adds to the current body of research but also opens many avenues for future research both at AHS, and in any other school or district facing similar issues.

References

Carpenter, D. (2014). School culture and leadership of professional learning communities. *International Journal of Educational Management*, 29(5), 682-694. https://doi.org/10.1108/IJEM-04-2014-0046.

Carpenter, D. (2017). Collaborative inquiry and the shared workspace of professional learning communities. *International Journal of Educational Management*, 31(7) 1069–1091. https://doi.org/10.1108/IJEM-10-2015-0143.

DuFour, R., DuFour, R. and Eaker, R. (2008), Revisiting Professional Learning Communities: New Insights for Improving Schools. Solution Tree Press.

DuFour, R., DuFour, R., Eaker, R., Many, T.W., & Mattos, M. (2016). *Learning by doing: A handbook for Professional Learning Communities at Work.* Solution Tree Press.

Farley-Ripple, E.N. & Buttram, J.L. (2013). Developing collaborative data use through professional learning communities: Early lessons from Delaware. *Studies in Educational Evaluation*, 42: 41-53. https://doi.org/10.1016/j.stueduc.2013.09.006.

Goldring, E., & Berends, M. (2009). *Leading with Data*. Corwin Press.

Hattie, J. (2012). *Visible Learning for Teachers Maximizing Impact on Learning.* Routledge Press.

Klassen, Ann C. ; Creswell, John ; Plano Clark, Vicki L. ; Smith, Katherine Clegg ; Meissner, Helen I. Best practices in mixed methods for quality of life research. *Quality of Life Research,* April, 2012, Vol.21(3), p.377

Marzano, R. (2017). *The Art and Science of Teaching*. Solution Tree Press.

Mertler, C.A., & Charles, C.M. (2011). *Introduction to Educational Research* (7th Edition). Pearson Education, Inc.

Newmann, F.M. (2002). Achieving high-level outcomes for all students: The meaning of staff-shared understanding nd commitment. In W.D. Hawley (Ed.), *The keys to effective schools: Educational reforms as a continuous improvement* (pp. 28-42). Corwin Press.

Lee, J., Zhang, Z., Yin, H. (2011). A multilevel analysis of the impact of a professional learning community, faculty trust in colleagues and collective efficacy on teacher commitment to students. *Teaching and Teacher Education*, 27: 820-830. https://doi.org/10.1016/j.tate.2011.01.006.

Mu, G.M., Liang, W., Lu, L., Huang, D. (2018). Building Pedagogical Content Knowledge within Professional Learning Communities: An approach to counteracting regional education inequality. *Teaching and Teacher Education*, 73, 24-24. https://doi.org/10.1016/j.tate.2018.03.006.

Parry, G., & Ferriter, W.M. (2010). Building a Professional Learning Community at Work: A Guide to the First Year (a play-by-play guide to implementing PLC concepts). Solution Tree Press.

Philpott, C., & Oates, C. (2017). Professional learning communities as drivers of educational change: The case of learning rounds. *Journal of Educational Change*, 18, 209-234. https://doi.org/10.1007/s10833-016-9278-4.

Popp, J. & Goldman, S.R. (2016). Knowledge building in teacher professional learning communities: Focus of meeting matters. *Teaching and Teacher Education: An International Journal of Research and Studies*, 59:347-359, https://doi.org/10.1016/j.tate.2016.06.007.

Prenger R., Poortman C.L., Handelzalts A. (2017). Factors influencing teachers' professional development in networked professional learning communities. *Teaching and Teacher Education*, 68: 77-90. https://doi.org/10.1016/j.tate.2017.08.014.

Richmond, G., & Manokore, V. (2010). Identifying Elements Critical for Functional and Sustainable Professional Learning Communities. *Science Teacher Education*. 543-570. https://doi.org/10.1002/sce.20430.

Riggleman, N.M. & Ruben, B. (2012). Creating foundations for collaboration in schools: Utilizing professional learning communities to support teacher candidate learning and visions of teaching. *Teaching and Teacher Education*, 28: 979-989 https://doi.org/10.1016/j.tate.2012.05.004.

Schaap, H., & Bruijn, E. (2017). Elements affecting the development of professional learning communities in schools. *Learning Environments Research*, 21(1), 109-134. https://doi.org/10.1007/s10984-017-9244-y.

Stoll, L., Bolam, R., McMahon, A., Wallace, M., & Thomas, S. (2006). Professional learning communities: A review of the literature. Journal of Educational Change, 7(4), 221-258. https://doi.org/10.1007/s10833-006-0001-8.

Stoll, L., & Louis, K. S. (2007). Professional learning communities: Divergence, depth and dilemmas. McGraw-Hill Education.

Appendix A: Research Consent Form

From the Perspective of Teachers: Utilizing Professional Learning Communities as a Catalyst for Instructional Change

CONSENT FORM

Dear **Teachers,**

My name is Hans Schmitz and I am a Master of Arts in Education candidate at California State University San Marcos. You are invited to participate in a research study examining to what extent participation in Professional Learning Communities has shifted your instructional programs. You were selected as a possible participant because you are a part of the Math, Science, Social Science, English, or Foreign Language department. You must be 18 or older to participate in the study.

STUDY PURPOSE:

The purpose of this study is to understand to what extent participation in Professional Learning Communities has affected your instructional programs

NUMBER OF PARTICIPANTS:

If you agree to participate, you will be one of 30 participants who will be participating in this research.

PROCEDURES FOR THE STUDY:

If you agree to be in the study, you will simply complete an online survey that will take less than 10 minutes to complete.

RISKS AND INCONVENIENCES:

There are minimal risks and inconveniences to participating in this study. These include:

1. The time participants will spend completing the survey.
2. There is a slight chance that you could be identified based on the demographic data provided. However, raw data will not be shown to anyone other than the researcher.

SAFEGUARDS:

To minimize these risks and inconveniences, the following measures will be taken:

1. The survey you take will be completely anonymous.
2. Given the digital nature of this survey it may be taken any time of day at your convenience. As well, if you are a department chair, the follow-up interview can be scheduled when it is convenient for you at anytime of day.

3. The raw data will not be shared with any individuals affiliated with our school.
4. After the conferral of the researcher's degree, all raw data will be stored on a thumb drive for three years and destroyed thereafter.

CONFIDENTIALITY:

Your responses will be confidential. The results of this study may be used in reports, presentations, or publications but your name will not be used. Pseudonyms for you, the school, and the district will be used to protect your identity.

VOLUNTARY PARTICIPATION:

Taking part in this study is voluntary. You may choose not to take part or may leave the study at any time. Leaving the study will not result in any penalty. Your decision whether or not to participate in this study will not affect your current or future relations with California State University San Marcos.

BENEFITS OF TAKING PART IN THE STUDY:

There are no direct benefits to participation in this study, however, your participation will help the field better understand how Professional Learning Communities affect teachers instructional programs. You may also benefit from the experience of reflecting on your practice.

INCENTIVES FOR PARTICIPATION:

You will not receive payment for taking part in this study.

CONTACT INFORMATION AND SIGNATURES:

If you have questions about the study, please call me at 408-667-4730 or email me at hschmitz@musd.net. You will be given a copy of this form for your records. If you have any questions about your rights as a participant in this research or if you feel you have been placed at risk, you can contact the IRB Office at irb@csusm.edu or (760) 750-4029.

PARTICIPANT'S CONSENT:

When you participate in the web-based survey, you will be asked if you have read, understand, and give your consent to participate by checking a box which referred to this sheet. The sheet will also be linked in that consent question.

Appendix B: Liker-scale Teacher Survey

1. What subject-area PLC do you participate in the most?

Math English Social Science Science Foreign Language

2. How many years total have you been teaching?

Less than 2 years 2-5 years 6-10 years 11-15 years 16-20 years over 20 years.

3. What gender do you identify as?

Male Female Gender Neutral Prefer not to state

4. What is the highest level of education you have completed?

Bachelors Bachelor + Credential Masters Doctorate or other technical or advanced degree

5. Teachers at our school are well trained on how to participate in Professional Learning Communities (PLCs).

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

6. Teachers understand what makes a PLC successful.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

7. When teachers are hired, they are formally trained about PLCs' purpose and how to participate.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

8. When teachers are hired, they are formally trained about how to participate in PLCs.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

9. The work done in PLCs is directly tied to our school's mission statement.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

10. Our PLC has agreed-upon norms.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

11. Our PLC reviews our norms before each meeting.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

12. Our norms help us to have productive, effective conversations..

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

13. We have clear tasks to perform at our PLC meetings.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

14. A large majority of our PLC time (80 percent or more) is spent on tasks related to student learning goals.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

15. Instructional practices are frequently discussed in our PLC meeting.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

16. During PLC conversations, team members sometimes disagree about ideas or practices.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

17. When team members disagree about ideas or practices, we tend to discuss those disagreements in depth.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

18. Teachers frequently share and discuss each others' instructional methods and philosophies.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

15. I feel safe discussing the areas that I need to improve in regard to my instructional practice with my PLC.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

16. I often learn something new regarding instructional practices from my PLC.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

17. I have implemented a new instructional practice due to my participation in my PLC, even if it did not work.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

18. Within PLC meetings, we try to avoid difficult conversations.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

19. Teachers frequently share each other's instructional methods.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

20. Teachers frequently discuss each other's instructional methods.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

21. I feel safe discussing the areas that I need to improve in regard to my instructional practice with my PLC.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

22. I often learn something new regarding instructional practices from my PLC..

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

23. I have implemented a new instructional practice due to my participation in my PLC, even if it did not work.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

24. I have made a small but permanent change to my instructional practice due to my participation in my PLC.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

25. I have made a significant permanent change to my instructional practice due to my participation in my PLC.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

26. My participation in PLCs has increased my effectiveness as a teacher.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

27. I have tried an instructional strategy that I learned in a PLC and failed at implementing it well.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

28. This failure deterred me from trying other new strategies learned in PLC.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

29. I have tried an instructional strategy I learned in a PLC and its implementation went well.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

30. Implementing an instructional strategy learned in my PLC encouraged me to try more new strategies.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

31. My participation in PLCs has increased student test scores in my courses.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

32. My participation in PLCs has increased student grades in my courses.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5