COLLABORATIVE LEADERSHIP PRACTICES IN MIDDLE SCHOOLS TO IMPROVE STUDENT LEARNING IN ENGLISH LANGUAGE ARTS AND MATH

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In Partial Fulfillment of the
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ABSTRACT

COLLABORATIVE LEADERSHIP PRACTICES IN MIDDLE SCHOOLS TO IMPROVE STUDENT LEARNING IN ENGLISH LANGUAGE ARTS AND MATH

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Over the last few decades, there have been numerous government mandated school reform efforts funded by federal, state, and local governments to turn around failing schools. School districts in the NYCDOE endorse professional learning communities to help teachers obtain the knowledge and skills that can lead to increased educator effectiveness and improved results for students. The purpose of this qualitative study was to explore how the implementation of the professional development (PD) provided to English Language Arts (ELA) and math middle school teachers in professional learning communities (PLCs) in two high needs, under resourced, urban districts enabled teachers to create the guiding coalition to bring about change that affects teacher practice and helps improve student achievement.

Research participants included two middle school principals, seven middle school teachers of ELA and math, and two PLCs. The study was guided by three research questions. Data were collected through a document review, in-person interviews, and observations of PLC interactions at the participants' middle schools. The findings that emerged included the importance of collaboration and teamwork, common planning time, content area and grade level teams, differentiated PD, peer observation and feedback, and using data to drive instruction. School leaders and teachers agree that professional learning communities are valuable sources of professional study and subsequent capacity building. They understand that having the time within their workday to strategize with their colleagues prepares them to improve outcomes for both adult and student learners.

Implications for future research include investigating methods that support the professional development of veteran teachers, teachers who may have different perspectives, and less experienced leaders, so that they can make significant and sustainable contributions to PLCs.

Key Words Achievement Gap, High-Needs District, Professional Development, Data Driven Instruction, Professional Learning Community Observation Guide

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CHAPTER ONE

INTRODUCTION

> It should be simple to educate all children, even those who are poor and reside in the inner city. Simple, because from the time a child is born, he or she begins to learn. Learning to communicate, to reason, and to assimilate information is as natural a part of human development as learning to crawl or walk. (Noguera, 2003, p. xii)

Background of the Problem

Failing public schools have long been a concern for communities, policy makers, and educators. Students in high-needs districts have continued to perform at levels well below students in middle-class districts, greatly limiting their chances for future success in college and career, which often keeps families in under resourced, urban areas in a seemingly never-ending cycle of poverty. DuFour, DuFour, and Eaker (2008) explained the viewpoint that "children of the poor [are] far more likely to attend lower-quality schools with substandard facilities, fewer resources, and less qualified teachers than their middle-class peers" (DuFour et al., 2008, p. 49). The authors also posited that children who live in poverty may not necessarily receive learning support at home, nor are they told that learning is important. Harvey, Cambron-McCabe, Cunningham, and Koff (2013) reported President George Bush and President Barack Obama "have called education the 'civil rights issue of our time'" (p. 8). Moreover, they declared that there should be:

> A law that says that no child in the United States will be denied equal

> educational opportunity in elementary and secondary education through lack of a challenging curriculum, well-prepared and effective teachers, and the funding to pay for that education. (Harvey et al., 2013, pp. 8-9)

Over the last few decades, there have been numerous government mandated school reform efforts funded by federal, state, and local governments to turn around failing schools. Some of these reforms include the Title I School Improvement Grants (Title I), No Child Left Behind (NCLB), Race to the Top (RTTP), Investing in Innovation (i3), and the Elementary and Secondary Education Act (ESEA) (Easton, 2011). In 2014, New York City invested $150 million dollars into the School Renewal Program over a 3-year period, identifying 94 struggling schools and providing a framework of improvement for the renewal schools (New York City Department of Education [NYCDOE], 2014).

Students are seen as valuable human capital. "As with all investments, it takes resources to create human capital and provide schooling for children, youth, and adults. The human capital generated in public schools and elsewhere is needed to ensure a dynamic economy" (Brimley, Verstegen, & Garfield, 2016, p. 1). As the achievement gap widens for underserved students who continue to fall further behind, urban schools in high-needs areas face higher dropout rates, lower graduation rates, and/or an increase in students' failure to pass the required standardized state exams in order to qualify for graduation. For some of the students who graduate from high school, there exists a possibility that they may end up in remedial classes at the community college from which they can also potentially drop out, when they don't experience success. Without a college degree and the necessary 21st century job skills, students' opportunities to find

employment in a field that they enjoy, as well as their ability to become future high-wage earners can be impaired. High-needs districts have been proactively working toward closing the achievement gap, but for too many students, test scores continue to be on the low end. Harvey et al. (2013) explained, "the skill [set] needed to succeed in work and life emphasizes not just college-level preparation, but critical thinking and problem solving" (Harvey et al., 2013, p. 13).

Wang (2012) declared, "the past several decades has seen a shift from a manufacturing to an information-based economy, not just organizations, but individual employees must constantly develop and acquire new skills in order to remain competitive" (Wang, 2012, p. 35). According to Harvey et al. (2013):

> Dramatically raised expectations take place against three environmental backdrops, any of which would be challenging alone: new, centralized policy initiatives accompanied by prolonged scarcity of new resources; increasing diversity and poverty in the student body; and the maturation of new educational technologies. [Districts] face a new age and a radically different world. (Harvey et al., 2013, p. 13)

Among the variety of factors that contribute to low student achievement is also the lack of sufficiently professionally developed teachers to provide students with high-quality learning experiences. Without the necessary support and training, teachers struggle to develop their pedagogical skills, and they are lacking the skills to adequately address the different learning needs of their students. This, in turn, causes children to fall behind their peers who attend schools that have a greater number of highly effective teachers. Harvey et al. (2013) stated, "Now is the time to treat teachers as true

professionals and put a well-prepared and effective teacher in every classroom in America" (Harvey et al., 2013, p. 8). In order to improve the children's chances of learning at deep levels, school leaders in NYCDOE high-needs districts have explored ways to develop and retain their teachers. School leaders have been working with their teachers to create professional learning communities (PLCs) within the schools in order to better support the learning of the teachers in their buildings. According to the NYCDOE Office of Curriculum, Instruction, and Professional Development (2014):

> It is clear that highly effective teachers make all the difference to student success and student learning. Therefore, a viable professional learning program must offer teachers many opportunities to obtain needed knowledge and skills that can then lead to highly effective teaching. Professional learning that increases educator effectiveness and results for all students occurs within learning communities committed to continuous improvement. (pp. 4-7)

Erkens et al. (2008) reported how teachers have found that PLCs help provide teacher members with the much-needed professional development that allows them to build capacity in a variety of areas, such as data analysis, more skillful implementation of instructional strategies, and curriculum development, among others (Erkens et al., 2008, p. 138). Garmston and Wellman (2016) emphasized, "Teachers' professional communities operate with a sense of moral authority and moral responsibility for making a difference in the lives of students. Such purpose is grounded in clearly articulated standards for both student and teacher performance" (Garmston & Wellman, 2016, p. 26). Overall PLCs enable teachers to collaborate with their peers and share best practices, resulting in a collective drive toward improving student outcomes.

This research study adds to the research about the influence of PLCs on teachers to collaboratively work with their peers to help improve outcomes for students. This study will address the gap in the existing literature, by focusing on middle school teachers of ELA and math in two specific high needs, underserved, urban districts in the NYCDOE.

Purpose of the Study

The purpose of this qualitative study is to explore how the implementation of the professional development (PD) provided to English Language Arts (ELA) and math middle school teachers in professional learning communities in two high needs, under resourced districts enabled teachers to create the guiding coalition to bring about change that affects teacher practice and helps improve student achievement. A qualitative analysis was conducted through interviewing school principals and teachers at two middle schools in high-needs, under resourced districts about the effectiveness of professional development in ELA and math. A protocol was used to observe teachers and take field notes during their PLC meetings. The researcher also conducted a document review to analyze how the schools and the students performed over the previous 3 years, and help determine in what ways professional development through PLCs has impacted student achievement. The study sought to answer three research questions.

Research Questions

The research questions for this study focus on the degree to which professional learning communities within a high-needs district can improve teacher practice and help close the achievement gap. The following questions were explored:

1. How does the professional development provided to teachers of ELA and math, improve teacher practice and student outcomes?
2. How was the professional development designed and implemented at the middle school level in the NYCDOE?
3. How does the role of the teachers, as interdependent learners and experts in PLCs, create a collective culture of improvement?

Significance of the Study

Under the federal NCLB Act, school districts were held accountable for the academic success of every child. "The results of high stakes testing have a significant impact on the districts' reputation and standing in the community state and nation" (Johnston et al., 2009, p. 48). Schools that do not meet the needs of their students are in danger of closing. School closings cause an additional disruption to student learning, and to the community at large, by creating stressful changes and labeling them as failures. It is therefore important to do an in-depth study of how middle school teachers in high-needs school districts can develop their teaching skills in all content areas, especially ELA and math, in order to meet the learning needs of every child and provide them with a standards-based, high-quality and uninterrupted education. With the implementation of Advance, an online teacher observation tool developed around Danielson's (2007) framework for teaching, introduced and used by NYCDOE since 2013 to record teacher

performance, school leaders are now able to see the competency levels in each area of pedagogy for every one of their teachers. This tool can help the school leader, in collaboration with the professional learning community, support each teacher in his or her challenge areas. Rather than the identified areas of growth being considered a shortcoming on the part of the teacher, Noonan (2014) described "adult learning in a school as being valued and a service that the leaders are willing to invest in" (Noonan, 2014, p. 148).

In this study, the researcher explored how the teachers and school leaders in PLCs at two middle schools in high-needs, under resourced districts created the guiding coalition, which Kotter (2012) described as an important step in his change theory. The researcher further examined how the guiding coalition enabled the PLC members to establish a safe and caring environment in which to target the areas of challenge of each member with the intention of improving student outcomes. The study allowed the researcher to investigate what teachers believe are actual changes in their practice that take place as a result of their participation in a professional learning community. This additional research into the already existing body of knowledge on PLCs will serve as a resource for other high-needs districts that are struggling to improve teachers' low performance and poor student outcomes. It may provide additional information about the specific professional development approaches that can be used to change the culture of a school so that teachers become more vested in their own learning and the learning of their students. It can be useful for teachers to learn about different research-based practices that have worked well in a school with similar demographics.

Conceptual Framework

Collaborative adult learning helps teachers develop skills and strategies through the sharing of knowledge and best practices with a collective group. "Collaboration is only powerful when teams focus on the right work" (Mattos, DuFour, DuFour, Eaker, & Many, 2016, p. 38). The researchers stressed the importance of teacher teams being guided by "common assessment results to inform and improve individual teacher and collective team practice" (Mattos et al., 2016, p. 72). There must also be reciprocal accountability, not only with school principals holding their teams accountable for the work, and the principals being accountable to their teams, but also the district being accountable to "principals and teachers [who] will need to bring curriculum to life in the classroom. The obligation to provide others with the resources and assistance they need to meet expectations is commonly referred to as reciprocal accountability" (DuFour & Fullan, 2013, p. 52). School leaders are responsible for organizing meaningful teams and providing the time and structure to facilitate the teams' work. Being part of a PLC provides a sense of belonging to a team of like-minded individuals who share similar experiences and who are invested in helping one another become highly effective in their practice. The level of interaction within a PLC helps to keep teachers motivated to do their best for one another and for the students. "What gets monitored, gets done" (DuFour & DuFour, 2012, pp. 45-47). The use of technology also allows a PLC to continue its learning beyond the school day, with the sharing of lesson plans, student work and other documents through Google documents, and ongoing conversations, via video conferencing and social media. It is necessary to note that some PLCs are more effective than others. According to the research, teachers and administrators have come

to consider PLCs, and the opportunities they create to support adult learning, as some of the most productive practices to bring about school reform and improved student outcomes (Noonan, 2014; Polly, Neale, & Pugalee, 2014; Wagner et al., 2006). Schmoker (1999) compared teacher collaboration to Thomas Edison's "multiplier effect" (p. 9). He reported that Edison "placed his team of inventors near each other to encourage them to consult with one another so that each member of the team benefitted from the collective intelligence of the group" (Schmoker, 1999, p. 9). The National Commission on Teaching and America's Future (NCTAF, 2006) supports the creation of learning communities as a necessary replacement for the factory-era teaching model of the isolated teacher in a standalone classroom. The commission maintains that "collaboration among educators positively affects student achievement, teacher quality, and school success across all types of schools and grade levels" (National Commission on Teaching and America's Future [NCTAF], 2016, p. 9). The Commission's recent study supports the need for teachers to have the opportunity to work together on an ongoing and regular basis in order to develop curricula, lesson plans, and student assessments that enable them to strategize about how to support all students—all while helping one another build their professional capacity.

Limitations

Conducting a study involving people, while interesting, can present limitations. The sample size could have been expanded, even within the NYCDOE, by focusing on high school PLCs, a population whose school leaders expressed a willingness to provide access to their facilities for data collection. However, the researcher wanted to focus on an unfamiliar sample population, in order to gain a deeper understanding about PLCs and

PD at the pre-high school level. Another limitation was the lack of diversity relative to gender among the participants in the study. The majority of the PLC members and study participants were women. Although two males were observed, they chose not to participate in the study. A third limitation was the lack of available and willing participants with more than 16 years of teaching experience. The addition of teachers that experienced school reform initiatives over more than two decades ago, prior to the implementation of PLCs, could have added a richer body of data for the study. By expanding the size of the sample population, to include all NYCDOE schools and districts willing to participate in the study, the researcher would have been able to obtain an abundance of data from schools and districts that are representative of the diversity of the teachers that serve the children in New York City Public Schools.

Delimitations/Scope

Middle school teachers in Grades 6, 7, and 8 were the focus of the study. Teachers in Grades 9-12 were not included. Teachers in the higher grades are reinforcing and building upon the foundation of literacy and numeracy that is already provided by middle school teachers. Therefore, the researcher focused on how the middle school teachers support students as they begin to develop the skills they will need in order to become college and career ready. ELA and math are the two areas in which college bound students need a strong foundation in order to avoid remedial classes at the college level. According to a special report issued by the National Center for Public Policy and Higher Education (2010), every year, "sixty percent of first-year college students discover that despite being fully eligible to attend college, they are not academically

ready for postsecondary studies. They must take remedial courses in ELA or math" (p. 1). Remedial courses are non-credit bearing.

Definition of Terms

Achievement Gap – "In many communities and states, African-Americans, Native-Americans, and Latino students stand about half the chance of meeting standards in reading and mathematics as students who are white or Asian American" (Harvey et al., 2013, p. 122).

Best Practices – "Attributes that describe what teaching and learning means for accomplished teachers, which create a successful teaching and learning environment" (National Education Association, 2016, p. 1).

High-Needs District – 84 Focus Districts were identified because of their low performance and lack of progress in ELA and math, combined, or graduation rates for one or more accountability groups (racial/ethnic groups, low-income students, English language learners, and students with disabilities) (New York State Education Department [NYSED], 2016, p. 1).

Professional Development – "Framing a problem of practice (and) designing and implementing an effective action plan for improving instruction" (Boudett, City, & Murname, 2015, p. 202).

Professional Learning Communities – "A grade-level or content-area group of teachers who meet to examine practices. PLCs can also involve targeted groups of teachers or be self-selected" (Ward, Fisher, Frey, & Lapp, 2013, p. 81).

Protocol – process developed by school reformers with a set of constraints [which] teaches one of three rare but important skills: how to give and receive safe and honest feedback; how to analyze complex problems carefully and without rushing

> to judgment; and, how to ground interpretations of complex texts-for example, student work or school data-in close "readings" of the texts (McDonald, Mohr, Dichter, & McDonald, 2013, p. 1).

Professional Learning Community Observation Guide – A protocol developed by Dr. Daniel Hanley (2006) from the North Cascades and Olympic Science Partnership (NCOSP) at Western Washington University to help PLC members take notes of their interactions in order to then guide their conversations and enable them to develop a shared understanding of a successful PLC (NCOSP, 2017).

Summary

In 2014, millions of dollars of additional funding were provided to the New York City Public Schools for its Renewal School Program, in order to turn around 94 failing schools. The staff of each renewal school has been working collaboratively to bring about school change. One of the indicators on the Quality Review, which measures the successful practices of a school, focuses on the work of teacher teams. Although there is substantial research about how PLCs were developed to help bring about much needed school reform, it is important to add to the research and keep it current. Keeping research current is particularly essential for demonstrating to educators the innovative approaches that present-day PLC members use to communicate, grow in best practices, share data, develop and apply instructional interventions, develop into teacher leaders, and become more efficient in helping to bring about higher student achievement. This study investigated teachers at two sample middle schools working together in PLCs to explore

if there are reported changes in their use of data-driven instructional practices, and how that affects student achievement. Key terms for this research were defined.

The development of PLCs to improve teacher practice and increase student achievement, in order to close the achievement gap, has gained the support of many educators. The research questions that guide this study explore how the collaboration among teachers in PLCs may bring about needed school reform and how the process enables teachers and students to experience success.

The focus was on the middle school teachers of Grades 6, 7, & 8 in two schools located in high-needs, underserved, under resourced districts in the NYCDOE, and how teacher participation in the work of their PLCs has affected their students' academic success over the past 3 years. Additionally, a document review was conducted to analyze how the schools and the students performed over the previous 3 years. Chapter Two presents the current literature available on professional learning communities, and examines teacher collaboration through the theoretical foundation of change.

CHAPTER TWO

LITERATURE REVIEW

According to the 1983 report issued by the National Commission on Excellence in Education (NCEE), "A Nation at Risk: The Imperative for Educational Reform," urban schools have been plagued by student failure. "If an unfriendly foreign power had attempted to impose on America the mediocre educational performance that exists today, we might well have viewed it as an act of war" (NCEE, 1983, p. 9). Despite the pressure from policy makers and the public calling for widespread school reform, students are still dropping out of high school and failing to master the skills necessary to succeed in higher education and/or the workforce. Noguera (2003) explained:

> Those who know the least about education end up having the most say about what should be done. Typically, when politicians offer solutions to the problems confronting failing inner-city schools, they fixate on a policy gimmick or a cure-all, more testing, charter schools, choice, vouchers, as if there were a silver bullet. (p. xi)

In the last decade, schools have been inundated with new initiatives designed to close the achievement gap, but students are still failing and schools are closing (NYSED, 2015, p. 1). In past decades, educational leaders have implemented countless initiatives to close the achievement gap. When one fails, another is rolled out. According to Reeves (2009) "Educators are drowning under the weight of initiative fatigue. But eventually, each initiative added to the pile creates a dramatic decline in organizational effectiveness"

(Reeves, 2009, p. 14). This pile-up initiative has done little to improve instruction and learning. Consequently, school leaders turned their attention to leading school improvement through systemic change by focusing on "develop[ing] people throughout the organization to help lead the change, mak[ing] adjustments as they learn from their successes and failures, and, very importantly, stay the course" (DuFour & Fullan 2013, p. 29). "Effective system leaders recognize that the best professional development does not take place away from work or during the occasional presentation" (DuFour & Fullan, 2013, p. 54). The researchers also explained that "the deepest professional learning will occur when that learning is: job embedded, engages people in the work, is collective rather than individual, is aligned with the system's goals, (and) is evaluated on the basis of results" (DuFour & Fullan, 2013, p. 54). Therefore, district and school administrators are supporting their faculties to help them create professional learning communities (PLCs) that focus on school reform and improvement.

The purpose of this qualitative study is to explore how the implementation of the professional development (PD) provided to English Language Arts (ELA) and math middle school teachers in professional learning communities in two high needs, under resourced districts enabled teachers to create the guiding coalition to bring about change that affects teacher practice and helps improve student achievement. A qualitative analysis was conducted through interviewing school principals and teachers at two middle schools in high-needs, under resourced districts about the effectiveness of professional development in ELA and math. A protocol was used to observe teachers and take field notes during their PLC meetings. The researcher also conducted a document review to analyze how the schools and the students performed over the

previous 3 years, and help determine in what ways professional development through PLCs has impacted student achievement.

This chapter presents review of related literature organized under the following subheadings: (a) professional learning communities (PLCs); (b) change theory; (c) student achievement; and (d) collaboration.

Professional Learning Communities

PLCs in schools enable teachers to support one another's professional growth as they work toward a common goal, while being positioned to emerge as leaders who share the accountability for the success of their collective students. "Developing shared expertise and working with common purpose are vividly present in the schools that are beating the odds and making a difference for students" (Garmston & Wellman, 2016, p. 21). What these successful schools have in common are competent professional learning communities. DuFour, DuFour, Eaker, Many, and Mattos (2016) stated that since 1998, their two goals as researchers have been to convince educators how PLCs are the most effective way for them to greatly improve student learning, and provide them with the necessary steps to bring about transformation of districts and schools through PLCs (DuFour et al., 2006, p. 9). "The Center on Organization and Restructuring of Schools maintained that the development of PLCs was critical to improving schools and elaborated on the condition that led to successful PLCs" (DuFour et al., 2008, p. 442). Key to overall improvement affected by PLCs are the teachers' continued co-constructing knowledge, and conversations about the students' achievement in order to design and tweak curriculum and necessary interventions that result in content mastery and higher

levels of literacy and numeracy (DuFour et al., 2008; Spires, Kerkhoff, & Graham, 2016; Trust, 2016).

Initially, PLCs were developed in the business sector to allow companies to make a better product and increase sales. PLCs were known as quality circles in private industry, and management consultant, W. Edwards Deming's formula for improvement and focus on results was known as Plan, Do, Check, and Act (PDCA) (Easton, 2011, p. 25). Additionally, Easton (2011) found that in the 1980s and early 1990s, some schools began to adapt the quality circle for use with their faculties in order to bring about school reform that would turn failing schools around and guarantee greater expertise for teachers and academic success for the students.

Little (2002) reported, "research spanning more than two decades points to the benefits of vigorous collegial communities" (Little, 2002, p. 917). Studies have shown how teacher collaboration through PLCs enables them to develop more engaging, student-centered classroom strategies that result in improved student academic performance, and increase their shared knowledge about how their students learn and develop (Altieri, Colley, Daniel, & Dickenson, 2015; Feldman, 2016; Hadar & Brody 2016; Ning, Lee & Lee, 2015). In the past, teachers worked in isolation, and were not offered ongoing opportunities to collaborate with their colleagues about the learning of their students, or even their own learning. According to Garmston and Wellman (2016), "caution about intruding in others' territory and guardedness or resistance about changes in curriculum and instruction were normal. Teachers had little sense of their potential collective power" (Garmston & Wellman, 2016, p. 24). Working in isolation had mostly kept them unaware of the research-based methodologies that colleagues may have been

implementing effectively, which they were willing to share. But, as schools continued to fail, transformational efforts became focused on teacher collaboration and ongoing learning for all stakeholders (Carpenter, 2015; Horn, Garner, Kane, & Brasel, 2017). Higgins (2016) posited, "teachers are more willing to develop innovative ideas through professional learning communities" (Higgins, 2016, p. 15). Higgins (2016) added that there are negative aspects to collaboration when teachers have not been properly trained to work together. Moreover, Hallam, Smith, Hite, Hite, and Wilcox (2015) stated, "an effective culture for PLCs depends on a high degree of trust" (Hallam et al., 2015, p. 195). Lieberman and Pointer-Mace (2010) referred to the National Writing Project (NWP) as the epitome of teacher collaboration. "Teachers left the institute with a pile of tried and tested practices, and were subsequently using many of the strategies they learned during the summer institute. Teachers became students of their own practice" (Lieberman & Pointer-Mace, 2010, p. 78).

Riveros, Newton, and Burgess (2012) focused on schools in Canada, which are required by the Alberta Commission for Learning to function as PLCs. They described how peer collaboration had facilitated school reform and stated, "PLC models could be enhanced if these models incorporate a method for identifying areas of improvement. PLCs are not a goal in and of themselves, they are means for school improvement" (Riveros et al., 2012, p. 211). PLCs require planning with colleagues, time to meet, being prepared to share the learning, and allowing the community to see each member's work on display. Lieberman and Pointer-Mace (2010) offered an example of a Teachers' Network as "an effort to mobilize groups of teachers who initiate a variety of activities of their own making, including teacher-led workshops, publications, conferences, website

work, and learning circles" (Lieberman & Pointer-Mace, 2010, p. 80). Moreover, PLCs provide "opportunities for teachers to learn from one another, refine their practice, and work with others to deepen their understanding of the complexities of teaching" (Lieberman & Pointer-Mace, 2010, p. 79). Research studies on PLCs have focused on the positive effects of teacher collaboration on student achievement. However, few have fully addressed ways to mitigate the chaos that can occur when faculty are asked to work differently than they have in the past without providing school leaders enough time or training to properly guide and grow themselves and their teachers through the process. There are teachers who are under the impression that working within a PLC "is the latest flavor-of-the-month, which will come and go. They see no point in wasting time on it" (Kotter, 2008, p. 2). A PLC is simply one more initiative that is being rolled out, for immediate implementation at the school level. Reeves (2009) referred to "educators drowning in initiative fatigue, attempting to use the same amount of time, money, and emotional energy to accomplish more and more objectives" (Reeves, 2009, p. 14).

Hord and Sommers (2008) also noted how in the past, PLCs were viewed as a passing fad by some educators. They explained how a new idea [would] lead to a book, followed by articles and workshops and the idea capture[d] the imagination of every school district. And, although school leaders attempt[ed] to integrate the new idea into their school practices, the majority of teachers "[kept] their head down, return[ed] to their classrooms, and just ignore[d] the new idea" (Hord & Sommers, 2008, p. 2). The intended function of the PLC is to create a collective culture of improvement. As the teachers develop leadership skills and see the benefits of coaching their peers, they will become increasingly vested in improved outcomes for all. However, this is not to say

that if a school creates a PLC, the teachers will automatically become experts in instruction. Hord and Sommers (2008) stated, "professional learning communities hold a great deal of promise, [but] they will not make an impact if the same old processes of change occur in school, without important participation of the principal and other campus leaders" (Hord & Sommers, 2008, p. 5). They also explained that "staff learning together is a very new endeavor in many schools. The idea of the PLC has been translated into a wide array of definitions and descriptions, most of which miss the mark of educators in a school coming together to learn in order to become more effective so that students learn more successfully" (Hord & Sommers, 2008, p. iii). In some schools, the faculty considers the PLC as a meeting they have to attend. However, DuFour and Reeves (2015) argued, "A PLC is not simply a meeting. It is an ongoing process in which educators work collaboratively in recursive cycles of collective inquiry and action research in order to achieve better results for the students they serve" (DuFour & Reeves, 2015, p. 1).

> According to educational theory, PLCs are a growing source of professional development for school faculties who are facing challenges provided by reforms in school improvement and teacher professional development pushed toward innovations. PLCs became renowned as the answer to teacher isolation and an effective means for realizing collaborative decision-making, raising teacher satisfaction, and stimulating student achievement. (Vangrieken, Meredith, Parker, & Kyndt, 2016, p. 48)

Within the organization, "PLCs provide a platform for the growth and nourishment of intellectual ideas and an opportunity for teachers to conceptually and

pragmatically find ways to expand their teaching repertoires and refocus on student learning as central to their pedagogical decisions" (Feldman, 2016, p. 71). But, according to Kotter (2008), "the success of any organization's efforts to lead change depends upon a shared commitment by its members for the work at hand" (Kotter, 2008, p. 14). He also posited that in order to avoid failure, stakeholders must "first make sure that a sufficient number of people feel a true sense of urgency to look for an organization's critical opportunities and hazards" (Kotter, 2008, p. 14). Furthermore, Kotter (2008) cautioned that change is difficult for people.

Noonan (2014) observed how the administrators and teacher leaders at a school modeled uncertainty for others on the faculty in order to bring about learning opportunities and growth for everyone. He reported how school leaders and staff members took responsibility for what was not working and began to ask for help, because they were now acknowledging that they didn't have all the answers. Team meetings uncovered how others were struggling and making mistakes, and finally they could safely talk about it without fear of being judged and penalized. Additionally, Noonan (2014) noted:

> In reflective meetings, there is a notable absence of problem solving and a palpable sense of uncertainty. The essence of Suffolk's redesign is not to replace school leaders, but to reinvest in their learning and to help them catalyze the learning of other adults in their schools. (p. 149)

In order to properly address the areas of growth among PLC members, the team engaged in an ongoing process of communicating honestly and openly with their colleagues to

figure out "what's underneath the problem, instead of being quick to try to solve it" (Noonan, 2014, p. 150).

Ning et al. (2015) found that "the effectiveness of teacher learning teams relies mainly on team members' willingness to set aside individual differences in holding appointments within the school to engage in collaborative activities and learn from one another" (Ning et al., 2015, p. 339). Existing studies have documented that team building, cooperation, combined responsibility, and mutual support are core essentials to the success of the collective members of the professional learning community in accomplishing their shared vision of increased student achievement (Ho, Lee, & Teng, 2016; Montecinos, Pino, Campos-Martinez, Dominguez, & Carreno, 2014; Ning et al., 2015; Owen, 2014; Song, 2013).

Teams can experience many disruptions when shared norms are not adhered to, and not all members share the same degree of commitment to the work. Erkens et al. (2008) stated:

> A team is part of a larger system and teacher leaders demonstrate personal regard for all stakeholders in team decisions. There can be no room for "we versus they" language. "We wouldn't have to do this if the administration just trusted us." The entire system must work together. (pp. 17-18)

In addition to helping teachers achieve professional autonomy through core practices, which increase their expertise, the collaborative nature of multifaceted PLCs allows principals and teachers to share leadership. This process not only empowers faculty, but also enables them to develop competence in a variety of areas. Consequently, they are able to make decisions based on shared knowledge gathered from evidence they have

looked at together. The decision-making process and shared leadership opportunities fostered by PLCs are made possible through the creation of a guiding coalition of grade level and content area teacher leaders in each PLC (DuFour & Reason, 2016; Song, 2013; Trust, Krutka, & Carpenter, 2016; Vangrieken et al., 2017).

According to Love (2009), "collaborative inquiry relies on every teacher becoming a change agent. When such leadership is widespread and institutionalized, with built-in mechanisms to sustain it, the result is organizational capacity" (p. 9). Love also posited that the PLC must develop the following core competencies for high capacity data use in order to improve student outcomes:

1. Leadership and facilitation skills
2. Cultural proficiency
3. Content knowledge, generic pedagogical knowledge, and pedagogical content knowledge
4. Data literacy and collaborative inquiry knowledge and skills. (p. 12)

With regard to the inquiry work of PLCs, Love (2009) maintained, the "Driving purpose for collecting data is school improvement, and schools must have a systemic process for using data effectively and collaboratively, and linking it to results in order to bring about permanent school improvement and close the achievement gap" (p. 20).

There is substantial literature describing the effectiveness of PLCs as a tool to provide job-embedded professional development to teachers. The PLC movement has not only gained momentum in the United States, but also in school districts in Australia, Brazil, Canada, China, Colombia, Malaysia, New Zealand, and other countries. Educators at every level are looking at teacher collaboration and co-creation, and the

sharing of best practices as a means for building the capacity and performance of all stakeholders in a school (Bridwell-Mitchell, 2016; Jones & Dexter, 2014; Sharkey, Olarte, & Ramirez, 2016). DuFour et al. (2008) explained:

> Teachers in a PLC are committed to: reflective dialogue based on a shared set of norms, beliefs, and values; practice that require teachers to share observe, and discuss each other's methods; collective focus on student learning fueled by a belief that all students can learn; collaboration that produces materials that improve instruction; common ground on critical educational issues and a collective focus on student learning. (p. 442)

The "new era of accountability has made school systems take an honest look at student outcomes and the conditions that guarantee higher achievement. Consequently, teachers are challenged to analyze the effectiveness of their classroom instruction" (Muhammad, 2009, p. 19). However, a shortfall to the effectiveness of a PLC is the result of some members having low expectations for some of their students, and believing that not every student can learn. Some educators will try to avoid responsibility for low student achievement by placing blame on other barriers of academic achievement, including unsupportive parents, students' unwillingness to learn, lack of school resources, and teachers' efforts being thwarted by policymakers at the district, state and national levels (Buffum, Mattos, & Weber, 2012, p. 16). Kotter (2012) contended, "in one-on-one conversations with employees, everyone readily admits there are problems. Then come the 'Buts'" (Kotter, 2012, p. 39).

According to Guggenheim and Kimball (2010) under No Child Left Behind (NCLB), the United States was supposed to reach the "goal of 100 percent proficiency in

math and reading by 2013." (p. 3). Americans believed the public education system was irreparably broken (Guggenheim & Kimball, 2010, p. 17). According to Holcomb (2004):

> Public demands for accountability are motivating increased awareness of the need to provide evidence of a school's effectiveness. Reauthorization of federal funds has emphasized the need to use proven programs and approaches and to document improvements in student achievement. (p. 53)

The shift of school districts across the nation to invest more resources into developing teachers' skills in response to NCLB has helped to better meet the needs of students and also improved student outcomes. Woodland and Mazur (2015) reported, "federal policies that stress school and teacher accountability for student achievement have resulted in systems of educator evaluation" (Woodland & Mazur, 2015, p. 6). Consequently, teachers felt pressured to meet evaluation benchmarks. In order to support the organizations, change initiatives included implementation of PLCs across schools to increase teachers' "overall capacity and build a shared culture of high quality instructional practice" (Woodland & Mazur, 2015, p. 9). But, there were drawbacks. Noonan (2014) referenced the uncertainty adult learners in schools felt about how to interact in a learning community. It was difficult for them to "shift norms of professional learning in schools," and it was not unusual for faculty to "carefully guard self-doubt lest it be misinterpreted as incompetence" (Noonan, 2014, p. 151). Woodland and Mazur (2015) attested that not all teachers had access to teams, and if "teacher teams were to improve instructional practice and enhance student learning, a significant amount of time must be allocated for teacher training" (Woodland & Mazur, 2015, p. 9). Ho et al. (2016)

discerned, “on the one hand, teachers’ learning to improve their practices can be continuously fostered through school-based PLCs, and on the other hand, school-level teacher qualifications are an important foundation for building effective school-based PLCs” (Ho et al., 2016, p. 40). Research shows that effective change through PLCs requires careful planning and an analytical look at teacher and student work in order to begin addressing the specific, transformational needs of each learning community.

The above section demonstrated how professional development of teachers in professional learning communities can influence positive change in schools. The following section will explore how to engage members of the organization to help bring about this positive change in schools.

Change Theory

Change is a major part of highly effective schools and organizations. According to Kotter (2012) “Change tends to be associated with a multistep process that creates power and motivation sufficient to overwhelm all the sources of inertia” (p. 22). He also argued, “major change is often said to be impossible unless the head of the organization is an active supporter” (Kotter, 2012, p. 6). Therefore, it is crucial for today’s school leaders to be instructional leaders who engage with their colleagues on a regular basis in order to support teachers in their endeavors to provide data driven instruction that garners high student outcomes. Kotter (2002) outlined his process of change:

> Successful large-scale change is a complex affair that happens in eight stages. The flow is this: push urgency up, put together a guiding team, create the vision and strategies, effectively communicate the strategies, remove the barriers to action, accomplish short-term wins, keep pushing for wave after wave of change

> until the work is done, and, finally, create a new culture to make new behavior stick. (Kotter, 2002, pp. 2-3)

For stage one, Kotter (2002) posited, "whether at the top of a large private enterprise or in a small group at the bottom of a nonprofit, those who are most successful at significant change begin their work by creating a sense of urgency among relevant people" (Kotter, 2002, p. 3). Teachers and administrators at schools in every state and abroad have recognized and responded to the urgent need for school reform, and have come together to "develop, test, refine, and support student learning and well-being" (Watson, Miller, Johnston, & Rutledge, 2006, p. 78). Kotter (2012) cautioned:

> The biggest mistake people make when trying to change organizations is to plunge ahead without establishing a high enough sense of urgency in fellow managers and employees. This error is fatal because transformations always fail to achieve their objectives when complacency levels are high. (p. 4)

Additionally, Kotter (2012) advised "all change efforts end up operating in multiple stages at once [but] skipping even a single step or getting too far ahead without a solid base almost always creates problems" (pp. 25-26). Moreover Kotter (2012) explained how a team's failure to do the work required in each step "doesn't create the momentum needed to overcome enormously powerful sources of inertia" (p. 27).

Kotter (2008) warned, "complacency is built on a feeling that the status quo is basically fine" (p. 23). There will be members in an organization that do not believe there is a crisis. He urged organizations to be aware how despite new opportunities, teams continue to do what they have always done. "In a fast-moving and changing world, a sleepy or steadfast contentment with the status quo can create disaster" (Kotter,

2008, p. 5). He further stressed the importance of like-minded individuals coming together in stage two to form a guiding coalition that would be "strong enough, and feel enough commitment, to guide an ambitious change initiative, even though the team members may already be overworked or overcommitted" (Kotter, 2008, p. 14). Kotter (2012) described the guiding coalition:

> the combination of trust and a common goal shared by people with the right characteristics will have the capacity to make needed change happen despite all the forces of inertia. It will have the potential to do the hard work involved in creating the necessary vision, communicating the vision widely, empowering a broad base of people to take action, ensuring credibility building short term wins, leading and managing dozens of different change projects, and anchoring the new approaches in the organization's culture. (p. 68)

Similarly, Fullan (2001) believed, "most people want to make a difference. People become connected to something deeper; the desire to contribute to a larger purpose" (Fullan, 2001, p. 52).

In Kotter's (2012) third stage of change, the process of implementing significant change includes creating and communicating a clear vision and getting rid of obstacles that stop people from acting on the vision. Kotter (2012) explained, "vision plays a key role in producing useful change by helping direct, align, and inspire actions" (Kotter, 2012, p. 8). It is vital for the success of teachers and students, as well as the survival of a productive PLC, for the school leader and the teacher members to identify the outcomes they desire and then create a plan to achieve their goals with checkpoints along the way. Kotter (2008) stated, "strong and highly committed teams orchestrate the effort to find

smart visions and strategies for dealing with a key issue, even when the best strategies are elusive" (Kotter, 2008, p. 14). Altieri et al. (2015) noted, "only a small number of programs had made significant, long-lasting changes" (Altieri et al., 2015, p. 17). They explored what might happen "if teacher candidates were prepared to negotiate difference as it exists in today's classrooms by learning to operate within collaborative communities of inclusive practice" (Altieri et al., 2015, p. 17).

As per Kotter's (2008) fourth stage of his major change process, "communication" is key to a highly functioning PLC. "High-urgency teams inherently feel a need to relentlessly communicate their visions and strategies to relevant people to obtain buy in and generate still more urgency in their organizations" (Kotter, 2008, p. 14). DuFour et al. (2006) stressed how clear communication among members of a PLC is key, and added, "the most important element in communicating is congruency between their actions and their words" (DuFour et al., 2006, pp. 14-15). Teachers in PLCs have the opportunity to discuss and communicate to the team a clear and consistent sense of purpose, collective commitments, appropriate actions to take, questions and uncertainties (DuFour & Reason, 2016; DuFour et al., 2006; Erkens et al., 2008). Erkens et al. (2008) further stated, "they define, analyze, synthesize, and evaluate their practice and beliefs, and hence create new insight and collective understanding" (Erkens et al., 2008, p. 23).

Kotter (2008) also analyzed the empowerment of teachers in the fifth stage of his leading change model, explaining, "those with a true sense of urgency empower others who are committed to making any vision a reality by removing obstacles in their paths, even if it's very difficult to remove those obstacles" (Kotter, 2008, p. 14). PLCs are

empowering because they can provide teachers with mentoring opportunities, emotional and professional support, a deeper understanding of content and data, recommendations for how, and why to implement new, or improved instructional strategies in their classrooms, as well as the knowledge base to make decisions toward their shared goals. Through collective learning and sharing of resources, teachers also recognize and appreciate the impact of their work, and that of their colleagues on student results (Hodge & Benko, 2014; Israel, Kamman, McCray, & Sindelar, 2014; Sanfelippo & Sinanis, 2016).

In the sixth stage, Kotter (2002) recognized that major change takes time, and it is important to generate short-term wins to keep the momentum going and the team engaged in the work to achieve the organization's vision. The substantial research on PLCs demonstrates that teamwork is a process, with individual teachers at different levels of expertise coming together to take actions over a period of time that ensure the adults and children learn and succeed at higher levels. Marzano, Boogren, Heflebower, Kanold-McIntyre, and Pickering (2012) posited "the road to expertise starts and ends with small steps" (Marzano et al., 2012, p. 13). In reference to student growth, Walsh et al. (2014) asserted there may be "incremental improvements in student academic skills; improvements that were not yet substantial enough to be detectable on the tests" (Walsh et al., 2014, p. 729). The results may be modest, but to avoid "the constant push for better results [from] turn[ing] into drudgery, it is imperative incremental progress be noted and honored" (DuFour & Reason, 2016, p. 149). The PLC can continue to analyze data and self-reflect on their practices in order to maximize future returns. Easton (2011) stated "once a specific intervention is identified it must be thoroughly implemented if a

school is to expect it to impact student achievement" (Easton, 2011, p. 163). She described how some interventions might be considered "marginally effective when the intervention was improperly or only partially implemented" (Easton, 2011, p. 163). By revisiting and revising the intervention, the team will get better results, which they can acknowledge and celebrate before continuing the inquiry process.

In Kotter's (2012) stage six of major change, he warned, "irrational and political resistance to change never fully dissipates" (Kotter, 2012, p. 138). He also stated, "resisters often sit there waiting for an opportunity to make a comeback" (Kotter, 2012, p. 139). Equally important, "the resisters actually organize the celebration, especially if they are shrewd and cynical. They rationalize that a little rest and stability won't hurt" (Kotter, 2012, p. 139). Wagner et al. (2006) averred, "Growing is hard work, made all the harder if we continue to think it is the primary province of the young" (Wagner et al., 2006, p. 223). Resisters can create chaos within the organization and undermine the work of the team. Kotter (2012) emphasized how abandoning the momentum the team has forged can result in regression for students, as well as the teachers. DuFour and Reason (2016) found, "Every school has a culture [which] defines the work of the school and shapes the way people go about doing the work" (DuFour & Reason, 2016, p. 16). Kotter (2012) advised how in order to minimize the setbacks caused by the resistors, the guiding coalition must think long term to ensure that the change they've worked to establish within the organization becomes a permanent part of the culture, which is more difficult to achieve with "increased interdependence that is created by a fast-moving environment, interconnections that make it difficult to change anything without changing everything" (Kotter, 2012, pp. 139-140). Furthermore, he discussed the importance of

"hiring, promoting, and developing people who can implement the change vision, and reinvigorate the change process with new projects, themes and change agents" (Kotter, 2012, p. 23).

In the eighth and final stage of Kotter's (2012) major change process, the new approaches of the organization become anchored. The organization created a process by which new leaders emerge to carry on the successful change. The norms and values of the group has transformed, and "culture changes only after you have successfully altered people's actions, after the new behavior produces some group benefit for a period of time, and after people see the connection between the new actions and the performance improvement" (Kotter, 2012, pp. 164-165). DuFour and Reason (2016) noted, "the culture of schooling is changing to support the idea of ongoing professional collaboration" (DuFour & Reason, 2016, p. 157). The authors noted, "if educators change the fundamental structure of their schools from isolated teachers to isolated teams, the potential of the PLC process to improve adult and student learning will significantly and unnecessarily diminish" (DuFour & Reason, 2016, p. 157). In response to expanding learning for all stakeholders, school districts and school leaders are engaging in partnerships among teachers from different schools, and arranging for teacher teams from one school to visit with, and observe best practices at a collaborating school. "Teacher leaders have four responsibilities: influencing school culture, building and maintaining a successful team, equipping other potential teacher leaders, and enhancing or improving student achievement" (Reeves, 2010, p. 73).

Kotter (2012) reported, "people who have been through difficult, painful, and not very successful change efforts often end up drawing both pessimistic and angry

conclusions. They worry that major change is not possible without carnage" (Kotter, 2012, p. 19). Teacher unions affirm that teacher attrition is on the rise because of the pressures currently placed on teachers. However, Bridwell-Mitchell and Cooc (2016) maintained that teachers who have established a supportive learning community with their colleagues have "higher job satisfaction and are less likely to leave their schools and the teaching profession" (Bridwell-Mitchell & Cooc, 2016, p. 7). Similarly, in their study, Lalor and Abawi (2014) looked at how professional learning communities support newly arrived staff in order to prevent attrition and maintain a positive working environment. Their case study focused on a school in Vietnam, where teachers benefit from PLCs in two ways: "as an emotional support network, and also a way to increase professional expertise" (Lalor & Abawi, 2014, p. 76). The researchers maintained, "in an international school context, where changing personnel are a constant reality, creating a culture of professionalism, care and belonging is central to teachers being supported and a part of a wider purpose and direction" (Lalor & Abawi, 2014, p. 78).

The previous section discussed Kotter's 8 stages of change and the importance of having a guiding coalition willing to support and work toward accomplishing the school's vision. In the next section, the researcher discusses how student achievement is contingent on positive change in schools.

Student Achievement

According to Hayes-Jacobs (2010), the responsibility of schools is to "prepare the learners in our care for their world and their future" (Hayes-Jacobs, 2010, p. 2). Although the world has continued to change at a rapid rate and technology is increasingly infused into everyday life, some teachers have not kept up with the latest technological

advances and therefore their instruction is "restricted by 'what [they] know'" (Hayes-Jacobs, 2010, p. 7). Lalor and Abawi (2013) stressed, "when teachers are learners themselves, they are able to pass their knowledge and passion for quality learning on to their students" (Lalor & Abawi, 2013, p. 78). But, whether or not a pedagogue's instructional skills have evolved, student achievement is, nevertheless, dependent upon every teacher's ability to be open to their own new learning, as they design curricula that reflects the current world the students inhabit. Higgins (2016) asserted, "In order for students to achieve at high levels and improve their learning, consistent learning experiences for teachers are necessary" (Higgins, 2016, p. 2). Schmoker (2006) stated, "the single greatest determinant of learning is instruction" (Schmoker, 2006, p. 7).

Unfortunately, consistently low-performing schools are a national problem. "These schools are populated with concentrations of low-income children in poor neighborhoods" (Reyes & Garcia, 2014, pp. 350-351). Schools across the nation have been under increasing pressure to ensure that every child is given an equal opportunity to experience success. In 2008, various states began to work on the common core learning standards initiative to raise the standards for students and ensure that the United States could be an innovative world leader in math and science. Hayes-Jacobs (2010), a proponent of major school reform, argued:

> The majority of our schools run on the same length of school year and the same daily schedule, with the same rigid grouping of students and the same faculty organization, and fundamentally in the same type of buildings as in the late 1890s. (p. 61)

In accordance with Hayes-Jacobs' (2010) argument, Wagner et al. (2006) posited, "Our education system was never designed to deliver the kind of results we now need to equip students for today's world" (Wagner et al., 2006, p. 1). Therefore, it is not surprising that students don't see the relevance of learning content that they cannot find a way to apply in their lives. In order to maintain students' interest in their education, they have to be made to understand why they are learning certain subjects, and how having this knowledge will make their lives better, and/or provide them with access to college and future employers. School and district leaders understand that there is a "link between education and lifetime opportunity [which] is stronger than ever before" (DuFour & Fullan, 2013, p. 4). Likewise, educational leaders and policy makers are concerned that American students will fall behind students in other countries, particularly in math and science. Should this occur, it could impair the ability of the United States to successfully compete in the ever-shrinking global economy. "Among the 34-country membership of the Organization for Economic Co-operation and Development, the United States ranks 27th in math and 20th in science" (Desilver, 2015, p. 1).

Boudet, City, and Murname (2013) reasoned, "changes in the economy have dramatically reduced earnings opportunities for Americans who leave school without strong reading, writing, and math skills and the ability to use these skills to acquire new knowledge and solve new problems" (Boudet et al., 2013, p. 4). "Schools have had to undergo major change in order to bring about the improvement that will help "students pass the exams required for high school graduation, but, it is even more important that time be spent helping students develop the skills they will need after graduation" (Boudet, et al., 2013, p. 4). Besides preparing students for college, as more and more

current careers continue to become obsolete, and new ones emerge, schools are expected to help students develop the post-graduation skills that will prepare them to thrive in an ever-changing job market. Therefore, "teachers must ensure students are not simply being taught, but they are actually learning" (Vescio, Ross, & Adams, 2008, p. 81). According to Servage (2009), different "standards of professionalism are shaped by the different political, economic and social climates across schools and districts" (Servage, 2009, p. 153).

DuFour, DuFour, Brown, and Mattos (2016) found when it comes to preparing students for their future, "there is general consensus among policymakers and educators" about deeper learning. Students must be prepared to "master core academic content, think critically and solve complex problems, work collaboratively, communicate effectively, and learn how to learn" (DuFour et al., 2016, p. 139). Spires et al. (2016) declared, "Central tenets of deeper learning include real-world orientation, critical thinking, student choice, student-directed learning, collaboration, effective communication, and deep content knowledge" (Spires et al., 2016, p. 152).

Wagner et al. (2006) stated, "the industrial economy of the twentieth century needed only a very small number of college educated citizens, such as doctors and lawyers (p. 9). The authors further related how industrial well paying, blue collar jobs no longer exist, and the education system that prepared students for those jobs over a century ago, "has become obsolete, much in the way that the one-room schoolhouses became obsolete when [policy makers and educational leaders] invented [the] current factory model schools for a new economic and social era at the turn of the twentieth century" (pp. 9-10). "In order to tackle the new education challenge of teaching all students new

skills, [educational leaders] need to create systems focused on the continuous improvement of teaching, learning, and instructional leadership" (Wagner et al., 2006, p. 34).

Schmoker (1999) explained how teachers in a particular school district "decided to systematically raise overall achievement. A crucial component of their new effort was collecting data both monthly and quarterly" (Schmoker, 1999, p. 35). The results were shared with the students in order to enable them to continually improve. He professed, "Data help [teachers] to monitor and assess performance. Just as goals are an essential element of success, so data are an essential piece of working toward goals" (Schmoker, 1999, p. 35). Marsh, Bertrand, and Huguet (2015) avowed "teachers used data to alter their instructional delivery (as opposed to surface level changes in materials and topics)" (Marsh et al., 2015, p. 1). Educational leaders and researchers have found that an important tenet in student achievement is the constant monitoring of student data. Erkens et al. (2008) affirmed, "the work of teaching is far too complex and the work of learning is far too important for [teachers] to confine student achievement within the limitations of [one teacher's] personal expertise" (Erkens et al., 2008, p. 13).

As teachers become more comfortable working collaboratively and sharing best practices with their colleagues, and using social media on a regular basis, it is reasonable to assume that the PLCs will continue to evolve into an inclusive online community of learners that spans across states and countries as well. Hartnell-Young (2006) focused on 12 schools and explored how teachers used technology to create classroom communities that increase knowledge for both teachers and students. The sharing of best practices

included curriculum projects across classrooms and schools with administration supporting the PLCs through statewide technology infrastructures and funding.

Curtis and City (2009) argued, "if we care about all children, then we need to care about systems, and we need to care about strategy. We cannot expect to improve schools in our large urban districts, without deliberate and concerted effort" (Curtis & City, 2009, p. 4). Furthermore, "In systems that are improving results for students, everyone works hard. They have an idea of how an action might lead to a particular result, and they adjust according to new information" (Curtis & City, 2009, p. 4). Erkens et al. (2008) also found it is necessary for teachers to come together as "peers in meaningful and even challenging collaboration in order to address the needs of [their] learners" (Erkens et al., p. 13).

This section presented literature about ways of improving schools to impact student achievement. The next section explores how teacher collaboration is a key element of the school improvement process.

Collaboration

The success of a school's educational program is by and large dependent upon the number of students who meet and exceed the national and state standards. Substantial research explains how teachers will be better able to guide their students to greater academic and personal achievement by collaborating with one another, and taking responsibility for supporting one another through shared professional development activities. Studies on teacher collaboration have found that "actively engaging teachers in PLCs will increase their professional knowledge and enhance student learning" (Vescio et al., 2007, p. 81). "To demonstrate results, PLCs must be able to articulate

their outcomes in terms of data that indicate changed teacher practices and improved student learning" (Vescio et al., 2007, p. 82).

Many scholars in the field of education agree that collaboration is a main contributor to the effectiveness of professional learning communities in helping to transform teacher practice in order to increase student achievement (Hallam et al., 2015; Taylor, Hallam, Charlton, & Wall, 2014; Woodland, 2016). Riveros et al. (2012) stated, "peer collaboration has the potential of transforming practices in ways that will bring about higher rates of student achievement" (Riveros et al., 2012, p. 204).

In response to the increasing demand for school improvement and teacher accountability, many schools all over the nation and abroad have made teacher collaboration an essential component of school reform. According to Ning et al. (2015, p. 339) "authentic collegial relationships between teachers can indeed foster teacher and curriculum development." Because teachers have to develop curricula that fit the needs of their diverse learners, they must assess the learning styles of each student, as well as their levels of content knowledge. Only then, can they begin to address the deficit areas of their students, while also challenging all learners to go above and beyond their current levels of competence. DuFour et al. (2016) explained, "if educators are to help students acquire deeper knowledge and skills, they must create assessments that provide timely information on each student's proficiency" (DuFour et al., 2016, p. 139). The authors posited that in order to create common assessments, "educators must learn together" (DuFour et al., 2016, p. 139).

"Teacher leaders across North America are assuming four critical roles in their classrooms and with their learning communities: collaborator, action researcher,

reflective practitioner, and learner advocate" (Erkens et al., 2008, p. 12). Studies have concluded that whenever teachers come together to analyze student assessment data and make informed decisions about how to improve the learning of their collective students, as well as their own classroom practices, schools will have improved achievement gains (Dougherty-Stahl, 2015; Gonzalez, Deal, & Skultety, 2016; Macia & Garcia, 2016; Ronfeldt, Farmer, & McQueen, 2015; Taylor et al., 2014). DuFour et al. (2008) reported that it is important for teachers to work collaboratively to learn the most effective ways to look at student data in order to piece together a narrative about the child's strengths as well as the areas where he needs to improve. Administrators and their faculty, however, should proceed with caution. Collaboration entails more than simply putting together a team of educators who happen to be free at the same period and giving them the task of fixing whatever ills the school is facing. To emphasize the need for purposeful team structures in schools, DuFour and DuFour (2012) asserted:

> The work of collaborative teams must revolve around four critical questions:
>
> 1. What is it we want our students to learn?
> 2. How will we know if they are learning?
> 3. How will we respond when individual students do not learn?
> 4. How will we enrich and extend the learning for students who are proficient?
>
> An effective collaborative team structure will enable each member to contribute to the collective inquiry into these questions and to a shared goal of improving student achievement. (p. 16)

In a separate study, Magalhaes (2016) declared:

> Collaborating means creating trusting and respectful relations in which each participant intentionally acts to mutually and inter-dependently listen to the other and ask problematic questions in order to: comprehend the other's senses, share reasoning, be willing to expand others' and their own understanding, raise doubts, pose challenges and make suggestions, ask for clarification disagree, review or complement ideas previously explained, describe experiences as a means to relate to others. In short, the emphasis is on producing shared meanings, which might not have been possible without peers' participation and support. (Magalhaes, 2016, pp. 42-43)

In China, teachers have been collaborating since the 1950s in teaching and research groups (TRGs). "In 1957, the Chinese government required all secondary schools to establish TRGs in all subjects for the purpose of studying and improving instructional methods" (Wang et al., 2016, p. 2). Teacher collaboration in TRGs entails "joint lesson planning, lesson study, assessment design, lesson competitions, peer lesson observation and critique, mentorship or peer coaching, and short-term training by outside experts" (Wang et al, 2016, p. 2). Wang et al. (2016) further explained, "From this perspective, the key to improving teaching is to foster school-wide professional learning communities (PLCs) to support classroom instruction" (Wang et al., 2016, p. 2). Hadar and Brody, 2016, stated:

> Collaboration is considered to be an effective platform for educators to engage in meaningful talk. This talk enables a shift of focus from achievement as an end product to viewing student learning as a form of communication that provides insight into students' understanding, efforts, and challenges. This shift directly

informs the educator's practice, and in turn becomes the basis for further sharing. (Hadar & Brody, 2016, p. 103)

Mattos et al. (2016) expressed how highly effective teacher teams, or PLCs, have worked collaboratively by grade level and/or content areas to create rigorous curriculum and instructional practices that have led to improved student achievement and the positive transformation of their schools. According to Jones and Thessin (2015), "Educators aim to form a cohesive and collaborative unit, determine the forces for improving student learning outcomes, and establish goals to guide this work" (Jones & Thessin, 2015, p. 193). Stosich (2016) pointed out, "These increased expectations for students require commensurate increases in the knowledge and skills of teachers" (Stosich, 2016, p. 43).

In his second stage of change, Kotter (2012) expressed how ongoing sharing helps to reshape the team's collective vision as necessary. As certain areas of the organization's vision are realized, the guiding coalition continues to work together to undertake other necessary changes. Mattos et al. (2016) posited, "The fundamental structure of the school becomes the collaborative team in which members work interdependently to achieve common goals for which all members are mutually accountable" (Mattos et al., 2016, p. 8).

According to Murugaiah, Ming, Azman, and Nambiar (2013), collaboration is perhaps the most useful component of PLCs to ensure professional growth among the members. The authors explored how teacher collaboration, not only allows pedagogues to meet their professional needs, but also enables them to share their experiences with peers in a safe, non-evaluative place. Murugaiah et al. (2013) also investigated how online communities are gaining popularity. "Communities of Practice (COPs) have

undergone massive transformation with the advent of web technologies" (Murugaiah, 2013, p. 33). Their study added a new layer to teacher collaboration and PLCs by identifying the increasing trend of joining online teacher professional development groups, or teams. Online professional development started informally with the wiki spaces that many school communities created as a way to share best practices online when they were unable to find time to meet with their colleagues throughout their day.

The successful transformation of schools depends on recurring professional development and the support of teacher collaboration by administrators. According to DuFour et al. (2008), "Principals have been urged by their professional organizations to focus their efforts on developing their schools as professional learning communities" (DuFour et al., 2008, p. 77). It is important for school leaders to provide teachers with both the time during their workday to collaborate, and guidelines for efficiently completing their work. Job embedded support to build teacher capacity will ensure that students achieve at higher levels, as teachers collectively learn more effective ways of delivering their content to meet the individual needs of each child (Girvan, Conneely, & Tangney, 2016; Jones & Thessin, 2015; Stosich, 2016). However, although teacher collaboration through professional learning communities has been part of many school districts' improvement plans for more than a decade, some schools continue to struggle and their students continue to fail. Higgins (2016) asserted:

> For the work of professional learning communities to be successful, educators need supports in place in order for reform efforts to take place. Professional learning communities require supportive practices that incorporate strong school leadership, collaboration, and shared practices. Principals can assist in guiding

> the way through presentation of research, encouraging research among teachers and providing time for teachers to investigate this type of reform. (Higgins, 2016, p. 4)

Woodland and Mazur (2015) observed:

> In addition to lack of time, poor team processes also undermine improvement. Too often, PLC time ends up looking like "collaboration" and is devoid of the sophisticated discourse necessary for instructional improvement. Teachers may avoid issues of pedagogical importance, and team time may "deteriorate into inappropriate nit picking or trash talking." There are few powerful federal or state-level policy proponents or mandates related to the enactment of structures that support PLCs, and teachers may not be held accountable for team performance or the impact of their PLC work on student learning. (p. 10)

Summary

The review of the literature for this study illustrated how PLCs have influenced teacher and student development. The literature provided insight into the introduction of PLCs in schools as part of the professional development menu, as well as the ways PLCs have increasingly become part of a teacher's day in order to enhance his or her pedagogy and increase student achievement over the last decade. Kotter's (2012) 8-step change process provides a framework for how members of a professional learning community can work as a coalition to bring about positive school transformation through the empowerment of "employees who want to help implement the vision" (p. 32). In Chapter Three, the researcher gives an account of the methodology, research design, sample study, data collection, and data analysis undertaken for this study.

CHAPTER THREE

METHODOLOGY

Introduction

Chapter Three presents the process and procedures of conducting the research study, including the purpose of the study, research design, methodology, participants, data collection, analysis of data, study timeline, and procedures for maintaining the integrity of the study.

The purpose of this qualitative study is to explore how the implementation of the professional development (PD) provided to English Language Arts (ELA) and math middle school teachers in professional learning communities in two high needs, under resourced districts enabled teachers to create the guiding coalition to bring about change that affects teacher practice and helps improve student achievement. A qualitative analysis was conducted through interviewing school principals and teachers at two middle schools in high-needs, under resourced districts about the effectiveness of professional development in ELA and math. A protocol was used to observe teachers and take field notes during their PLC meetings. The researcher also conducted a document review to analyze how the schools and the students performed over the previous 3 years, and help determine in what ways professional development through PLCs has impacted student achievement. The study sought to answer three research questions.

Research Questions

1. How does the professional development provided to teachers of ELA and math, improve teacher practice and student outcomes?
2. How was the professional development designed and implemented at the middle school level in the NYCDOE?
3. How does the role of teachers, as interdependent learners and experts in PLCs, create a collective culture of improvement?

Research Design

The research design for this study is a phenomenological, qualitative research to investigate middle school principals' and teachers' views on how professional development through PLCs impacts pedagogy and student outcomes. The qualitative study was patterned as one-on-one interviews conducted with the study participants in order to gain a more profound understanding about their experiences, "unconstrained by any perspectives of the researcher or past research findings" (Creswell, 2012, p. 218). Creswell (2012) maintained, "in qualitative research, you collect data to learn from the participants in the study" (p. 17).

While the main data collection resulted from one-on-one interviews, the qualitative study utilized different approaches to collecting data. The researcher initially observed participants in their PLC meetings to gain an understanding about how their interactions and activities provided targeted PD for the teacher members. During the PLC meetings, the researcher used an observation protocol to "record as field notes the useful things learned in discussions" (Vogt, Gardner, & Haeffele, 2012, p. 40). A

subsequent document review bolstered the evidence from the interviews and supported what the teachers and principals had said during their interviews.

By using a qualitative phenomenological research design, the researcher was able to personally interact with the participants to obtain a firsthand account about their lived experiences. The use of open-ended and thoughtful questions during face-to-face discussions also allowed for the interviewer to seek clarification to answers, increasing the possibility of oral communication being "less prone to misunderstanding or deception than written communication" (Creswell, 2012, p. 42). Larsson and Holmstrom (2007) posited phenomenological design is "concerned with understanding the meaning that people give to their everyday experiences" (Larsson & Holmstrom, 2007, p. 59). Moreover, "descriptions of people's lived experience of the phenomenon are used to avoid the risk of the researcher's subjective bias" (Larsson & Holmstrom, 2007, p. 59).

The participants were identified as school principals and teachers who lived the experience of professional development (PD) through professional learning communities (PLCs), the phenomena central to this research. The researcher "collect[ed] data in the field at the site where participants experience the issue or problem under study" (Creswell, 2014, p. 185). Furthermore, the participants' "description culminates in the essence of the experiences for several individuals who have all experienced the phenomenon" (Creswell, 2014, p. 14).

Sample and Sampling Procedures

In this non-probability sampling, the researcher targeted middle school principals and teachers of ELA and math in NYCDOE, who are members of professional learning communities. Teachers and principals at two different middle schools in a high-needs

underserved and under resourced, urban area were selected to participate in the study. Because the focus group for the study was limited to principals and teachers of ELA and math who had already been assigned to their specific professional learning communities, participants' size was restricted to available candidates that fit certain criteria. "Only a convenience sample [was] possible because the investigator must use naturally formed groups" (Creswell, 2014, p. 168). The sampling design was single stage. The sampling was also purposeful as "the researcher makes a deliberate selection of individual participants because he or she judges that they have important or relevant information for the study" (Alemu, 2016, p. 48).

The researcher contacted 12 principals to invite them to participate in the study. Of those who were contacted, only five responded, and expressed interest. After an initial conversation to explain the purpose of the study, four principals agreed to participate in the study. After visiting two schools to interview the principals, they declined further communication with the researcher, and the other three principals did not return phone calls. Additional contact was made with other school principals via email, out of which four principals expressed interest. Two principals ultimately agreed to be interviewed for the study, after being informed about the study and its purpose. After a one-on-one interview, each of the principals accompanied the researcher to a PLC meeting, where a total of 12 teachers were observed as they engaged with one another during professional development activities in their PLCs. Of the 12 teachers who engaged in PD provided through PLCs, 7 agreed to participate in the research study; three from school A, and 4 from school B. The two principals from the schools in the study provided background information about the schools' professional development processes.

While the selection of participants was not random because the study only involved the participation of the ELA and math teachers, the sample was diverse. Participants were either principals or teachers, and all were members of a PLC.

Instrumentation

The researcher collected data through the use of two instruments. Face-to-face interviews and observation were used to explore the views and experiences of the study participants (Creswell, 2012, p. 130) relative to how PD in PLCs affects teacher practice and student outcomes. The structured interview protocol found in Appendices E and F was utilized as the main data collection instrument to obtain the narratives of middle school principals, and ELA and math teachers. "Interviews elucidate subjectively lived experiences and viewpoints from the respondents' perspective" (Tracy, 2013, p. 132). Prior to the interviews, the researcher used an observation protocol found in Appendix G to take field notes of a PLC meeting at each study site in which participants analyzed student work and exchanged ideas about instructional practices to help address the academic needs of shared students. According to Alemu (2016), "qualitative researchers spend a considerable amount of time with research participants" (p. 113). The author also explained how "some studies more than others require the researcher to be fluent in his or her understanding of the culture or the context in which the study is conducted to minimize a possible misinterpretation of data" (Alemu, 2016, p. 113). The researcher also conducted a document review in order to find a comparability between the data collected via interviews and observations, and hard data provided by city and state officials.

For the one-on-one interviews, the researcher created an interview protocol, aligned to the research questions, using some of the components of Creswell's (2014) interview protocol (Creswell, 2014, p. 194). Qualitative interviews involve generally open-ended questions that are few in number and intended to elicit views and opinions from the participants" (Creswell, 2014, p. 194). The six questions in the principals' interview, and the seven questions in the teachers' interview were open-ended, and were aligned to the three research questions of the study. The interview questions were designed to garner ideas and information from the participants about the experienced phenomenon (Creswell, 2012, p. 128), and were asked of each participant in the same way. The research questions were piloted with a diverse group of public school principals and teachers at the NYCDOE, who provided feedback on the overall effectiveness of the interview design to collect the necessary data on teacher collaboration in PLCs. These administrators and teachers were members of PLCs at their respective schools, and had a clear understanding of what the instrument was supposed to measure. Based on the feedback, the necessary changes to the interview instruments were made, thereby ensuring research validity and reliability. According to Alemu (2016), "Research should be free from measurement error. A research instrument should give consistent results if repeated in the same manner and similar context" (Alemu, 2016, pp. 52-53). Furthermore, "An instrument or a test is valid if it measures what it is supposed to measure" (Alemu, 2016, p. 54).

After interviewing the principals, but prior to the teacher interviews, the researcher observed participants at each site as they gathered for their regularly scheduled team meetings to discuss teacher and student work and next steps. The researcher used a

modified version of an observation protocol, the professional learning community observation guide (PLCOG), to take field notes during the observation of PLC meetings. The researcher had previously contacted the author of the PLCOG, and subsequently received written permission to use and modify the original, unpublished version, which was accessed from the North Cascades and Olympic Science Partnership (n.d.) website (Appendices N & I). The instrument was aligned to the research questions and was divided into 4 sections, each of which was identified by core beliefs of school improvement efforts, including (a) shared vision, (b) collaborative culture,(c) focus on learning, and (d) results orientation. Each section consisted of an indicator, as the umbrella for approximately six optimal PLC practices, aligned to each core belief. The protocol was also piloted with a diverse group of public school principals and teachers at the NYCDOE, who as members of PLCs were able to provide feedback about its effectiveness to guide observations. By using this rubric, with ample space on which to record specific evidence observed, the researcher was able to take in-depth field notes, and record the level of engagement and collaboration as participants carried out a series of structures and processes during their teacher team meetings. All observations and interviews were carried out during the school day.

Professional Learning Community Observation Guide

As part of a grant for a pilot program, educational internal evaluator for the Math-Science partnership project of the North Cascades and Olympic Science Partnership, Daniel M. Hanley, Ph.D. (2006) of Western Washington University, created the Professional Learning Community Observation Guide (PLCOG), an observation protocol, to help teacher leaders develop effective professional learning communities at

their schools, where none had previously existed (see Appendix G). The project lasted from 2004 through 2010, and included 160 K-12 schools in the region, that previously had not had PLCs. After engaging teacher leaders for three years of ongoing professional development in their content area, leadership skills, and how to work with a team of teachers, the partnership expanded its pilot. It worked closely with the teacher leaders to develop collaborative practices and content knowledge among their colleagues within their own schools in order to help improve teacher practice and increase student achievement. Hanley created the PLCOG, which is based on the work of Garmston and Wellman (2016) around common vision, collaboration, and reflection. During a telephone interview, from his Western Washington University office, Hanley (2006) stated how he:

> operationalized the researchers' work into a framework with those three areas, with measures of questions for each of those areas. Then, we used it to gauge the quality of the PLCs themselves, and teachers used it as a self-assessment tool every year to monitor the quality of the collaboration, and of the PLCs. We validated it through our own observations of the PLC using the same rubric" (personal communication, May 2, 2017).

The PLCOG enabled teachers and administrators to collect data about teacher practice. As a result of the data collected through the use of this tool, administrators and faculty were able to engage in conversations about how to create an action plan that would subsequently enable them to carry out data-driven instruction to increase adult and student learning. Through their website, The North Cascades and Olympic Science

Partnership provides educators with the PLCOP and other research-based instructional resources that support teacher teams in working more effectively.

Data Collection

After the researcher completed all IRB procedures, she secured permission from the NYCDOE to conduct research for the on-site study. Once the study was approved, principals were notified about the study and its purpose. Invitations to participate in the study were sent to them via certified and regular mail, as well as through their official New York City Department of Education school email. Subsequent to the email contact to secure permission to interview principals and their teachers, and observe PLC meetings at the school, the researcher followed up via telephone to request an appointment to visit the sites. In addition, the researcher requested permission from the principal and the teachers, in writing, to audio-record interviews and professional development sessions in their professional learning community meetings (Appendices C & D).

Although, the description of the study and its purpose, were included in the introductory email, the researcher again explained the study and its purpose upon meeting with the study participants in person (see Appendices H & I). After the researcher visited the schools to interview each principal, the researcher accompanied the principal to meet the teachers and observe a PLC meeting. The PLC observation allowed the researcher to get a better understanding of the specific supports teachers provided to one another that enabled them to improve overall teacher practice and student achievement. Before the PLC meeting began, the principals introduced the researcher, and teachers introduced themselves and identified their content areas. The researcher explained the purpose of

the research and the reason for observing their meeting. During the PLC meetings, the researcher then took notes, using the PLCOG. At the conclusion of the meeting, the researcher addressed the ELA and math teachers, again explained the research and its purpose, and offered to answer any questions they had. After securing the contact information of the interested teachers, some tentative appointments were made for the researcher to return to the school to interview them. Within one day of the initial contact, an email was sent to each ELA and math teacher who had expressed interest in participating in the study, and a follow-up email was sent within another week. After receiving confirmation from teachers who wanted to be part of the study, all final appointments were confirmed, and consent forms were provided to all participants in the study. To protect the confidentiality of all participants, pseudonyms were assigned. The schools were referred to as "School A" and "School B," and participants were referred to as "P1A, P2B," etc. There was no identifiable information included in the study.

Participants were informed of their right to opt out at any time during the study. The researcher returned to the schools for the interviews with the participants, which were audio recorded. Prior to the interviews, the researcher asked participants for background information, such as years of service, level of education, and number of years participating in a PLC. In addition to the previous interviews with two principals, one-on-one qualitative interviews were also conducted with seven New York State-certified middle school teachers of ELA and math who are members of their schools' professional learning communities; three at School A, and four at School B. Open-ended questions developed by the researcher, and based on some components of Creswell's (2014) interview protocol, were used to collect data. Interview times ranged from half hour to

one hour, to allow participants to elaborate on their answers. After the interviews, the researcher thanked the participants for their cooperation. As part of the researcher's effort to maintain the confidentiality of the participants, all audio-recorded interviews were transcribed using an online computer program, "TranscribeMe.com" Data was kept on a password-protected personal computer, which is being stored in a locked cabinet in a locked, secure home office. Audio-recordings and written hard copies of the documents will continue to be stored in a file cabinet, under lock and key in the researcher's home office for 3 years, at which time they will be erased, shredded, and/or properly discarded.

The four participants from School A, and the 5 participants from School B, both of which are located in a high-needs, underserved, under resourced, urban district, were asked to share with the researcher qualitative documents, such as artifacts from their meetings, as well as materials pertaining to their curriculum and instruction. The school's ELA and math standardized test scores for the previous 3 years were reviewed. The most recent Quality Review reports were also reviewed. The researcher wanted to bolster the evidence from the interview, and the document review helped support what the principals and teachers had stated during their interviews.

Data Analysis

Audio recordings of the interviews and PLC observations were transcribed using "TranscribeMe.com," a computer-generated program. Interview transcripts were sent to the study participants to check for accuracy. The researcher then reviewed the transcribed interviews and field notes using "Eight Steps in the Coding Process" by Tesch (1990) to "abbreviate topics as codes [and] assemble the data material belonging to each category in one place" (Creswell, 2014, p. 198). The researcher analyzed and

studied the transcripts, identifying, and categorizing patterns, phrases, and similar and recurring ideas, which were discussed by the participants during the one-on-one interviews, as well as the PLC observations. These emerging themes and ideas were aligned to the research questions and the literature review. NVivo Pro 11 (Edhlund & McDougall (2016), for Mac software, was utilized to store these data, and to code and catalogue the data according to emerging themes. According to Creswell (2014), a way to think about codes is "on topics that readers would expect to find, based on the past literature" (p. 198).

Data was kept secure on a password-protected computer, which was stored along with USB drives and audio-recordings in a locked cabinet in the researcher's locked, home office. A copy of the Informed Consent Form, explaining confidentiality was given to each participant, and the original consent form will continue to be stored in a locked cabinet in the researcher's locked, home office (see Appendices C & D).

Triangulation, or using multiple sources of data, and crosschecking these data was utilized to ensure validity based on:

1. Principal and teacher interviews
2. Data collected at PLC meetings using the professional learning community observation protocol
3. Document review of standardized ELA and math test scores from the previous 3 years, and the School Quality Review for 2014-15 and 2015-16

Data will be destroyed and deleted from the researcher's USB hard drive three years after the research is completed.

Researcher Bias

The researcher, with a teaching background in foreign language and English as a second language, gathered data as the participants engaged in their normal, daily routines within the context of adult teaching and learning. Full disclosure of the researcher's background was provided to participants, and despite being an educator, the researcher did not interfere with the roles of the participants, nor provide input. Creswell (2014) noted the importance of an individual's need to self-assess in the researcher's role when conducting a qualitative study. He stated, "inquirers explicitly should identify reflexively their biases, values, and personal background, such as gender, history, culture, and socioeconomic status (SES) that shape their interpretations formed during a study" (p. 187).

Throughout the study, the researcher continually self-assessed, in order to remain objective while interviewing the participants, and disseminating the data. As a member and facilitator of PLCs from fall 2003 through 2015, the researcher has worked with high-functioning teacher teams, as well as struggling teacher teams. Every effort was made to allow the participants to demonstrate how PLCs have affected their practice and their students' academic performance, without inserting the researcher's own views on the PLC process as a form of professional development. The interview questions were open-ended, and the researcher used the same questioning format with each participant, allowing for detailed responses without interruption. The researcher also triangulated the data, "using more than one method to study the same thing" (Vogt & Johnson, 2011, p. 404).

Validity

According to Vogt and Johnson (2011), validity is "the quality, accuracy, intersubjective agreement/approval, or truth value of or about some 'object' of discussion" (p. 415). Tracy (2013) explained that, "reliability refers to the stability and consistency of a researcher, research tool, or method over time" (228). Creswell (2014) reported how the researcher can incorporate validity strategies to check for accuracy of findings, and qualitative reliability by also "check[ing] to determine if their approaches are reliable (consistent or stable)" (Creswell, 2014, pp. 201-203).

To ensure validity of the study, the researcher piloted the interview protocol, and the PLC observation protocol with teachers and principals who were not part of the study. Creswell (2014) supported field-testing as "important to establish the content validity, and to improve questions" (Creswell, 2014, p. 161). After the researcher made adjustments to the instruments based on the feedback received, the instruments were used with the study participants. According to Creswell (2012), "validity evidence can be assembled through interviews of the participants to report what they experienced or were thinking" (Creswell, 2012, p. 162).

Reliability

Reliability was guaranteed through the uniform use of open-ended questions that enabled each participant to provide in-depth information, as well as to share more details about experiences in PLCs and the classroom. The interviews yielded consistent outcomes in terms of the participants' elaboration on their perceptions of the ways in which professional development in professional learning communities affected teacher practice and student achievement. The PLC Observation Guide, a low inference

observation protocol, also yielded consistent outcomes of the observed interactions of study participants within their PLCs. Throughout the interview process, the researcher checked transcripts for mistakes. In order to ensure both validity and reliability, and enhance data accuracy, after the audiotaped data were transcribed and reviewed, the participants were then asked to member-check their interview responses by email. Vogt and Johnson (2011) stated how this procedure is "done with interview summaries to make sure they correctly represented what their informants told them" (p. 228). This method also revealed that data remained consistent. The researcher used NVivo to sort and describe the data from the interview transcripts, and review codes on an ongoing basis to further ensure reliability and consistency. To support the validity of the study, all participants' accounts were grounded in data and reported without research bias. The study participants varied in terms of the grade levels they teach, the schools and students they serve, the PLCs within which they collaborate, their roles within the PLCs, and their students' results. They brought to the study different points of view and levels of expertise and experiences, and their verbatim accounts are reported in Chapter Four.

Finally, triangulation of the data, including crosschecking data from audio-recorded interviews, observations, and document reviews was utilized to provide evidence that validates the research by explaining how PLCs affect teacher practice and student achievement. Vogt et al. (2012) posited, "Traditionally, triangulation is expected to lead to confirmation of findings from several different methods, thereby conferring more validity upon your results" (Vogt et al., 2012, p. 111). Creswell (2014) expressed, "triangulate different data sources of information by examining evidence from the sources and using it to build a coherent justification for themes" (Creswell, 2014, p. 201).

The triangulation of data from these instruments (interview protocol, the PLC observation protocol, and the document review) further augmented the validity in that they all measured what they were intended to measure; teachers' lived experience as members of a professional learning community who engaged in different types of collaborative professional development with their colleagues.

Summary

This research study investigated how professional learning communities have evolved into a widely-used form of professional development over the past 3 years, both in the districts being studied as well as the districts described in the literature, to continue to support the instructional practices of the PLCs collaborative members. Participants were given the opportunity to reflect on the effectiveness of PLCs as a learning and professional development tool, which allowed them to engage in a process that yields immediate, non-evaluative, and corrective feedback. The two high-needs, urban school districts, like all NYCDOE districts, requires its teachers to engage in teacher teams, which focus on assessing teacher practice and student outcomes, and comprehending the connection between the two. This research study delved more specifically into how school leaders in these two high-needs urban school districts are using PLCs to help support its middle school teachers of ELA and math to improve student outcomes.

Chapter Three of this study provided insight on the research design, sampling procedures, instrumentation, data collection and analysis, researcher bias, and validity and reliability. In Chapter Four, the researcher shares the qualitative findings of the research study.

CHAPTER FOUR

FINDINGS

The purpose of this chapter is to present the detailed analysis of the data collected through interviews with NYCDOE principals and teachers, observations of professional learning communities, and a document review. This chapter is organized around the three research questions, relative to the themes that emerged from the participants' responses during the interviews, and PLC observations. The findings are organized in relation to each of the research questions.

This qualitative study explores how the implementation of the professional development (PD) provided to English Language Arts (ELA) and math middle school teachers in professional learning communities in two high needs, underserved, under resourced districts enabled teachers to create the guiding coalition to bring about change that affects teacher practice and helps improve student achievement. This study was conducted by interviewing school principals and teachers at two middle schools about the effectiveness of professional development in ELA and math. Additionally, a protocol was used to observe teachers and take field notes during their PLC meetings. The researcher also reviewed two documents to analyze how the schools and the students performed over the previous 3 years, to determine in what ways professional development through PLCs has impacted student achievement.

Research Questions

The following research questions provide the framework for the study of ELA and math middle school teachers who participate in PLCs as a major source of their professional development:

1. How does the professional development provided to teachers of ELA and math improve teacher practice and student outcomes?
2. How was the professional development designed and implemented at the middle school level in the NYCDOE?
3. How does the role of teachers, as interdependent learners and experts in PLCs, create a collective culture of improvement?

Description of Study Participants

Research, including one-on-one interviews, observations and document reviews for this study were conducted at two middle schools in two high needs, under resourced districts in NYCDOE. In this non-probability sampling, two principals and seven teachers were interviewed about their lived experiences in PLCs. During the interviews, participants described their specific experiences as members of a professional learning community (PLC) with a common vision of improving their pedagogical skills, so that students could achieve their highest academic potential. The pertinent information about each principal and each teacher participant are illustrated in Tables 1 and 2. Seven of the participants were middle school teachers from the English language arts (ELA) and math, who regularly interacted with their teams in professional learning communities. They responded to seven interview questions about adult and student learning. Additionally, two principals answered six interview questions, providing information about the

schools' professional development (PD) processes for teachers. The following tables provide background information about the participants, their assigned pseudonyms, dates interviewed, years of service to children in their current capacity, the grade level and content area they teach, and the schools' rating according to the most recent quality review.

Table 1

Middle School Teachers PLC Members Participant Information

Pseudonym Assigned to Teacher Participant	Date of Interview	Teaching Experience	Grade Level	Content Area
School A:				
1A	5/1/17	5 years	8	Math
2A	5/2/17	4 years	6	ELA
3A	5/4/17	6 years	7	Math
School B:				
1B	5/9/17	10 years	7	Math
2B	5/9/17	5 years	8	Math
3B	5/9/17	11 years	6	Math
4B	5/9/17	16 years	6,7,8	ELA

Table 2

Middle School Principals Participant Information

Pseudonym Assigned to Principal Participant	Date of Interview	Supervisory Experience	Quality Review 2014-15, 2015-16
School A:			
Principal 1A	4/6/17	4 years	4 Proficient Areas 1 Developing Area: Professional Collaboration
School B:			
Principal 2B	4/26/17	10 years	4 Proficient Areas 1 Well Developed Area: Common Core Aligned Curricula and Learning Tasks

The research participants included middle school teachers of ELA and math, who were members of professional learning communities, as well as their school leaders. This was done in order to provide the point of view from the context of the faculty who engage in professional development through PLCs. Teachers and principals at two different New York City Department of Education (NYCDOE) middle schools in a high-needs, underserved, and under resourced urban area participated in the study.

Ultimately, two school leaders and seven teachers agreed to participate in this study. The two principals from the schools in the study provided background information about the schools' professional development processes during interviews. The two middle school principals who agreed to participate in this research study were female. The seven teachers who agreed to participate in the study were also female, although male principals and male teachers were invited to participate in the study. All of the

teacher participants met the following criteria, which was necessary to participate in the study:

- New York State middle school teacher certification in ELA or math
- Serve students in a school located in a high-needs, underserved, and under resourced district
- Participation in school level PLCs a minimum of once a week
- Annual ratings for the last three years, according to the Danielson teacher evaluation framework (Danielson, 2007, p. 3)
- Highly Qualified status as per requirements set forth by New York State Education Department under the 2001 No Child Left Behind Act (NCLB) (NYSED, 2006)

Findings from Teachers' Responses

The findings of this study are organized based on the specific groups of respondents. The first set of findings is based on responses from teachers. The second set is based on the responses of school leaders. The third set of findings is based on the interactions of teachers in their PLCs.

The interviews took place at the participants' work sites during their contractual workday. Teacher participants were asked seven interview questions about collaborative adult learning (see interview protocol, Appendix F). For Research Question One, the participants were asked to respond to interview questions 4, 6, and 7. For Research Question Two, the study participants were asked to respond to interview questions 1 and 5. Finally, for Research Question Three, teacher participants were asked to answer interview questions 2 and 3.

Research question one. How does the professional development provided to teachers of ELA and math, improve teacher practice and student outcomes?

Teachers who were interviewed for this research study shared their perceptions of their lived experiences engaged in professional development. Research Question One corresponded to teacher interview questions 4, 6 and 7.

Research question one looked at particular types of research-based professional development that facilitated learning for teachers while simultaneously enabling them to achieve the goals they set for themselves and their students. Seven out of seven teacher participants agreed that the professional development they received and were able to integrate in their instruction helped them improve their pedagogical skills, as well as student outcomes. They were exposed to research-based professional development through their PLCs, outside workshops, visiting facilitators, administrators, and faculty from other schools with whom they intervisited.

Several common themes emerged as the participants responded to the interview questions and elaborated on their experiences as members of PLCs, learning through various models of professional development, action research, and collaboration. Three themes emerged for research question one.

Theme One: Collaboration

Theme Two: Teamwork and Support

Theme Three: Common Planning Time

The themes were generated from the perceptions of PLC members about the process of engaging together in research-based learning activities that helped them to develop their instructional capacity to carry out the school's vision. Table 3 illustrates

the teachers' responses related to the three themes which correspond with research question one. Each theme is analyzed in its own sub category relative to each research question.

Table 3

Teachers' Responses Addressing Research Question One

Number of PLC Members with a Related Response	Interview Question	Theme
7/7	4	Collaboration
6/7	6	Teamwork and Support
5/7	7	Common Planning Time

***Theme one**:* Collaboration

For the first theme, the findings show that participants see research-based professional development as useful and essential to their practice. Seven out of seven participants mentioned being involved in collaborative PD, where groups share ideas, in or out of the building, as a way to learn new strategies and improve capacity. The findings further show that seven out of seven participants agreed that the effectiveness of PD, inside and outside of school, and as a PLC, is best facilitated through collaboration.

Teacher 1A concurred that she feels supported by her peers and other experts. She stated, "I attended a PD for QTEL and learned that QTEL strategies can also be used effectively with students with disabilities." She discussed how she and her group of peers learned to create tiered lessons for mixed-ability students using the Frayer model, the S.E.E.D. chart, and interactive vocabulary to help their ELLs and their SWD. She

added, “The scaffolds helped students engage in the work, and as they gained greater understanding, I gradually decreased the scaffolds until they mastered the content.” The other participants also agreed that by being able to learn with their peers, and work together to strategize on how to apply their learning to their instruction, they can support one another’s professional growth, and their students’ learning.

Teacher 2A also related how learning new techniques from colleagues who demonstrated how to implement the new strategies provided the necessary support to foster continued development of best practices. She added,

> Last year, I learned how to implement Socratic seminars. The students were really in control, and I was observing and facilitating. The discussions were deep. It’s a great technique that can hold students and the teacher accountable for the learning, while developing an appreciation for reading complex texts and breaking it down for one another.

Teacher 3A was in accord, and shared a reflection about how engaging in a learning activity with her team supported everyone’s professional growth.

> This year, my teacher team chose the MOOC, a massive open online course. It gave us different strategies to help us perfect our craft in how to teach ELL students, which is a big focus at our school. It showed us different ways of doing something that makes a huge difference in student outcomes.

Teacher 1B responded in a consistent manner, communicating how she learned new math strategies with a team of math teachers, and then shared the practices with the members of her PLC to use in the classroom.

I went to a math PD and learned about how students explore the math concept by themselves, instead of me giving them the information. I learned how to bring the experiments into the classroom so that students can explore concepts together; discover answers by working together, and asking questions along the way. I found that hands-on activities are a very effective and efficient way for students to learn.

Teacher 2B shared the same opinion, stating,

I'm one of the participants in "Algebra for All," which meets about once a month, or every other month. We learn new techniques that we can use in order to integrate algebra into our everyday math lives. One practice that I learned, and I really, really love is re-engaging versus re-teaching. To re-engage children, one uses the student's own work. Pair a student who did it well, and a student who didn't, and let that be a discussion. You don't disclose who the students are that didn't get the correct process, but you put up the work and the students discuss why something is wrong or right, and what can be done to fix the mistakes. From the first time I implemented that technique in my class, you can see the a-ha moments, as they were able to hear from their classmates, instead of me, how to fix what's wrong. Subsequently, I would see an improvement in their work.

Teacher 3B, like her colleagues, also acknowledged the importance of collaboration, adding,

Our school is very big on intervisitations. I learned a lot from both my ELA and math colleagues. You would think we share a brain; one stops talking and the other starts bouncing ideas off of one another. From one colleague, I learned how

> to use popsicle sticks to make sure the students are paying attention, and from another, I learned how to use the smartboard to set up videos and other engaging activities. It's really powerful to see the best practices of my colleagues and be able to borrow strategies that work well with my students.

Teacher 4B was also enthusiastic about being able to collaborate with her peers in the PLC, recounting,

> We were part of the learning partners with another school that we visited in order to get ideas about what we could incorporate in our own classrooms to improve our practice. I needed to become better at questioning and discussion. My colleague and I started having discussions around what it should look like in our own classrooms, and using a technique we saw at our partner school. We began scripting the questions into our lessons. I did extra research on questioning, using the DOK chart to figure out what were relevant questions that would enhance the discussions in the classrooms at a deeper level.

The findings for theme one suggest that seven out of seven study participants were able to learn and successfully apply instructional strategies as a result of professional development and collaborating with their colleagues.

Theme two. Teamwork and Support

The second theme to emerge from the data was Teamwork and Support. From the seven participants, six PLC members agree that the support of their team members enables the individuals to encourage and guide their colleagues to learn and improve on practices, and carry out those tasks that make them better teachers. The consensus was

that teamwork and support allows teachers to observe and learn from one another, in order to grow together in their professional and instructional performance.

Teacher 1A described the supportive relationships among the PLC members, relating,

> It's important to see how students that you share are responding to strategies that other teachers are using. It may not work when I try it, but it's important to have the conversation and figure out together how to tweak my technique until I find what works. Also, it isn't only about the instructional strategies, but also how well students interact with other teachers. Together, we can figure out how to best relate to our students.

Teacher 2A agreed about the importance of nurturing supportive relationships with colleagues, adding,

> Being part of a PLC has made me realize that no one can teach in isolation. Just a conversation in the hallway sparks ideas that I didn't think about, or points of view I was not entering from. At meetings, we share something we tried that worked, or maybe, even, didn't work, and there's always feedback on how it could have worked if we tried it in a different way. Constant collaboration not only makes you a more reflective teacher, but a better teacher, because you are always collecting. We are learners; learning not only from our colleagues, but from our students, as well.

Teacher 3A concurred, and commented,

PLCs opened me to different teaching styles. There's not just one way to teach something; there are multiple ways. I believe it's important to see that there are different

ways to teach a lesson that can also be effective. Because our students are so different, it's important to learn multiple pathways to implement instruction. In our community, we encourage one another to get out of that safe zone and try different things that may work for that child that wasn't learning before.

On the other hand, Teacher 1B did not make reference to her PLC as a support system. Instead, she spoke about PD, stating, "Sometimes, outside PD doesn't relate to my students, even though I can modify it." However, Teacher 2B elaborated on the ways in which receiving support from her team has enabled her to help her students and her colleagues grow. She reported,

> We did a book study, because we wanted to improve student engagement. We decided to do it through the lens of questioning and discussion. We read a book that gave us real world examples, and we created questioning templates and rubrics, and it went really well. Then, another teacher and I turnkeyed it to the math team. Other teachers trained their departments, and you then saw the strategies being used in science, social studies; all across curriculum. Everyone was adding to the strategies, and the students took it and ran with it.

Teacher 3B concurred that, "Having someone by your side gives you that comfort. It makes you feel like you can do this. It just helps me know that I need to increase my own expectations about myself."

Teacher 4B also believed supporting all team members is essential to being able to carry out instructional responsibilities effectively, relating,

> You're able to learn on your own, but when you do it together, you get more out of it. You see different perspectives. You're able to grow together, and it's essential to always have that support as you grow. Growing together is key.

Overall, the findings for theme two show that six out of seven of the study participants credit teamwork and support as a central element for ensuring that teachers improve their practice, including classroom management, communication with students, and instruction.

Theme three. Common Planning

The findings show that five out of the seven participants interviewed, agreed that being able to meet with colleagues to plan and strategize had a profound effect on teacher practice. PLC members believe that being given adequate common planning time within their work day to work together to look at student and teacher data and share best practices is what helps PLCs develop the much-needed support system that enables teachers and students to learn and experience success. During the interview, Teacher 1A was adamant about how much she enjoyed working with her PLC, but did not reference common planning time. Instead she took the opportunity to voice her concerns about what she considered non-essential PD.

> Before any PLC or PD is to begin, the administration should take a survey about the needs of the pedagogical staff. Support that is forced and nonessential to the needs of the educators is a loss of time, and resources.

In contrast, Teacher 2A expressed her gratitude for every PD opportunity afforded through the PLC, excited about the meeting time provided to teachers to benefit from the support system available to the team.

> I think we are still learning. I think students will say they feel supported by their teachers, and I think that PLC creates that environment; where we support each other. I feel like we're able to provide many resources to one another based on our different experiences. Some of the newer teachers did student teaching elsewhere, and they share a new or interesting experience that maybe we can try here.

Teacher 3A concurred, acknowledging that the PLC is a central source of support for its members. She added that common planning time allowed teachers to set time aside to meet within their work day to share resources, including curriculum, instructional strategies, and data that benefitted them and their students. She explained,

> We're working together on a new program, Mastery Connect. Together we can see where the students are performing well, or which students have certain trends. We take into account the state tests and informal assessments. Then, we go back and use that data to tweak our curriculum. At the end of the year, we have the curriculum planning team for next year.

Teacher 1B agreed that common planning time is important, and shared how she works with her team to analyze data to help move instruction. She stated,

> We have internal assessment. At the beginning of the year, we give our students a diagnostic test aligned to common core. We analyze what type of standard is high and low achievement. We also analyze what are the misconceptions on the part of the students. From this, we get an idea about how to approach the students with some certainty about the content. We then place the students in small groups according to deficit areas and correct the misconceptions.

Teacher 2B felt there was not enough time dedicated to working with colleagues, and envisioned longer meetings, stating, "We work together really well, but if we got together more as a community, it would be way better." While Teacher 3B did not offer her views about common planning time during the interview, she asserted that there was nothing she would change about the current PLC structure at her school.

Teacher 4B shared the same opinion as four of her team members, reporting, "We have common planning time, and that's what's helped us become successful. That time to have the discussions, to brainstorm, to really just think about plans to work for the students that we're serving"

The findings for theme three illustrate that five out of seven study participants interviewed concurred that common planning time is a key component to the improvement of teacher practice, which positively affects student outcomes.

Overall, the findings for the interview questions corresponded to the first research question. The findings showed that teacher participants believed that collaborating with one another in their PLC enabled them to learn new instructional strategies, and/or improve upon the ones they had already been implementing. Despite how the initial PD was encountered, whether through an outside facilitator, or an in-house, teacher generated PD, participants agreed that learning together enabled them to more quickly understand and internalize how to implement instructional strategies. This study reveals that collective discussion facilitated through PLCs enables teachers to improve their instructional practices, and also make more informed decisions about how to design and implement more effective learning opportunities for their students.

Research question two. How was the professional development designed and implemented at the middle school level in the NYCDOE?

The seven teachers who were interviewed for this study were asked about the planning and implementation of the school's professional development program. Research Question Two corresponded to teacher interview questions 1 and 5.

Research Question Two focused on the variety of adult learning opportunities available to teachers at different levels of expertise. Study participants expressed their approval about being able to make decisions, which helped create opportunities for the PLC to learn from, and with their colleagues within their workday, and during compensated time set aside after the school day. They responded that having several thought partners, outside of administrators, with whom to exchange ideas, would provide them with valuable and diverse perspectives. Additionally, participants agreed that peer observers who aren't rating their performance, but are willing to tell them how to make their practice better, provide them with the ability to make the necessary changes. Moreover, the low stakes, non-evaluative process gives teachers the confidence to ask for additional feedback in order to continue to grow. Furthermore, they shared the PLCs enable them to develop strong pedagogical skills that help move the students towards higher levels of achievement. Interview questions 1 and 5 provide evidence for the above-mentioned findings. In reviewing the data, two themes emerged from the responses for research question two.

Theme One: Content Area and Grade Level Teams

Theme Two: Differentiated PD

The themes emerged from the insight provided by the participants who described PLCs as a welcoming, teacher facilitated support system. They explained that the teacher interconnection allows colleagues to provide the collective team with a variety of professional development experiences at the school level. Table 4 represents the teachers' responses, from which the two themes for research question two emerged. The table illustrates the number of teacher participants with similar responses for each theme. Each theme for research question two appears in its individual sub category for analysis of the data.

Table 4

Teachers' Responses for Research Question Two

Number of PLC Members with a Related Response	Interview Question	Theme
7/7	1	Content Area and Grade Level Teams
6/7	5	Differentiated PD

Theme one. Content Area and Grade Level Teams

The theme emerged as the participants discussed how being able to plan lessons with colleagues, who had different ideas, helped them deliver more innovative instruction to the students. Seven of the seven PLC members interviewed feel that collaborating with colleagues in content area teams and grade level teams helps target specific areas of learning, such as 6th grade math, or 8th grade argumentative essay writing. They also welcome and approve of the district-wide decisions with reference to teacher teams.

The findings for theme one reveal teachers' positive attitudes about ongoing and consistent engagement with other content and grade level adult learners, who are not only at various levels of instructional expertise, but are willing to share their knowledge with colleagues. Teacher 1A, an 8th grade teacher, expressed her preference for learning from her grade level team because they share the same students and can provide interventions as needed. She exclaimed, "My district has us working with departments and with our grade level teams. I love my grade level team."

Teacher 2A agreed with her colleague, stating,

> PLCs provide an opportunity to collaborate, to plan, and also to design student-specific interventions across grades and content. This year we have had the opportunity to do both. The Fall session was interdisciplinary, so we were able to work with grade teams across content, which was very helpful because many of us teach the same students. I was able to learn from my colleagues what strategies were working in other content areas. In the second part of the year, we are actually with our content. We have four teachers teaching the same content and grade. It was just good to be able to help each other with pacing, sharing resources, and bouncing off ideas. This gives teachers the opportunities to get the best of both worlds.

Like her colleagues, Teacher 3A expressed an appreciation for working with her grade level team, but also finds that her content area team is equally important to her professional development. She stressed,

> I definitely agree with the rationale to establish the PLCs in order to support us as teachers. It's important for us to come together as teachers with the

> administration, and with just us teachers too, to discuss different issues or glows or grows, that we have in the classroom. It helps us share best practices, and to discuss different things that are happening in our classrooms; to perfect our craft, and to support each other, so we can keep moving forward year after year.

Teacher 1B concurred, reporting,

> I agree with my district's decision to establish professional learning communities to support our colleagues' professional development. We cover many different topics that are helpful for teachers. Sometimes, it's about the instructional strategies, and sometimes, how you effectively manage the classroom.

Teacher 2B was also in agreement with the creation of PLCs, whether working with content area or grade level teams, stating:

> The answer is in the room, and we actually learn a lot from each other. You realize how much the person right next door to you, in another class, can share in order to help you become a better teacher. Before I used to work in isolation. But, now that we work more as a community, we are able to build off each other's strengths. And through intervisitation, we are able to see best practices.

Similarly, teacher 3B added,

> It's really important to have this professional learning community, not just PDs. The PDs are good. But when you're in a professional learning community with more than one person around, it just makes it that much better; like taking a lesson plan, and dissecting it, and sitting together, and determining what parts of it are strong, what parts are weak, or being that teacher that explicitly models during a PD. That's a professional learning community to me.

Teacher 4B also expressed that she values the opportunity to work with both content area and grade level teams, explaining,

> I totally agree with establishing professional learning communities because when it comes from a colleague, you have an understanding where it's coming from, and you're able to know how to address specific issues that are encountered in the classroom, that someone who is not in the classroom might not know how to deal with. So, making that connection is essential. Everyone specializes in something and is looking to grow, and I think it's critical to offer opportunities for individuals to grow and become better in their practice, and learn from each other.

The findings for theme one illustrate the importance of teachers coming together in both content area and grade level teams in order to hone specific pedagogical skills. Seven out of seven teacher participants in this study regard PLCs as a major vehicle for delivering the specific PD that each teacher needs in order to improve best practices and student outcomes. The participants shared how PLCs have helped them develop and deliver instructional techniques that ensure the students understand.

Theme two. Differentiated PD

Interview data shows that PLC members see PD as an opportunity to monitor and improve their practice, taking those aspects, they need to grow, and building upon the expertise that each team member shares with colleagues.

The second theme emerged from the data collected through interviews with the study participants who believe schools could further improve teacher capacity and professional growth by supporting the important work of PLCs with PD tailored to the specific needs of each member. Six out of seven participants expressed a desire to see

differentiated PD in terms of the time allotted for PLCs to work together. Participant 1A thought it was important that the administration conduct a needs assessment of the faculty, to help plan for future PD, positing, "We should be given choices for PD to fit our pedagogical needs." Five of the other six participants were also in accord that differentiation of PD be afforded to teachers engaged in content area study and lesson preparation to further support teacher practice and student achievement. Unlike her colleagues, Teacher 3B did not discuss differentiated PD. She felt the current PD they received was more than adequate, insisting,

> I wouldn't change anything. Right now, it's great. Mondays and Tuesdays, we have PD. The school offers a lot of outside PD. We're involved in many different programs. Whenever we need anything more, the principal always brings someone in.

Teacher 2A agreed with her colleagues in wanting to see PD that targeted what each PLC member needed in order to become a better teacher. She explained,

> I would allow more time for pacing across grades and content. I think part of what is missing is just continuity across grade levels and across content areas. Scheduling is a nightmare, and I tip my hat to administrators, but I think if there was some way to make time for that pacing across grades and content areas, the students would benefit a great deal. No matter whose classroom you went into during a specific time of the year, we would all be more or less at the same point.

Teacher 3A concurred that "it would be more beneficial if we could even add more time." Similarly, teacher 1B stated, "Professional development should be more open to what individual teachers need," and teacher 2B responded in a like manner,

expressing, “I think the district should try to get us PD based on what we need to grow.” Teacher 4B, the most experienced of the participants, like her colleagues thought differentiated PD would definitely help support teacher practice, and added,

> I feel like maybe creating some sort of professional development program I can refer back to all the time. So, maybe more recording of the PDs, and having something to reference. Then maybe build upon that, just for my own practice.

The findings for the second theme express how six out of seven teachers are appreciative of receiving additional support in order to develop those areas of pedagogy and practice in which they need more time to achieve mastery or meet standards. One of the participants stated she would not change anything about the school’s current PD program, and referred to teachers taking part in “many different programs.” But, she did not elaborate on what programs were available, or how they benefit the teachers with their variety of needs and learning styles. Overall, the findings reveal how teachers consider PLCs to be effective in providing specific and differentiated PD to all members, through a learning partnership with colleagues. This process further eliminates the participants’ having to develop their pedagogy in isolation like teachers had to do before PLCs were introduced in schools. Instead they have trusted colleagues who are vested in their personal and professional wellbeing and are willing to offer guidance. Additionally, the reflective culture PLCs have created has allowed the teacher participants to express to one another the areas where they still need to grow, and in what ways the PD experiences can be applied to practice. This not only provides greater support for the team, but for the students, as well.

Research question three. How does the role of teachers, as interdependent learners and experts in PLCs, create a collective culture of improvement?

For the third question of this study, the data shows that seven out of seven participants communicated their relief at not having to figure out on their own how to apply instructional strategies, or translate data. They acknowledged that their colleagues had different strengths, and welcomed the opportunities to support one another in developing best practices. This ongoing collaboration, they felt, enabled them to often times emerge as experts in an area they could, in turn, teach to their colleagues. Research Question Three corresponded to teacher interview questions 2 and 3.

Research question three further explored teachers' perceived benefits of job-embedded collaborative practices in their PLCs. Teacher participants described their learning journeys as facilitated by the support of their colleagues through non-evaluative observation and feedback, the study of data to guide instruction, lesson planning, and various opportunities to share their knowledge. Two themes emerged for the third research question.

Theme One: Collective Expertise

Theme Two: Observation and Feedback

The themes were garnered from the data collected through interviews with the study participants. The data supported how the interdependence of teachers, as they support one another's learning, culminates in teachers emerging as leaders who hold themselves and others accountable for overall improved teacher performance, and higher student outcomes. Furthermore, participants' shared sense of urgency leads to ongoing mutual support and the development of individual and collective knowledge.

Table 5 represents the teachers' responses addressing the two themes for research question three. Each theme for research question three appears in its individual sub category for analysis of the data.

Table 5

Teachers' Responses Addressing Research Question Three

Number of PLC Members with a Related Response	Interview Question	Theme
7/7	2	Collective Expertise
6/7	3	Observation and Feedback

Theme one. Collective Expertise

PLC members believe their teams provide them with collective areas of expertise that enhances ongoing learning opportunities through feedback, demonstration, sharing of best practices, discussion, and data review, thereby positively impacting students.

For theme one, the findings demonstrate that all seven participants have helped create a culture of like-minded professionals who are vested in continuous growth and improvement for themselves, their colleagues, and their students, through a non-evaluative, observation and feedback cycle. In discussing her own experiences, Teacher 1A related how "the most valuable feedback involved student progress and developing a team-wide action plan for each student. All teachers contributed to the plan."

Teacher 2A agreed that having a group of deep thinkers advising their colleagues on ways to make instruction better, will help teachers deliver the lessons that enable students to excel. She added,

> It always comes out of the intervisitations and the debriefs that we have afterwards. The last intervisitation that we had, my colleagues came back and pointed out specific situations during the lesson where the students can provide peer evaluation for each other, which I didn't see. But after looking at it from their perspective, I definitely saw where those opportunities were missed.

Teacher 3A concurred, stating,

> For our first round, our team was together based on our grade. I was with a few colleagues who all have the same students, just different content areas. We got to discuss different things that worked for specific students that we were targeting. It was interesting to go, and see how other teachers do certain things in their classrooms with that student, and then bring it into my classroom and see what worked with those specific students. For our second round, it was based on content, so we don't have the same students or teachers. But, it's nice to go in and see how a specific teacher is teaching something. I liked when I was speaking to my colleagues, and discussing targeting our ELLs. We had 10 specific students that we were focusing on. We picked different things that worked well for us in our classrooms, and then we used it. We saw a huge improvement in the students' behavior, scores, everything.

Like her colleagues, teacher 1B also believed intervisitations and subsequent feedback to be the most effective way to help improve teacher performance. She explained, "After we deliver the content, we discuss and provide feedback on what was efficient and effective."

Teacher 2B agreed, adding how she constantly seeks out the advice of colleagues and invites them to come observe her and give her feedback in writing, so that she can continue to reflect on her practice. She shared how,

> A lot of teachers come in, and they fill out a feedback form. The feedback forms said, "You dominate the class." I didn't realize that! After reading that, I sat with my co-teacher and actually built into the lessons when we're going to take turns, until it became natural for us to piggyback off of each other.

Teacher 3B expressed the same sentiment, in terms of being made aware of growth areas that need to be addressed in order to improve practice. She stated,

> I did a professional learning community model for another school. I explicitly modeled how to cite textual evidence. And, even though I smiled a lot, I didn't make as much eye contact. Why? Because, I just assumed, they were teachers. They didn't really need me to look at them, that much. But, the feedback was to make more eye contact. So, the second time around, I made the correction and, it went well.

Similarly, Teacher 4B not only welcomes feedback, but also integrates it into her practice. She specified,

> I was making and sharing resources that were accessible to all learners. My team made changes, and we discussed them. That helped me look at what I was doing in another way. I became better at developing resources to meet the needs of the students that I have.

The findings for theme one reveal how all of the study participants are actively engaged in creating a system of collective expertise to support one another.

Theme two. Observation and Feedback

The second theme for research question three is observation and feedback. While strongly aligned to the previous theme, it differs in that the feedback from colleagues is not limited to instructional practices. Instead, it extends to cover responsibilities outside of the classroom, including, facilitating meetings, preparing PD, organizing classroom visitations, overseeing a team or committee, and other related activities. Through their critical friends' approach, PLCs enable teachers to emerge as leaders who become empowered by feedback, while encouraging and supporting their colleagues to strive for excellence in their practice. This cycle helps to inspire excellence in their students.

Six out of seven participants were in accord about how PLCs help members emerge as leaders, who willingly take responsibility for bringing about the necessary improvement that ensures success for both teachers and students. They also shared how every PLC has the opportunity to organize into smaller teams that visit classrooms to help empower their colleagues through observation, questioning, feedback, modeling, dialogue, and ongoing reflection. One of the participants did not elaborate on how the PLC supports her practice as a teacher, or as a leader, even though she disclosed that she was the content area team leader.

During the interview, teacher 1A expressed that she enjoyed working with her team, but she did not reference the effect her colleague's feedback had on her practice, or vice versa.

In contrast, teacher 2A, explained how in her PLC, teachers seek out feedback from colleagues, and believe their practices have improved because of the non-evaluative observation and feedback cycle. She believed that the feedback from colleagues helped

inspire growth in every area of a teacher's practice. She explained how during PLCs,

> No question is a dumb question, so we work together to find answers to questions that arise during the process. It's like a brainstorming session. We come together to reflect on how the intervisitations went, or reflect on the chapter in the book that we're reading together. My specific PLC is using a text to guide our PLC. I think those two aspects really support us as teachers, and give us the opportunity to ask any questions that we are unclear about. Maybe someone understood something differently than I did, or maybe I misunderstood something.

Like her colleagues, Teacher 3A welcomes her colleagues input with regards to her effectiveness in the classroom. She also believes that their suggestions have helped her increase her knowledge exponentially, to the point that she gained the confidence to become a content area team leader. She acknowledged that,

> There are definitely times, I'm just concerned about different students or strategies, or maybe sometimes there's something you feel didn't go as well as you had planned. You're able to just discuss it with your colleagues and they can give you feedback. It's a very comfortable situation. We're definitely open door here, so everyone is walking in and out of each other's classes, inter-visiting each other.

Teacher 1B, who is also a content area team leader, concurred, responding, "I'm really good with my math content, but I have difficulty with student management. I ask my colleagues, and the principal for help, and they happily come to my classroom to help me solve the problems." She also spoke about how her team uses protocols to look at data, ensuring that everyone becomes adept at being a facilitator. She felt that the

protocols enabled all PLC members to use the same language to provide one another with feedback that promotes a better understanding of how to analyze teacher and student data.

Similarly, Teacher 2B has an open-door policy, and asks her colleagues to comment on all areas of her pedagogy, from how she delivers instruction, to how she interacts with her integrated team teacher during class. She reported,

> I ask for feedback; glows and grows. I really do appreciate it. I tell my colleagues, "If you don't want to write your name, that's fine, but I really want you to be honest. Please put a grow, because I'm trying to grow, I'm trying to become better."

On the other hand, teacher 3B said she didn't have any concerns about her instruction. But, then, added that as a mentor, she, as well as the other PLC members, provided support for new teachers. She also said she appreciated feedback from her colleagues about how to best address the needs of the new teachers.

Comparably, teacher 4B discussed how her colleagues have helped her improve her practices. She expressed how collaborative practices have helped to make her a more reflective teacher, eager to help other teachers improve. She stated,

> I'm very critical about myself, because the only way that I am going to be able to continually grow, is through my own personal reflection. I'm able to voice what I'm not sure of, what I cannot do, and just seek assistance. Not only for me to grow, but then to help others grow. I think this is key.

The findings for the second theme of research question three show how teachers take on leadership roles to bring about needed change. The data highlighted the lived experiences of the participants of this study, who spoke candidly about the ongoing

support they provided one another as teacher-leaders. Through their PLCs, teachers sought to ensure that each member's knowledge increased, not only in the content area, but also in how to more effectively implement best practices that would help improve teacher capacity inside and outside of the classroom. This in turn, directly affected student achievement. Seven of the seven PLC members provided examples of how they took responsibility for learning from their colleagues, while in turn helping to support the learning of the team. This concludes the reporting of the findings from the teacher participants.

The next section displays the perceptions of middle school leaders about the usefulness of PD through PLCs to prepare ELA and math middle school teachers to effectively teach their content areas, and share their pedagogical expertise with colleagues to increase teacher capacity and improve student outcomes.

Findings from Middle School Leaders' Responses

During in-person interviews, the two school leaders described their schools as learning organizations and discussed how PLCs provide professional development opportunities for teachers. The principals are the school leaders of the two sites studied for this research. Principal 1A has four years of experience, and Principal 2B has ten years of experience as a principal.

The school leaders of both schools created schedules for teachers, to enable them to benefit from job embedded PD, by working collaboratively with their PLCs during their regular workday. Both school leaders reported how they supported the work of the PLCS by providing guidance, training, and feedback in order to equip teachers with the tools they need to be able to make their own data-driven decisions.

For the interviews with the two school leaders, the researcher asked the participants to respond to a different set of six interview questions about professional development and student outcomes (see interview protocol, Appendix E). For Research Question One, participants responded to interview questions 3 and 6. For Research Question Two, the researcher asked questions 1 and 5. The last two interview questions the researcher asked the participants were 2 and 4. Before the interview began, each participant received the questions for review and clarification.

How does the professional development provided to teachers of ELA and math improve teacher practice and student outcomes?

The two school leader participants who were interviewed for this study discussed their understanding of how PD was driven by the needs of both teachers and their students as learners with a potential to thrive in a culture of high expectations for all. Research Question One corresponds to principal interview questions 3 and 6.

Research question one explored how professional development implemented in PLCs helps develop teacher capacity and improve student achievement. Both school leader participants agreed that through the use of data, sharing best practices, and inspiring a commitment to a common vision of excellence, PLC members are able to monitor their strengths, as well as the strengths of their students, while continuing to develop the necessary skills and practices that enable both teachers and students to thrive. This school wide practice of continuous improvement helps teachers to emerge as leaders who foster and maintain a culture of excellence within the organization.

Two themes became apparent from the one-on-one interviews with the school leaders.

Theme One: Teacher Leadership Development

Theme Two: Data-Driven Decision Making

The participants described the importance of developing shared leadership to ensure that a guided coalition of committed team members can carry out the work that cannot be completed only by the principal. Both participants also specify there is an absolute necessity for all PLC members to make decisions based on data. Table 6 presents the themes arising from the responses of the school leaders. Each theme is examined under a sub category which details the interview data associated with research question one.

Table 6

Principals' Responses Addressing Research Question One

Number of School Leaders with a Related Response	Interview Question	Theme
2/2	3	Teacher Leadership Development
2/2	6	Data-Driven Decision Making

Theme one*:* Teacher Leadership Development

For theme one, the findings reveal the need for principals to help develop capable teacher leaders who are willing and able to share the responsibility of inspiring their colleagues and carrying out the school's vision of improvement.

Principal 1A discussed how her teachers regularly volunteer to try new things, and how both she and the other teachers in the PLCs support them.

> It could be as important as being part of the PD committee that works over the summer. It could be as important as being in charge of curriculum planning. It could also be organizing a student event. It could be organizing a grade level trip. Recently, two new teachers came to me about wanting to try an interdisciplinary project. They said, "Nobody has stepped up as a leader," and I responded, "You just did."

Principal 2B agreed, and explained how she also helps provide her teachers with as many supports as possible to help them emerge as leaders.

> Teacher leaders develop both at home, here, and outside of the school. For example, we have something called the peer instructional coach, and she has a mentor that comes to the school. She goes out of the school and meets other mentors like herself. I work with her about the work that has to be done. I also work with her one-on-one, like giving feedback, or just meeting with her and talking. And, also when her mentor comes, I'm part of that session.

The findings for theme one show that both school leaders are reflective about the PD process at their schools, and support distributed leadership through PLCs. They shared how they also need the support of the PLCs in order to accomplish the organization's common vision. In terms of top down leadership, the leaders felt it brings about division that keeps the learning community from accomplishing its goals. Therefore, it's important to grow a coalition of teacher leaders from within the community that can help bring their colleagues on board, through the process of creating systems together, in order to carry on the work that ultimately benefits the students. Both school leaders concurred that PLCs provide teachers with an opportunity to become

leaders, who then guide their fellow team members through a variety of PD opportunities, including curriculum development, coaching, and peer mentoring. In analyzing the responses of the participants, the researcher observed that the respondents encouraged and trusted all teachers to assume leadership roles, among them, working on the PD committee, curriculum planning, or overseeing an inter-disciplinary project.

Theme two. Data-Driven Decision Making

The findings for theme two conveyed that PLCs facilitated teachers' use of data to measure, assess, and increase not only their growth, but the growth of their students. Both school leader participants expressed how they rely heavily on data to make school level decisions. They recognized the importance of using data to drive instruction, in order to ensure that teachers identified students' misconceptions and were able to take immediate action to solve a problem.

The principals took the opportunity to discuss how the teachers use data to improve instruction. Principal 1A stated,

> In the fall, we told the teachers, "This is the cycle. You're going to look at student data, and these are the five different kinds of data that you can look at. You're going to pick whatever it is you want to work on, and then you're going to have your adventure, and you're going to say how you did at the end." Then we said, "Where are your results?" We know they looked at the data, because we gave it to them, and we saw them on the computers. When somebody says to an administrator they have to ground instruction in data, we know what that means. But teachers don't always know because they don't have as much experience as we do. So, for the second round, we gave them the scaffold of, "You need to look

> at a measure. Choose your own instructional adventure, and then remeasure at the end. Then, show us how the students did." It can be scary for them because the groups are autonomous, and they're creating their own adventure, so all their data is different. I'm wondering if we need a baseline: "This is what we're using as the measurement, and now create your own adventure, and then we're going to measure as a school. And you can collect that data." I think that's where we're headed for next year. This whole thing is like an evolution, every year we change something about it.

Similarly, Principal 2B explained how decisions are made after analyzing the data. She posited,

> We are big on data. Teachers are asked to regularly share their data charts with me online across all subjects. We all look at data a lot, to see the specific areas where student answers are correct. We update the data chart constantly with the teachers, and I discuss each class with them. They come with their data, and then the teachers can go back and clear up misconceptions with their students.

The data collected through the interviews with the school leader participants revealed that the PLC members at School A were unsure about how to respond to what the data was telling them. After monitoring the PLCs, Principal 1A was able to identify how the members were not using data as effectively as they could. She resolved to implement a more structured procedure in order to help the teachers better understand how to use data to improve teacher practice and student outcomes. On the other hand, principal 2A spoke about how her already established hands-on approach to looking at data on a daily basis with the PLC members, enabled all stakeholders to quickly identify

problems, and decide on a collective solution.

Overall, the findings for the first research question illustrated that both the principals and the PLCs encourage the leadership development of teachers through coaching, peer mentoring, and by simply trusting them to successfully oversee collaborative responsibilities. Moreover, both school leaders agreed that data informs instruction, and they create ongoing opportunities for teachers to look at data together and make decisions that provide new learning opportunities for the adults, as well as the students.

How was the professional development designed and implemented at the school level?

Both school leaders explained that they made decisions about PD, and set new goals, based on teacher and student data. Research Question Two corresponded to interview questions 1 and 5.

Research question two investigated the rationale of school leaders for developing and implementing the PD program used at their schools. School leaders communicated that they use student and teacher data to support teachers' professional learning through differentiated professional development opportunities within PLCs. Two themes emerged from participants' responses.

Theme One: Differentiated PD

Theme Two: Experiential Learning

The two themes were identified from the participants' responses about the development and implementation of professional development. Table 7 illustrates the

school leaders' perceptions relative to the two themes, which correspond to research question two.

Table 7

School Leaders' Responses Addressing Research Question Two

Number of School Leaders with a Related Response	Interview Question	Theme
2/2	1	Differentiated PD
2/2	5	Experiential Learning

Theme one. Differentiated PD

For theme one, the findings support that both school leaders agreed that professional development is not one size fits all.

The two study participants spoke about the progress their schools have made, and the hard work and effort put forth by adult and student learners in order to meet their goals. When discussing administrators' support of teachers' development, the participants confirmed PD was tailored to meet the specific needs of individuals within the school and a variety of data had to be consulted to help design differentiated PD plans. Principal 1A stated,

> Every year we assess how our PD went for the school year, and how impactful it was. We look at teacher ratings on Advance and what our instructional focus is, and where we hope to see growth in components 3B and 3C. In the summertime, we come together and we plan out PD for the following year in a PD committee.

> Those are the people that you see as the facilitators. The way that we've set it up is, we think about where we were four years ago when we opened with this awkward kind of teacher team. And now four years later, we have departments, and we have effective teacher teams that all teach the same content and students; and we have this strong practice of intervisitation.

Principal 2B, like her colleague, also performs a data inventory to determine in what areas teachers need support. She explained,

> The professional development plan was developed after looking at the needs of the school through instruments like the scores, looking at the data from the state exams, looking at the data from Advance, and looking at the data from teacher created assessments. Overall, looking at the cultural requirements of the school, and goals of the school, and seeing whether we were meeting it or not. We use our Monday and Tuesday afternoons; the mandated period time to do PD, and we look for mentor teachers and teachers who are coaches. They are responsible to provide the professional development according to the needs of the school. I also provide PD for the teachers according to their needs. I will meet with them, as I do observations, and then we have feedback sessions.

The findings for theme one show that school leaders recognize that teachers are learners with different learning styles, and needs.

Theme two. Experiential Learning

School leaders support teachers' professional practice by assessing practice and providing feedback. The findings for theme two suggest that both study participants interviewed consider it important for PLCs to provide teachers with on-the-job learning

opportunities, so they can learn as they perform their day-to-day professional responsibilities. The participants also spoke about PLC members supporting one another's development, through the critical assessment of teacher practice.

The findings from the participants' interviews reflected how teachers learn by doing within a supportive learning community that provides relevant feedback on those actions.

Principal 1A reported,

> I am part of the initial stages of the summer conversations. I have one AP in charge of one group, and one AP in charge of the other. I'll meet with both of those groups at the start of their planning process. I tell them, "These are the expectations, and however you get there, that's entirely up to you." And they'll show me their work along the way. That's the early stage of that ongoing planning. The project-based learning (PBL) group, that was kind of the leaderless new teacher group, is the one I have to be a part of a little bit more, because they are still unsure about who is their team leader, and how to proceed. I met with them yesterday, and I brought in an expert from another school, and then I walked away, to allow them to express ideas freely. When I came back to check in with them, they shared with me what they've done, and I gave them feedback. Then, they can go and make revisions. I also meet with the teacher team facilitators every week to listen and share ideas. That's a standing appointment on Wednesdays.

In a similar fashion, Principal 2B enables teachers to improve their practice, by establishing a support system that facilitates their learning as they in turn provide

learning experiences for their students and colleagues. She concurred,

> I provide a structure for the teachers to come together and collaborate. They meet four times a week horizontally and vertically. They meet once vertically, but they meet the other three times horizontally at their grade levels. Then, I also provide opportunities for them to collaborate with regards to the work. They do this through "A Week at a Glance," for which all team members must contribute according to their grade. They have to prepare a collective activity guide, which they share with the team through a Google document, about what they're going to teach for the entire week; what is going to be the teaching point; what is going to be their summary; instructional strategies; and so on. It's not something that could be done by yourself. It's also shared with me, and I give the grade teams feedback on it.

In summation, both participants interviewed spoke about how they looked at a series of data to assess in what areas teachers still needed to grow, so that they could then develop PD tailored to specific needs of every teacher. Additionally, they felt that experiential learning is key to developing best practices, because it enables teachers to learn by doing. The data collected through the interview process reveal the effect that on the job coaching, low inference feedback, and conversations about how to apply the learning has on adult learning. Both school leaders also reported helping teachers plan instruction, and then creating opportunities for them to collaborate with their colleagues, making certain to be available for them when they came to share their work and ask for input.

How does the role of teachers, as interdependent learners and experts in PLCs, create a collective culture of improvement?

The final question in the study, research question three, focused on the network of expert teachers that has evolved as a result of ongoing collaboration among like-minded professionals seeking to improve their practice and increase student outcomes, while holding one another accountable for reaching the schools' goals.

Study participants were asked to respond to questions about the multiple levels of support available to teachers within their PLCs. Both of the school leader participants discussed teachers' participation in PLCs. Research question 3 correspond with interview questions 2 and 4. The following two themes emerged for research question three.

Theme One: Teacher Network: Observation and Feedback

Theme Two: Shared Accountability

The themes were based on the school leaders' views about how teachers benefit from a culture of improvement that arises from a low inference evaluation and feedback process with colleagues, and access to resources facilitated by the principals. Table 8 demonstrates the outlook of study participants.

Table 8

School Leaders' Responses Addressing Research Question Three

Number of School Leaders with a Related Response	Interview Question	Theme
2/2	2	Teacher Network: Observation and Feedback
2/2	4	Shared Accountability

Theme one. Teacher Network: Observation and Feedback

School leaders consider it essential to the improvement of instruction for members of the PLC to establish a teacher network in which they can engage in low inference, critical feedback with one another in order to build teacher capacity.

It was found that both school leader participants interviewed regarded the teacher network as an invaluable source of school improvement, due to its focus on providing members with a safe, nurturing environment in which they can rely on honest feedback, as well as the support to implement it.

The participants' responses emphasized how a network of expert teachers with a common vision can maintain a culture of learning at high levels. Principal 1A was enthusiastic as she spoke about how teachers at her school have come to rely on feedback from their colleagues. She stated,

> It's really just more collegial. Teachers say, "my friends are coming in, and they're going to give me non-evaluative feedback, but it's still critical in nature, and it's going to help me move forward." They also just, generally, pick up best practices from each other. There are practices that have run rampant throughout this building, good practices, that all of a sudden, I'll see it happening in so many classrooms, and I'm like, "Who was the initiator of that?" And, they'll say, "I stole that from so-and-so." We're all picking up the best parts of each other. There are things that are normed. There are things happening in this school that if anybody came in, they would think to themselves, "The principal must make them do that." But that's not the case. They're just organically growing themselves. "We call it teacher magic."

Principal 2B agreed that teachers are open to feedback from colleagues. She offered,

> A PLC is all about deep collaboration. We don't only have opportunities to collaborate in the school, we also have opportunities to collaborate outside of our school. We are a host school for the learning partners program, which is a signature initiative of the chancellor. We do intervisitations with two other schools. We provide support for them. They also come to our school, and they provide support for us by giving us feedback. So, I think that having PLCs is a place where people feel safe to try things out and to come together and have deep discussions about the work they are doing. In a PLC, teachers and administrators can come together to work on common goals.

Both school leaders felt that a teacher network providing critical feedback helped build capacity and expedite teacher development.

Theme two: Shared Accountability

The school leaders discussed their commitment to providing their teachers with the guidance and support necessary to ensure their continued progress and growth as instructional specialists. Findings confirm that participants believe that both school leaders and teachers hold themselves accountable for teacher development and student outcomes.

For theme two of research question three, the school leader participants shared their position on operating under a system of shared accountability for adult and student learning, and the attainment of the schools' goals. Principal 1A reported,

> For each semester, the teachers do two rounds of intervisitations. They visit in

> triads, with three teachers and a facilitator. They plan with the teacher that's going to be visited, so that they know what's going on, and what to look for. They connect their low inference notes to Danielson's Framework (2007) and give each other feedback. We created the templates.

Principal 1A continued, elaborating on how every team actively engages in observation and feedback duties. She explained,

> The teachers plan out what they're doing every single Monday; who's responsible for facilitating, what are the deliverables? And, the facilitators keep a binder. They have attendance sheets. We [administration] meet with them every Wednesday, because that gives us a focus. We can answer questions. They can bring us any concerns. Then, they go back to their teams.

Principal 2B described a similar practice at her school, but also spoke about her role as a non-evaluative coach to her teachers, who conducts some observations as a basis for a conversation to help teachers, rather than to rate them. She offered,

> Whenever an observation is written, there's always a date for a scheduled implementation. I let the teacher know, I'm coming next week during second period to observe the feedback that I've given; that we've tried together. There's always that scheduled session to observe implementation.

Interview data show that both school leaders acknowledged how reciprocal accountability among teachers and administrators helps improve and maintain the schools' culture of high expectations and success for all learners. Both participants agreed that the benefits of being part of a learning network that is focused on providing non-evaluative support and follow-up to colleagues ultimately improves teacher

development, and student achievement. The school leaders also reported that they collaborate with their teachers, to create systems that facilitate the observation, feedback, and implementation cycle that can then be carried out by teacher teams with or without the school leaders.

To summarize the findings for research question three, it was found that both study participants viewed PLCs as a much wanted, transformational support system, predominantly facilitated by the teachers, that enables its members to achieve mastery in their pedagogy, as well as in their understanding of how to use data to target those students that may otherwise not experience academic success. During the interviews, both principals demonstrated forward thinking and discussed how they would continue to invest resources in the growth and development of their teachers and students. The principal of middle school A discussed her future plans to provide teacher teams with more support with their use of data to guide instruction. The principal, like her faculty of middle school B, spoke about their involvement with professional learning communities, not only within the school, but also with faculties at other schools through the NYCDOE learning partners program.

The next section of this chapter explains the findings of the document review.

Document Review

To gain background knowledge about the schools and its systems, the researcher conducted a document review. By analyzing data from these New York State ELA and Math assessments, and each school's Quality Review data, the researcher was able to more clearly understand the correspondence of formal statements about PLCs, and the outcomes achieved through the schools' practices.

Findings

Findings based on NYS ELA and math assessment. Data for students state standardized tests in ELA and math for the previous three years were examined to learn how the PD received by teachers in professional learning communities affects teacher practice and helps improve student achievement. Upon reviewing each school's ELA and math standardized test scores for the last three years, the researcher found that Middle School A and Middle School B have consistently improved their scores in ELA. However, whereas Middle School A has not made strides in math, Middle School B has demonstrated significant improvements in this content area. As noted in Table 1 of this chapter, some of the teachers in Middle School B have more teaching experience, as well as more experience working within a PLC, than teachers in Middle School A, which opened as a new school in 2013. The principal at Middle School B discussed how the teacher teams' instructional decisions are heavily driven by data, while the principal at Middle School A clarified how her teacher teams need more support in using data more analytically. Table 9 presents the findings from the document review.

Over a 3-year period from 2013 to 2016, annual state assessment scores for Middle School A and Middle School B show the progress for each school. In 2013-2014, the students of Middle School A, a new school, were tested for the first time. In ELA, 14% of the students met or surpassed state requirements, while 26% of the students met or surpassed state requirements on the math exam. Middle School B demonstrated a lower achievement level: 11% of students met or exceeded state requirements on the ELA exam, while 17% of the students met or exceeded state requirements on the math exam. Middle School A showed a steady rise in student outcomes for ELA,

demonstrating a 43% improvement from the 2013-14 to the 2014-15 school year and a 71% improvement in 2015-16. In math, however, they showed a decline in student outcomes over the three years, decreasing by 8% from 2013-14 to 2014-15 and 4% from 2014-15 to 2015-16.

By comparison, Middle School B showed a steady increase in student outcomes in both ELA and math over the same three-year period. ELA scores at Middle School B increased by 100% during the 2014-15 school year, and by 91% a year later in 2015-16. In math, Middle School B showed an increase in student outcomes of 35% for the 2014-15 academic year as compared with the previous year. In 2015-16, the students achieved an additional growth rate of 121% over a 12-month period.

Table 9

Student Progress on NY State Annual State Assessments in ELA & Math from 2013-2016

Year	School	ELA	Math
2013-14	Middle School A	14%	26%
2013-14	Middle School B	11%	17%
2014-15	Middle School A	20%	24%
2014-15	Middle School B	22%	23%
2015-16	Middle School A	34%	23%
2015-16	Middle School B	42%	51%

Findings based on quality review reports. In addition to looking at student progress in ELA and math, the researcher appraised the most recent Quality Review reports for each school. The School Quality Review is used by the NYCDOE as the

major accountability tool for measuring how well, and to what extent a school meets the quality standards around student and adult learning in order to reach the organization's goals. Every year, one or two reviewers from the central office, or the superintendent's office, visit each school to assess their progress. They spend two days observing classes, speaking to school leaders, teachers, students, and parents, and reviewing the school's data. Schools that are at risk are reviewed more frequently, than high performing schools. To help guide their assessment, the reviewers use a rubric with ten indicators and three categories, which are, instructional core, school culture, and systems for improvement (NYCDOE, 2017). The most recent quality review (QR) on public record for each school indicated the areas in which the school performed well, and the areas in which the school needed to grow.

School A's 2014-15 Quality Review noted that the one growth area for the school was professional collaboration on teams and using the inquiry approach that promotes shared leadership and focuses on improved student learning. The QR documented that Middle School A had four proficient areas and one developing area. The developing area was in professional collaboration. By contrast, School B's most recent Quality Review for 2015-16 did not identify any growth areas. Middle School B had four proficient areas and one well-developed area. The well-developed area was common core aligned curricula.

Besides using one-on-one interviews to collect qualitative data as documented in the previous sections, and conducting a document review, the researcher also used an observation protocol to observe teachers and administrators as they interacted within their PLCs. In the next section, the researcher will elaborate on the work of the PLCs as

attentively witnessed using an observation protocol (see PLCOG observation protocol, Appendix G).

Findings from observation of PLC meetings. This research study involved participants who are ELA and math teachers at the middle school level. The researcher collected data through in-person interviews, as documented at the beginning of this chapter, as well as through observations of faculty interactions in school-level meetings as a professional learning community. A total of approximately 12 ELA and math teachers were observed as they engaged with one another during professional development activities in their PLCs. While not every teacher who was observed interacting with one another in a PLC gave consent to be interviewed individually for this study, they agreed to be present during the observation process of the PLC meeting. The researcher conducted the observations utilizing the Professional Learning Community Observation Guide (PLCOG).

Permission was obtained from Daniel Hanley, Ph.D. (2006), author and educational researcher at North Cascades and Olympic Science Partnership (NCOSP), to use the PLCOG, in order to record observed practices of PLC members. Dr. Hanley created this instrument to document the interactions of PLC participants in Washington State schools during an extensive, multi-year study about school reform. For the purposes of this study, the PLCOG (NCOSP, 2006) was used to take extensive field notes and record the level of interaction among PLC members, and also to reference key information concerning their collaborative endeavors (see Appendix G). To ensure that the findings would be relevant to this study, the researcher obtained permission from Dr. Hanley to make modifications to the instrument in order to more closely align it to

Danielson's Teacher Observation Framework (2007), and the NYCDOE Quality Review Rubric. These instruments are used by the NYCDOE to evaluate the performance of pedagogues and schools.

The researcher visited Middle Schools A and B to interview the principals and observe the PLC meetings, using the PLCOG, as a professional learning community observation protocol, in order to document the team's level of collaboration and interdependence in terms of their work toward fulfilling a shared vision for improving teacher practice and increasing student achievement. The PLCOG was piloted with principals and teachers, who were not in the study, prior to using it to observe participants for this study.

The PLCOG was divided into four sections under theme subheadings. The four themes are aligned to the goals shared by PLC members committed to school improvement and reform. These four themes, which helped guide the researcher's observations included:

1. Shared Vision and Norms: Team aligns to collective norms in its actions, reflections, and planning
2. Collaboration: Team created environment that fosters open communication, and mutual support for ongoing learning and continuous improvement
3. Focus on Learning: Team's skillful use of questioning and discussion, and also the integration of assessment strategies into instruction to engage all students in learning
4. Results Orientation: Self-monitoring of the team's actions, decisions and reflections based on common norms and goals

Table 10 displays how each theme of the PLCOG corresponded to one or more of the Research Questions for this study:

Table 10

Correspondence of PLCOG Themes to Research Questions

Topic	Research Question
Shared Vision and Norms	1, 2, 3
Collaboration	1, 2
Focus on Learning	2
Results Orientation	1

In the following section of this chapter, the researcher presents the findings based on the data collected through observations of PLCs, while using the PLCOG observation protocol.

Theme one: Shared Vision and Norms

School A. The team leaders met with the principal and assistant principal for their weekly meeting to discuss the work and progress of each team in relation to their action plans. The math and science teams were reportedly working on the math, social studies, and science expo, and were preparing their students for the elevator speeches they would be delivering to invited guests. The math team was also working on supporting students with different parts of word problems and strategies to use to solve them. All of the teachers across teams were engaged in a book study, and reading the same book, "Engaging Minds in the Classroom," by James Erikson. The ELA team leader said, "this gives us tangible strategies; what kind of scaffolds to use with our students. The book is

content specific; one for ELA, social studies, science, math, etc." The 6th grade team leader reported to the team how upper grade teachers will be assisting them as they pilot the project based content area lessons they've been working on together. The math team leader informed the team that the second round of intervisitations was coming up, explaining how this practice "holds us accountable for the learning, feedback and follow-up, which leads to implementation." She also talked about the MOOCs (massive open online courses), an interactive course they take together in order to stay current with their practice. All team leaders were in agreement that the focus of their work is guided by, "what can we provide our students?"

School B. Members of the PLC at school B believed that all students were capable of learning and meeting high expectations. At the beginning of their meeting, the team identified who would perform in the roles of recorder, facilitator, timekeeper, and reader. Prior to looking at student work, the facilitator explained to her colleagues how several members of the interdisciplinary team had previously signed onto Engage-NY to review the common core state standards aligned writing examples, compared these to their students' writing samples and had determined that their students needed support to meet the standards for the writing process, specifically with the skill of logical sequence. The team then used a Tuning Protocol to look at pre-selected student writing samples that each team member had brought to the meeting. Teachers that presented their student's work discussed the pre-assessment used with the students, explained how the writing task was introduced, and asked the team to help identify patterns and contradictions in the student writing. The team asked clarifying questions of the teacher discussing the student work, at one point asking for an example of what "relevant information looks like," one

of the skills students had to demonstrate in their writing. During the warm and cool feedback portion of the discussion, the team members were specific with instructions and transparent in their explanations about how the presenter could help students connect the main skill under discussion in the current meeting, logical sequence, and the main skill discussed at the previous meeting, maintaining focus, in order to improve student writing.

After a review of the data collected through observations of PLC meetings, it was found that theme one of the PLCOG observation protocol corresponded to research questions, 1, 2, & 3. Goal-oriented teacher teams, sharing a common vision of improved teacher practice and student achievement established a set of norms to guide their concerted efforts. Two of the two teams observed demonstrated that they had set measurable goals and were engaging in a series of actions to achieve those goals, whether through a shared book study, interdisciplinary planning, or analysis of student data. Schmoker (1999) averred, "Schools improve when purpose and effort unite" (p. 111).

Theme two. Collaboration

School A. During the team leader meeting, one member asked, "What works? What needs to change?" Another member stated that the previous year's cycles were longer, allowing for more parents to meet with the content area teams over a four-week period. One more member said her team wanted their meetings to be longer, stressing the need for continuity. They then discussed the need to bring this item up for a vote with the entire staff in the near future. A teacher spoke about how a colleague shared her book study with the team a few days prior. "We had questions, and after much reflection and debriefing, we can now go back and plan together." She added that every team would be engaged in curriculum planning for September over the summer. "We present our

questions, so we can make our lessons more seamless from one lesson to the next." The ELA, math and science team leaders reported that they would be rolling out content-area lessons together. "Math is working on budgeting, ELA on speaking and listening, and science on design."

School B. During their meeting, the teacher team members shared their different points of view and made suggestions to their colleagues about how to help their students improve their writing. After the teachers received the feedback, the team set aside enough time to discuss how they were going to implement the feedback into the next week's lessons. They drafted a collective outline for a series of lessons, which included ideas about sentence starters, examples of transitions, such as, "on the other hand," and some contradiction words the students would learn over the coming week. The team also shared ideas about how they would teach the students how to underline citations from sources and provide evidence in their writing. And, finally, the team decided on the sample exemplars they would use with each grade level.

Theme two corresponded to research questions 1 & 2. An analysis of the data collected from the field notes in the observation protocol reveal that study participants are vested in supporting the professional growth of their colleagues in order to help bring about changes in practice that improve student performance in ELA and math.

Theme three: Focus on Learning

School A. The content area and grade level team leaders reported what their collective students would be doing in the upcoming unit. "Next week, ELA, math, social studies and science will stay in class for two days to work on their projects. The teachers will do the moving and go to them. The students, who are leading conferences next

Friday, picked social issues; community issues, and put those into three different categories." In preparation for their presentations, students would be engaging in speaking and listening activities with their classmates, as they worked within their mixed ability groups. One of the team leaders stated that in order to spark interest in their own learning, students needed to consistently be guided to understand what they need to know and why. An effective strategy consisted of connecting background information to the lesson, and then connecting the lesson to the real world. The other team leaders were in agreement.

School B. The PLC members were very specific about how every teacher on the team could help their students improve their writing. They agreed to embed the structures and scaffolding work in their units and broke down the supports over 5 lessons to be taught throughout the next week. Two teachers said they needed more time and everyone agreed to make adjustments as needed and report back in next week's meeting. The teachers created a guided writing template and settled on a task requiring students to write a restaurant review about a meal in the cafeteria. They found a Yelp review online that they thought was an exemplar of good writing, and all agreed to adjust it to align to their grade levels. The students would be learning how to write a positive or negative review and still be objective by showing the evidence. The teachers were clear about wanting to assign tasks that were relevant, with one stating, "They live it!" The team discussed all major components for the lessons to ensure that students would benefit from the learning experience. They planned how they would partner certain students with academically stronger students, and shared how to best model the task before letting the students try it. The team came up with a list of learning targets based on the student work

they had reviewed. These included counter opinions, contradictions, and supporting details. One teacher said, "Let students get used to rewriting. We have to all message the same thing to them to go back and review."

The findings illustrate that theme three corresponds to research question two, and two of the two PLCs observed are focused on the learning of the teachers and students. Both teacher teams analyzed teacher and student work to determine how to improve instructional strategies that address the various learning styles of the students and their levels of comprehension. Two out of two PLCs collaborated to design and refine different real-world learning activities that would enhance students' understanding of content, and increase students' capacity to think critically and construct their own learning. The interactions among the teachers revealed it was standard practice to plan together to develop differentiated instruction in content and process, to support student learning.

Theme four. Results Orientation

School A. The team leaders in school A shared out about the results of the NYSESLAT, stating that overall the students had done well, but the teams were working on revising their curriculum to address key areas in which students needed support. The team had also looked at other standardized tests, formative assessments and the common core learning standards (CCLS) to help guide the revisions to their own work, in order to better prepare students for more rigorous work and improved student outcomes

School B. The PLC members repeatedly referred back to CCLS and what the students learned during the first cycle of inquiry in order to create clear goals for cycle two and develop next steps together. Teachers provided written feedback to the students

whose work the team had analyzed, while others took notes about what next steps had been suggested to the students. They then planned for a mini lesson they would launch together, in order to address common misconceptions evident in the students' writing samples. Additionally, teachers made adjustments to their lesson plans, discussed pre-assessments, and created an outline for the next five lessons designed to help students meet and exceed expectations. They made plans to communicate with one another online before their next scheduled weekly meeting with any questions or concerns.

For the fourth and final theme, which is related to research question one, the findings highlight that two out of two PLCs observed rely on a variety of data to inform their practice, from how to plan, what to teach, which strategies to use, to how to better assess themselves and their students to ensure higher student achievement. Two of the two PLCs had developed systems for looking at data together and deciding on what next steps to apply, based on their mutual impressions.

Summary

Chapter Four reported the findings of this phenomenological study. There were multiple sources of data used by the researcher to capture "the lived experiences of individuals about a phenomenon as described by participants" (Creswell, 2014, p. 14). The findings were based on the analysis of participants' one-on-one interview responses, observations of the interactions of participants in PLC meetings, and a document review. The three research questions framed the interview questions asked of the participants, and the indicators of the observation protocol used to record field notes. The seven middle school teachers and two middle school principals in two high needs, under resourced districts in the NYCDOE provided their perspectives about PLCs as a fundamental

structure that ultimately helps facilitate high student achievement. The researcher conducted observations of participants' behaviors in their natural settings, and interviews with the participants as per Creswell (2014, p. 185). For the PLC observations, the researcher used a modified version of the professional learning community observation guide (PLCOG) as an observation protocol. The PLCOG was used to take in-depth field notes as participants engaged in a series of processes during a professional learning community meeting. Permission was obtained from the author of the PLCOG, Daniel Hanley, Ph.D. (2006) to use and modify the instrument. The document review was conducted to investigate student and school performance, and verify correspondence with the data obtained from the interviews and observations. An analysis of the interview and observation data helped identify emerging themes, which were explained under individual sub categories in this chapter. The findings from the interviews, observations of the PLCs, and a document review were analyzed. The triangulation of these data provided an answer for each of the three research questions that guided the study. The researcher used NVivo, a qualitative data analysis computer program, to aid with data organization and review. The data for this phenomenological, qualitative research study were analyzed using Creswell's (2012) six steps of Qualitative Process of Data Analysis (p. 237).

This chapter presented the findings of the study. In Chapter Five of this study, the researcher discusses the implications of the findings, and shares conclusions and recommendations for future research.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSIONS, RECOMMENDATIONS

Introduction

Public schools are tasked with providing America's children with a quality education that will prepare them for higher education. But, according to policy makers, education advocates, and parents, some schools all across the United States have failed to meet the state and city standards for student success. "Conservatives and liberals seem increasingly resigned to the fact that efforts to reform schools are doomed to fail" (DuFour et al., 2008, p. 51). As part of their reform efforts, school systems have implemented a variety of changes in curriculum, instruction and in how they train their leaders and teachers. Professional learning communities have become a part of every school in the NYCDOE, in an all-out effort to improve the schools. According to Garmston and Wells (2016), "schools as professional communities hold rich promise for meaningful staff engagement leading to increases in student learning. Teachers and administrators can talk about difficult things, ask hard questions about teaching and learning practices, and adults can actively learn from one another" (Garmston & Wells, 2016, p. 24).

The purpose of this qualitative study is to explore how the implementation of the professional development (PD) provided to English Language Arts (ELA) and math middle school teachers in professional learning communities in two high needs, under

resourced districts enabled teachers to create the guiding coalition to bring about change that affects teacher practice and helps improve student achievement.

Data for this qualitative study was collected from interviews of seven teachers and two principals at two middle schools in high-needs, under resourced, urban districts about the effectiveness of professional development in ELA and math. The researcher also conducted a document review and observed PLCs at the two schools in the study.

Summary of Findings

The results from the analysis of the data are discussed below as they relate to each of the study's three research questions and emerging themes. Research question one investigated the importance of teacher collaboration.

Teacher and school leader participants responded that professional development that is designed to address the specific needs of a school's learning community, results in teacher and student improvement. Moreover, school leaders suggested that the use of adult and student data helps inform the decisions about how to target the learning needs of the PLC members. School leaders and teachers recommended the collaborative practices within a PLC as an effective source of instructional training and skill building that enables teachers to improve outcomes for students.

The first finding of research question one is the need for collaboration among PLC members. All of the seven teacher participants suggested that collaboration within the PLC is central to maintaining a support system that ensures the sharing of best practices which results in the ongoing development of their pedagogical skills. Interview findings illustrated that teachers perceive the professional development received through their PLCs as a valuable source of professional study and subsequent capacity building.

Moreover, participants felt that the advocacy from their peers within the learning communities helps them develop the courage to try new strategies that culminate in greater student learning.

Both of the middle school leaders who participated in the study stated that PLCs are instrumental in the development of teacher leaders who in turn inspire and continue to support their colleagues to strive for excellence in their practice. Noted by the school leaders was how PLC members demonstrated their leadership capacity by seeking to sustain the organization's vision of improvement by taking responsibility for their own learning and that of their peers, as well as their students. Furthermore, school leaders conveyed how teacher leaders collaborate to develop the guiding coalition that will ensure the shared vision of high expectations for all, and improved outcomes for teachers and students is realized.

The data collected through the PLCOG protocol suggest that teacher participants build capacity by engaging in discussion and hands on activities together, and providing one another with immediate feedback. Moreover, teachers create opportunities to learn together in content specific PD activities, and share clearly defined strategies to implement with their students. PLC members urge one another to take risks by piloting long-term, instructional tasks that enable students to learn at deeper levels. Additionally, they focus on results by examining teacher and student work, assessments, and performance standards in order to guide their practice and help them adapt instruction for higher student achievement.

The second finding of the first research question was that six out of seven teacher participants believed that PLCs offer members a much-needed alternative to working in

solitude and trying to evolve professionally without support. Teachers understood that teamwork and mutual support that led to input and encouragement from colleagues about how to apply instruction is an inherent advantage of collaborative PLCs.

It was found that both school leader participants felt that teacher effectiveness is contingent on their continued interpretation and use of data to inform them about how and what to teach their students. Moreover, school leaders considered the use of data central to school improvement, and adopted a hands-on approach to supporting teachers with developing an aptitude for implementing data driven instruction in their classes.

The third finding of research question one is that five out of seven teacher participants concluded that team members must have a specific block of time dedicated to meeting within their PLCs to discuss teacher and student work, analyze the data, and plan instruction. Teachers found that having common planning time in order to be able to dedicate time within their workday to strategize with their fellow team members prepares them to improve outcomes for both adult and student learners.

Research question two explored how PD was designed and implemented at the middle school level. Participants reported experiencing authentic learning by engaging in various activities with their peers, and using available resources that guide their individual and collective progress. The interviewees remarked that learner specific PD allows teacher participants to develop mastery in content, and also pedagogy, thus enabling them to deliver instruction that addresses the different learning needs of students.

The first finding of research question two is that there are learning benefits when teachers plan together in their content area and grade level teams. All seven teacher

participants believed that working together to tap into the expertise and abilities of colleagues helps garner more successful outcomes for adult and student learners. The respondents noted how being collectively responsible for building shared knowledge in content and practice, results in setting the organization on the right course toward teacher improvement and higher student achievement. Moreover, the interviewees felt that the teams' efforts can accomplish the schools' goals more effectively than any one teacher working in isolation.

Both of the school leader participants recognized the need for evidence-based decision making. During conversations with school leaders, they addressed the use of teacher evaluations, their students' data, and other data sources to identify problem areas and get an accurate reading of teacher and student progress. This evidence provides school leaders and teachers with the information they need to determine what changes are necessary in order to move closer to the common vision.

Team member interactions within their PLCs showed that teacher participants perceived their commitment to learn together as a critical factor for moving the students and the school forward. The weekly meetings of the school leaders with the PLC teacher leaders to discuss and get feedback on the teams' work demonstrated how the PLC remains focused on its collective goals. It was noted how the team used protocols to review teacher and student work. This practice served as an example of how the PLC takes an inventory of adult and student learning and analyzes data together to explore how individuals learn best.

The second finding of the second research question is the need for the faculty to receive differentiated PD. Six out of seven teacher participants articulated their

understanding that each individual, regardless of their level of expertise, has areas of growth that are best addressed through PD tailored to help them develop in those areas. Furthermore, they recognized that it is necessary to continue to learn and develop over time with the support of their colleagues, and therefore welcome being provided with enough time each week to work together during their regular workday.

Both of the school leader participants noted they work with the PLCs to analyze data and determine the progress that was made, and how it was achieved. After a careful analysis is completed, participants design PD that effectively supports the growth of every adult learner in order to subsequently impact the learning of the students. Leaders believe that teachers learn best by doing; that is, learners develop their skills by engaging in activities that require the continual use of those skills. Ongoing observation of practice and feedback to improve said practice is an important element of the PD.

Research question three investigated how PLC members developed their instructional expertise, as well as their leadership skills. Participant responses endorsed the important function of the PLC as a central source for merging and sharing the best ideas, discoveries and practices of all of its members in order to better prepare the members to emerge as leaders who enable one another to meet the organization's standards of excellence.

The first finding of research question three is the importance of leveraging the collective expertise of PLC members. All seven participants answered that an important source of support within the PLC is the process of providing colleagues, whose practice they have observed, with low inference feedback is in all areas of pedagogy, from planning to implementation and assessment. When discussing practice anchored in data,

participants revealed how the observation and feedback cycle enables PLC members to problem solve the areas they need to correct, and focuses them on enhancing and sharing the areas in which they have exhibited mastery.

Both of the school leader participants suggested that the PLC is a network of experts in pedagogy whose practice is not only transparent, but is guided by the organization's vision of continuous improvement and high achievement for adult and student learners. To this end, the PLC members benefit from honest assessment and feedback, which enable them to implement next steps to become more effective.

PLC procedures illustrated how the work of the teacher network is guided by the organization's vision of continuous learning and improvement. The teams prepare and adjust action plans based on feedback from colleagues and data collected from the teams' review of teacher and student work.

The second finding for research question three is the value of observation and feedback for continuous improvement. Interview results indicated that six out of seven teacher participants perceived improvement in their pedagogy and student outcomes to be strongly influenced by the feedback and support generated through the interactions of the PLC. Participants mentioned the transformational effects that occur when peers help one another see those areas, which they had overlooked, but that need restructuring. Moreover, the participants emphasized that the critical evaluation of their practice is anchored in a solid foundation of knowledge and expertise that they have worked together over time to continue to build upon.

Both of the school leader participants agreed that PLCs facilitate a system of accountability among members for ensuring that adults and students are learning and

improving at high levels. Teachers expressed gratitude over the school leaders' commitment to create teacher schedules that allow PLC members to coordinate mutually convenient times in which to collaborate. PLC members also reported how school leaders hold themselves accountable for providing faculty with access to in-house and outside resources to improve their practice. Teachers willingly accepted accountability for providing their peers with objective and actionable support, which strengthens pedagogy. DuFour et al. (2008) stated that teacher teams are made up of "people working together interdependently to achieve a common goal for which members are mutually accountable" (DuFour et al., 2008, p. 354). Ultimately, school leaders and teacher leader participants are accountable to students for ensuring their continued academic success and improved performance outcomes. "Never before in the history of American education have school leaders been called on to follow student achievement as closely as they are now" (Harvey et al., 2013, p. 122).

Conclusions

The findings of this study suggest that the PD provided to English Language Arts (ELA) and math middle school teachers in their professional learning communities at these two high needs, under resourced districts, enabled teachers to emerge as leaders and create the guiding coalition to bring about change. The change results in an increase in teacher effectiveness and expertise in data-driven decision making, which impacts instruction and enables students to achieve at higher levels.

Research question one.

Teacher participants. Based on this study, it was discovered that teacher participants have a strong conviction that collaborative practices among PLC members

helps foster an ongoing, collective increase in knowledge and competence through job embedded professional development. Despite their heavy workloads, teachers are grateful to have ready access to exemplary practices, and also to receive expert and actionable feedback from colleagues that helps them become more skillful at producing the instruction and assessments that will benefit every child through higher academic achievement. DuFour et al. (2008), emphasized, "[In] a PLC, educators embrace high levels of learning for all students. To achieve this shared purpose, the members of a PLC create and are guided by a clear and compelling vision of what their schools and districts must become to help all students learn" (DuFour et al., 2008, p. 15). Research in the literature review supported teachers' statements about transforming student outcomes through collaborative practices and continuous learning opportunities for adults and students (Carpenter, 2015; Horn et al., 2017).

Teachers noted the importance of being provided with adequate blocks of time within their workday to learn with their colleagues and dedicate their energies to helping each other develop their capabilities around the use of data and instructional techniques to advance student achievement. As illustrated in the literature review in Chapter Two, DuFour and Fullan (2013) emphasize that impactful professional development is job embedded and collaborative. The researcher concluded that teacher participants appeared to be morally driven to share their collective ideas, best practices, and resources with the team in order to manifest the significant contributions that PLCs provide to adult and student learning.

School leader participants. The two findings from research question one showed that school leader participants indicated that PLCs enable teachers to emerge as leaders,

who support colleagues in learning how to use data to drive instruction. Leadership opportunities were described as taking charge of those activities, which benefitted students, including curriculum planning, organizing a trip, developing an interdisciplinary project, or being a peer instructional coach. The school leaders' statements aligned to the research in Chapter Two to underscore the usefulness of shared leadership in garnering improved student outcomes through the creation of a guiding coalition of grade level and content area teacher leaders who use data to inform decisions (DuFour & Reason, 2016; Song, 2013; Trust, 2016; Vangrieken et al., 2016). It was concluded that middle school leaders recognize the critical need for developing teacher leaders from within the organization in order to help inspire the other teachers to drive the school closer toward the realization of the common vision. "Healthy schools hold a vision of how they wish to operate. Such a vision is informed by real-world measures of student achievement" (Garmston & Wellman, 2016, p. 31).

PLC observations. Through their collaborative interactions, PLC members demonstrated that they were guided by a common vision, and communicated that their function as leaders and learners was galvanized by desired outcomes. The findings from the observations correspond to what DuFour and DuFour (2012) posited were the important questions that educators must work together to clarify. These questions included:

1. What is it we want our students to know?
2. How will we know if our students are learning?
3. How will we respond when students do not learn?

4. How will we enrich and extend the learning for students who are not proficient? (p. 4)

Bennis (2009) stated, “Leaders differ from others in their constant appetite for knowledge and experience” (p. 51). It was concluded that although teachers were at different levels of development in pedagogy and team processes, all of the team members were engaged in reviewing teacher and student data, and discussing how to make informed decisions about implementation of next steps that would increase the learning of both teacher and student.

Research question two.

Teacher participants. With regard to the two findings for research question two, teacher participants expressed enthusiasm about enhancing their content area and instructional knowledge through engagement in needs specific professional development with colleagues in their particular subjects, as well as from their grade level teams. According to Garmston and Wellman (2016), “the effects of both effective and ineffective teachers are felt for years. The issue, then, is how to enhance and spread good practice throughout the school to produce cumulative and lasting effects for all learners” (Garmston & Wellman, 2016, p. 23). This aligns to the research in the literature review in which experts maintain that student achievement will improve as teachers continue to work together to learn new and effective strategies to enhance the learning experiences of each student in the content area (Girvan et al., 2016; Jones & Thessin, 2015; Stosich, 2016). It was concluded that PLC members were confident that someone in the group would surely have the knowledge that they all needed, and would then teach the others how to apply it in order to enable the team to achieve its collective goals.

School leader participants. School leader participants acknowledged the constant need to monitor how teachers and students are developing, so that they can make

informed decisions about how to best support them. In addition to examining students' formative and summative assessments, leaders reported how they review certain components in the Advance teacher evaluation system, so they can design PD to address those areas of need. Moreover, school leaders review the impact of previous PD on teacher practice and student outcomes, and make adjustments as needed. Bernhardt (2013) posited:

> Staff need to collaborate and use student, classroom, grade level, and school level data. Teachers need to work together, to work differently when the data tell them they are not getting the results they want, to ensure every student's learning. (p. 1)

Bennis (2009) warned, "if you go on doing what you've always done, you'll go on getting what you've always got" (Bennis, 2009, p. 51). DuFour et al. (2008) stated, "educators require years to achieve ambitious goals they have established. Every year can mark progress toward intended outcomes, progress that can be noted, celebrated, and used to establish new baseline data for the coming school year" (DuFour et al., 2008, p. 162). Thus, the researcher concluded that school leader participants heed the research about the need for using the results of a series of teacher, student, and school data as an impetus for creating individualized supports that result in teachers changing their practice to improve student achievement.

The second finding for research question two suggests that school leaders place a great deal of importance on the ability of teachers to learn more effectively when they are given the opportunity to perform the very tasks they want to improve upon. According to DuFour et al. (2016), "We learn by doing" (DuFour et al., 2016, p. 9). Therefore, it is imperative for district and school leaders to offer teachers "the specific strategies and

structures to help them transform their own schools and districts" (DuFour et al., 2016, p. 9). It was concluded that school leaders recognize the positive effects that collaborative PD, tailored to teachers' needs has on teacher practice. As teachers prepare and plan lessons and assessments together, and visit one another's classrooms to observe and provide low inference feedback on delivered instruction, they not only develop the skills to support their colleagues, but also improve their pedagogy to ensure higher academic success by their students.

PLC observations. PLCs are relentless in their pursuit of meaningful learning experiences for adults and students. The participants of this study demonstrated how they've continuously engaged in a myriad of collaborative learning about pedagogy, data, and content to bring about positive change in student outcomes. Kotter (2012) explained that in order for change to be successful, they must be "guided by visions that appeal to most of the people who have a stake in the enterprise" (Kotter, 2012, p. 75). Leading authors have memorialized the work of the guiding coalition who inspire their PLCs, and are in turn empowered by them. According to Mattos et al. (2016), "We must know if our actions actually lead to higher levels of learning. A PLC purposefully seeks timely, relevant information and evidence of student learning, that confirms which practices are increasing student learning and which actions are not" (Mattos et al., 2016, p. 7). It was concluded that the focus of the PLCs on improved outcomes should be the driving force behind the collective effort to bring about the necessary change.

Research question three.

Teacher participants. The teacher participants acknowledged that their fundamental purpose is to master the content area and ensure that the knowledge is

transferred to students at their individual levels of understanding through the effective use of instructional strategies shared by colleagues. Teacher participants communicated an appreciation for being able to address students' individual learning needs, through the tutelage provided by their team members who enable them to understand how to use student data to inform their practice. This awareness has led them to learn and grow together as a team of ever evolving, highly qualified teachers who can rely on one another to support their learning and development. In alignment with the research in the literature review in Chapter Two, school improvement is the central purpose for teachers to develop a system for analyzing data collaboratively, and making informed decisions about which practices result in improvement (Love, 2009, p 20). In this study, teacher participants discussed their learning journeys as members of a community that values their learning, emphasizing the transformational powers peer intervisitations have on overall practice and implementation of instructional strategies. "If [teachers] want results, a scientific, systematic examination of effort and effects is essential" (Schmoker, 1999, p. 17). It was concluded that teacher participants can appreciate how the process of intervention and follow up related to the practice of their colleagues, enables PLC members to help one another improve best practices and build capacity in all areas of instruction, assessment and planning.

School leader participants. School leaders endorse the interconnected support system created by teachers within their PLCs in order to improve their practice and increase students' academic success. "Team functioning in a system has tremendous implications for that system's ability to organize and focus on the work of instructional improvement. There is an opportunity to create something together that they cannot

create alone" (Curtis and City, 2009, p. 38). The school leaders' views are emphasized in pertinent literature by leading experts who concluded that teachers' co-construction of knowledge is central to achieving improvement (DuFour et al., 2008; Garmston & Wellman, 2016).

School leaders also welcome the shared accountability for constructing and supporting the systems that facilitate overall school improvement. PLCs enable team members to take responsibility for building teachers' instructional skills, and commit to the arduous task of effecting change (Feldman, 2016; DuFour & Reeves, 2015; Kotter, 2008). Based on the above research and findings, it was concluded that school leaders who support a system of transparency and accountability help develop an environment in which the administration and faculty work together to achieve the common vision. This collaboration inspires teachers to facilitate school improvement, by assisting with their colleagues' learning, openly sharing ideas, and modeling best practices.

PLC observations. PLC members described their work as being guided by what the team can provide to its collective students. The PLC serves as a mobilizer toward school improvement of teacher led teams who create learning opportunities for teachers and students through research, planning, demonstrations, feedback, hands-on tutorials, and the like (Lieberman & Pointer-Mace, 2010; Riveros et al., 2012). Experts in the field of education, and particularly in PLCs, have conducted extensive research on teacher collaboration through PLCs, and have found that the collective work of teachers has resulted in the development of student-centered instructional modalities that results in an increase of knowledge and understanding for adult and student learners alike (Altieri et al., 2015; Feldman, 2016; Hadar & Brody, 2016; Ning, Lee, & Lee, 2015). The

researcher concluded that the PLCs in the study developed systems over time that enabled them to stay on task, while analyzing teacher and student work, and exchanging recommendations for next steps that would continue to enhance teacher practice and student performance.

Recommendations

The researcher offers the following recommendations to support PLCs committed to making and sustaining changes that result in long-term teacher and student improvement in New York City Public Schools.

The first recommendation is that district and school leaders should utilize creative budgeting and programming, and relieve teachers of one teaching period per day. PLC members already have many responsibilities to carry out throughout their day as classroom teachers. Experienced and novice teachers alike, can become overwhelmed as they attempt to manage the many classroom related tasks, as well as the numerous collaborative duties that are shared in a PLC. If teacher teams are to be able to significantly support their colleagues in the use of data to improve practice, then they cannot rush through the process of teacher and student work analysis because the bell is about to ring and they have to go teach another class. If the impactful work of PLCs is to be sustained, then providing every teacher team with a double period of common planning time, within their workday, is non-negotiable.

The second recommendation is that policy makers, district leaders, and the public should be mindful that school reform is a lengthy process that's dependent upon the provision of adequate time to properly train PLC members in order for them to acquire, develop, share, and sustain the actions needed to improve teacher practice and student

achievement. Labeling schools as failing, and closing schools, or replacing staff after three to five years of not meeting standards is counter-productive to the reform efforts. PLCs are made up of members who are at different levels of expertise in their pedagogy and related responsibilities. School Leader A, whose school is in its fourth year of existence, with most of the teachers at the beginning of their careers, expressed concern about the challenges the teacher teams experienced when analyzing data and trying to figure out how to use it to improve student outcomes. Leaders and teachers have to be trained on how to engage collaboratively to focus on higher teacher and student outcomes, so that students do not suffer academically because of an inexperienced or ineffective teacher or school leader. Preparation should begin in teacher and leadership training programs, prior to faculty being assigned to schools. Additionally, mandated regular and intensive weekend and summer PD retreats throughout the year, once PLC members are assigned to a school, should be designed according to the specific needs and abilities of each PLC member. While the mastery of content and theory are critical for PLC members to acquire and be able to apply in their work, working collaboratively to gain desired outcomes is a process that must be taught and practiced in PLCs in order to build upon and sustain the improvements that have been made.

The third and final recommendation is that district leaders should expand the collective learning opportunities to include PLCs in all schools, and also to partner schools with universities to train student teachers in collaborative practices. The school leader participants, and some of the teacher participants discussed the benefits of being part of the learning partners program that is currently available to only select schools, in order to provide mentoring and observation and feedback support to some of the teacher

leaders in the cooperating schools. It is therefore recommended, that in the same manner that the NYCDOE trained field support experts from among master teachers to roll out the Danielson's (2007) ADVANCE system-wide training to all schools, it must also train and appoint experts in PLCs to create learning communities among clusters of every fifteen to twenty schools. This ensures that every public school in New York City is part of a larger PLC support system. A manageable cluster of schools per field support PLC expert enables the PLCs at every school to receive intensive training. Additionally, intervisitations for PLC members to observe and learn best practices from schools in their cluster can be more easily facilitated through a field support point person. This pool of experts would then create an annual calendar for bi weekly, inter district school visits. Leaders and teachers from one school would participate by visiting their colleagues at another school to observe best practices, provide feedback, and come together after a series of observations to discuss teacher and student work and outcomes in a forum facilitated by a PLC expert. This would create a larger system of transparency and shared accountability for the success of every teacher and child in New York City Public Schools. Furthermore, the PLC experts can help facilitate discussions with partnering colleges. By having district and school leaders partner with colleges and universities, district, school, and teacher leaders can help inform professors, who have not been actively working in public schools for more than five years, on the uses of the Danielson Framework (2007) to support teachers. Student teachers would be assigned to partnering schools to train in collaborative practices, learn effective instructional strategies in specific content areas, and develop a clear understanding of how to analyze and use data to improve overall school performance. Upon graduation, the new teachers may be able

to make a seamless transition and become members of the faculty at one of the schools in which they trained.

Recommendations for future studies. This study focused on the collaborative work of current PLC members in middle schools in high needs, under resourced, urban districts in the New York City Public Schools. Recommendations for future studies address those aspects that affect how leaders support school reform, and can add to the existing body of research on PLCs.

The first recommendation for a future study is for researchers to conduct a study that includes PLC members who have been teachers between 17 and 30 years, as well as PLC members who are male. For this research study, only a few of the more experienced teachers, who started teaching when teachers worked in isolation, were observed in a PLC, but none agreed to be interviewed for the study. This recommendation is made in order to collect the perceptions of teachers who lived through numerous initiatives implemented and discontinued without lasting benefits over the last 30 years. It is also important to gather the perspective of male teachers in a female dominated profession, in order that needs based PD can be designed and provided to support them, since it is hypothesized that their perspective may be different.

The second recommendation for a future study would be a research study that focuses on the impact that a principals' years of experience as a leader, and degree of knowledge in content and instructional strategies has on the effectiveness of PLCs as a beacon for school reform. This can inform districts on the training that must be provided to future and current principals in order to enable them to better support PLCs.

The third and final recommendation for future studies would be a study to

determine how the number of years that a school has functioned as a PLC impacts the achievement of teachers and students. This would add to the body of investigative research used in education to help develop programs, which train and prepare new leaders.

Summary

Chapter Five presented the summarized findings, and the conclusions and recommendations for policy makers and systems leaders seeking to support adult and student learning in the New York City Public Schools through high functioning PLCs. Recommendations for future studies were made to encourage leaders to broaden their understanding of the ways in which PLCs can contribute to adult and student learning, and overall school improvement. School leaders and teachers may choose to assume responsibilities at other schools. Not only will their new roles require them to engage in PD in order to be effective at the different school, but new leaders and teachers replacing them at their former schools will have to collaborate with their PLCs to assimilate, as well. Changes in the student body are also constantly occurring. Students transfer and graduate, and new students arrive to fill the vacancies. Newly arrived adult and student learners, like all learners, possess varying degrees of knowledge and understanding, but they have the added task of managing potential differences of opinion while learning the norms specific to their new schools. Consequently, the school's core mission of school improvement dictates that the PLCs must support the transitioning stakeholders through individualized PD, and differentiated instruction. "Changes require non-linear thought, attention to an ever-changing environment, ownership of the problem by the people

closest to it, fearless inquiry, and addressing values conflicts" (Garmston & Wellman, 2016, p. 6).

This study provides evidence that systems leaders and teachers trust the PLC process to enable teacher teams to collectively develop and improve upon instructional practices that result in higher student achievement. Moreover, the study shows how PLC members have been empowered by their colleagues to be transparent in their practice in order to receive feedback from their team. This will allow teachers to improve their practice, so that they can reach and sustain their shared vision of increased adult learning and student success.

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APPENDIX A

IRB Approval Letter

Sage College of Albany
140 New Scotland Avenue
Albany, NY 12208
www.sage.edu

December 9, 2016

Minerva Zanca
Doctoral Student, The Sage Colleges

IRB PROPOSAL #525-2016-2017
Reviewer: Francesca Durand, Chair

Dear Researchers:

The Institutional Review Board has reviewed your expedited application and has approved your project entitled "Collaborative Leadership Practices In Elementary Schools To Improve Student Learning In ELA And Math"
Good luck with your research.

Please refer to your IRB Proposal number whenever corresponding with us whether by mail or in person.

When you have completed collecting your data you will need to submit to the IRB Committee a final report indicating any problems you may have encountered regarding the treatment of human subjects, if the project goes longer than one year.

Please let me know if you have any questions.

Sincerely,

Francesca Durand, PhD
Chair, IRB

FD/nan

Cc. Dr. Marlene Zakierski

APPENDIX B

National Institute of Health Certificate for Researcher

Certificate of Completion

The National Institutes of Health (NIH) Office of Extramural Research certifies that **Minerva Zanca** successfully completed the NIH Web-based training course "Protecting Human Research Participants".

Date of completion: 09/13/2015

Certification Number: 1851134

APPENDIX C

Informed Consent Form (Principals)

SAGE COLLEGE OF ALBANY

GRADUATE SCHOOL OF EDUCATION

To Whom It May Concern:

You are being invited to participate in a research project entitled:

COLLABORATIVE LEADERSHIP PRACTICES IN MIDDLE SCHOOLS TO IMPROVE STUDENT LEARNING IN ENGLISH LANGUAGE ARTS (ELA) AND MATH.

This research is being conducted by:

Minerva Zanca, Doctoral Student In Educational Leadership At Sage College Of Albany under the supervision of Marlene Zakierski, Ph.D.

The purpose of the research:

The purpose of this qualitative study is to explore how the implementation of the professional development provided to middle school teachers in professional learning communities affects teacher practice and helps improve student achievement. A qualitative analysis will be conducted after interviewing principals and teachers about the effectiveness of professional development in English Language Arts (ELA) and math. The study will additionally examine school data to see how students have performed over the last three years, and determine whether professional development (PD) through professional learning communities (PLCs) has affected student achievement. Individual student data will be kept confidential.

The nature and duration of participation:

Principals will be asked to answer 5 to 6 open-ended questions during an in-person interview about the planning and implementation of professional development in their schools. Questions will be shared with the participants prior to the interviews. The interview will take about one hour, and will be audio recorded. The researcher will also attend a meeting of the professional learning community at your school during the spring term of 2017. A PLC Observation Protocol will be used to take field notes during the PLC meeting. Your participation is strictly voluntary. If at any time you choose not to continue taking part in the study, your decision will be honored, and all notes and data pertaining to your participation will be immediately destroyed. All responses are confidential and will be specifically used for the purposes of this research.

Procedures to be followed:

The researcher will contact you via email to make an appointment to meet with you to discuss professional development through professional learning communities (PLCs) at your school. The interview will consist of 5 to 6 open-ended questions about the planning and design of teacher learning and support in order to bring about higher student achievement. Your identity will not be disclosed. Pseudonyms will be assigned to the participants and their schools. The researcher will also observe a meeting of the professional learning community at your school, and use a Professional Learning Community Observation Protocol (PLCOP) to take field notes, paying special attention to collaboration, engagement, resources shared, instructional methodologies, and best practices highlighted. Data to be gathered will include agendas, and instructional materials used by the participants. In addition to observing the PLC meetings, the researcher will ask teacher participants 6 to 7 open-ended interview questions. After the data has been collected, all of the participants will be asked to member-check their interview responses and provide verification via email.

Confidentiality Agreement:

The study is anonymous, and confidentiality will be maintained. Pseudonyms will be used to insure confidentiality. No identifiable information or data will be available. There are no known risks to the participants of this research study. The researcher will use a computer program to transcribe the interviews, thereby maintaining full confidentiality of any, and all audiotapes, videotapes, and/or oral or written documentation related to the research project entitled, Collaborative Leadership Practices In Middle Schools To Improve Student Learning In English Language Arts (ELA) And Math. The research participants provided the information in these tapes and/or documents with the understanding that any information that may identify them will not be associated with any recording of the interview or its transcription.

Benefits of the research study to the participants:

The research study may help leaders and faculty better understand how shared practices, through collaborative PD in professional learning communities, can become more of a driving force in achieving higher teacher effectiveness and greater student learning. The findings of this study may enable administrators and PLC members to comprehend how new or existing strategies might work more efficiently to meet the needs of teachers and students in their districts and schools.

This research study can also potentially provide educational leaders in your district and school with new ideas on how to more purposefully engage middle school teachers of English Language Arts (ELA) and math in collaborative professional development activities that can result in higher student outcomes.

Potential risks of the research study to the participants:

All participants will face minimal risks. To mitigate the risk of breach of confidentiality, all schools as well as participant names will be de-identified (pseudonyms will be assigned). The master list will be kept by the researcher in a password secured, electronic database on a flash drive/memory stick. The researcher will use a computer program to transcribe the interviews. Each participant will be supplied with the Sage contact information for reporting potential risks (see below). All data collected will be confidential. There will be no students interviewed for this study.

As a New York City Department of Education retired employee, the researcher is a mandated reporter. If for any reason an adverse event occurs during the scope of the research with a particular participant's data, their involvement in the study will be omitted to prevent distress. Moreover, the data and any transcription will be destroyed. Finally, the researcher will provide all participants with the name and contact information for Sage Colleges to report any issues.

Dr. Donna Heald, PhD
Associate Provost
The Sage Colleges
65 1st Street
Troy, New York 12180
518-244-2326
healdd@sage.edu

Alternative procedures:

After an in-person interview with the principal, the researcher will observe teachers interacting in their professional learning communities. In addition to the observation of protocols and procedures in your school's Professional Learning Communities, teacher interviews consisting of 6 to 7 open-ended questions will be conducted. Questions will be provided to the teachers prior to the interviews. Two sessions may be necessary in order to gather all information. These interviews will take about 30 minutes each, and will be audio recorded. All recordings will be used by the researcher for the purposes of data analysis.

I give permission to the researcher, Minerva Zanca, to conduct an audio or video recording of me. Please put your initials here to indicate your permission. _____

Participation is voluntary, I understand that I may at any time during the course of this study revoke my consent and withdraw from the study without any penalty.

I have been given an opportunity to read and keep a copy of this Agreement and to ask questions concerning the study. Any such questions have been answered to my full and complete satisfaction.

I, _____, having full capacity to consent, do hereby volunteer to participate in this research study

Signed: _____ Date: _____
Research participant

This research has received the approval of The Sage Colleges Institutional Review Board, which functions to insure the protection of the rights of human participants. If you, as a participant, have any complaints about this study, please contact:

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APPENDIX D

Informed Consent Form (Teachers)

SAGE COLLEGE OF ALBANY

GRADUATE SCHOOL OF EDUCATION

To Whom It May Concern:

You are being asked to participate in a research project entitled:

COLLABORATIVE LEADERSHIP PRACTICES IN MIDDLE SCHOOLS TO IMPROVE STUDENT LEARNING IN ENGLISH LANGUAGE ARTS (ELA) AND MATH.

This research is being conducted by:

Minerva Zanca, Doctoral Student In Educational Leadership At Sage College Of Albany under the supervision of Marlene Zakierski, Ph.D.

The purpose of the research:

The purpose of this qualitative study is to explore to what degree the implementation of the professional development provided to middle school teachers in professional learning communities affects teacher practice and helps improve student achievement. A qualitative analysis will be conducted after interviewing principals and teachers about the effectiveness of professional development in English Language Arts (ELA) and math. The study will additionally examine school and student data to see how students have performed over the last three years, and determine whether professional development (PD) through professional learning communities (PLCs) has affected student achievement. Individual students data will be kept confidential.

The nature and duration of participation:

The researcher will attend a meeting of the professional learning community at your school during the spring term of 2017. A teacher interview consisting of 6 to 7 open-ended questions will also be conducted. This will take about one hour, and will be audio recorded. If necessary, the interview may be conducted over two sessions of 30 minutes each. A PLC Observation Protocol will be used to take field notes during the PLC meeting. Your participation is strictly voluntary. If at any time you choose not to continue taking part in the study, your decision will be honored, and all notes and data pertaining to your participation will be immediately destroyed. Your responses are confidential and will be specifically used for the purposes of this research.

Procedures to be followed:

Pseudonyms will be assigned to the interviewees and their schools. During the meeting of the Professional Learning Community at your school, the researcher will use a PLC Observation Protocol to take field notes with special attention to collaboration, engagement, resources shared, instructional methodologies, and best practices highlighted. Data to be gathered will include agendas and instructional materials used by the participants. In addition to observing the PLC meetings, the researcher will ask participants 6 to 7 open-ended questions. After the data has been collected, you will be asked to member-check your interview responses and provide verification by email.

Confidentiality Agreement:

The study is anonymous and confidentiality will be maintained with regards to any and all audiotapes, videotapes, and/or oral or written documentation. Pseudonyms will be used to insure anonymity. No identifiable information or data will be available. There are no known risks to the participants of this research study. A computer program will be used to transcribe the interviews related to the research project entitled, Collaborative Leadership Practices In Middle Schools to Improve Student Learning In English Language Arts (ELA) And Math. The research participants provided the information in these tapes and/or documents with the understanding that any information that may identify them will not be associated with any recording of the interview or its transcription.

Benefits of the research study to the participants:

The research study may help leaders and faculty better understand how shared practices, through collaborative professional development (PD) in professional learning communities (PLCs), can become more of a driving force in achieving higher teacher effectiveness and greater student learning. The findings of this study may enable administrators and PLC members to deeply comprehend the new or existing strategies that might work more efficiently to meet the needs of teachers and students in their districts and schools.

This research study can also potentially provide educational leaders in your district and school with ideas on how to more purposefully engage middle school teachers of English Language Arts (ELA) and math in collaborative professional development activities that can result in higher student outcomes.

Potential risks of the research study to the participants:

All participants will face minimal risks. To mitigate the risk of breach of confidentiality, all schools as well as participant names will be de-identified (pseudonyms will be assigned). The master list will be kept by the researcher in a password secured, electronic database on a flash drive/memory stick. The transcription of the interviews will be conducted via a computer-based program. Each participant will be supplied with

the Sage contact information for reporting potential risks (see below). All data collected, including students' test scores will be kept confidential. There will be no students interviewed for this study.

As a New York City Department of Education retired employee, the researcher is a mandated reporter. If for any reason an adverse event occurs during the scope of the research with a particular participant's data, their involvement in the study will be omitted to prevent distress. Moreover, the data and any transcription will be destroyed. Finally, the researcher will provide all participants with the name and contact information for Sage Colleges to report any issues.

Dr. Donna Heald, PhD
Associate Provost
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Troy, New York 12180
518-244-2326
healdd@sage.edu

Alternative procedures:

In addition to the observation of protocols and procedures in your school's professional learning communities, in person interviews consisting of 6 to 7 open-ended questions will be conducted. Questions will be provided to the teachers prior to the interviews. Two sessions may be necessary in order to gather all information. These interviews will take about 30 minutes each, and will be audio recorded. All audio recordings will be used by the researcher for the purposes of data analysis.

I give permission to the researcher, Minerva Zanca, to conduct an audio or video recording of me. Please put your initials here to indicate your permission. _____

Participation is voluntary, I understand that I may at any time during the course of this study revoke my consent and withdraw from the study without any penalty.

I have been given an opportunity to read and keep a copy of this Agreement and to ask questions concerning the study. Any such questions have been answered to my full and complete satisfaction.

I, _____, having full capacity to consent, do hereby volunteer to participate in this research study

Signed: _____ Date: _____
Research participant

This research has received the approval of The Sage Colleges Institutional Review Board, which functions to insure the protection of the rights of human participants. If you, as a participant, have any complaints about this study, please contact:

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518-244-2326
healdd@sage.edu

APPENDIX E

Interview Protocol (Principals)

Sage College of Albany

Graduate School of Education

My name is Minerva Zanca, and I am a doctoral candidate at the Sage College of Albany, Graduate School of Education. I am conducting a research study entitled "Collaborative Leadership Practices In Middle Schools To Improve Student Learning In English Language Arts (ELA) And Math." The study will explore how the professional development provided to middle school teachers of English Language Arts (ELA) and math through professional learning communities in the New York City Public Schools affects student achievement. It would be helpful if you could answer 5 or 6 questions about your lived experiences as a school leader who supports the implementation of teachers' professional development through PLCs. Before the interview, I will review the Informed Consent Form with you, and explain all procedures related to your participation in this interview. After you give consent in writing, we can begin the interview. I appreciate your participation in this study.

1. Please explain how you develop your professional development plan, and how it is implemented in your school and/or district?

2. What benefits do professional learning communities (PLCs) provide for teachers that cannot be gained through other forms of professional development (PD) delivered by professional facilitators? Can you please give examples?

3. How are teacher leaders developed and mentored at your school, and what role do they play in shaping PD?

4. Explain the structures you've helped put in place for following up with teachers, after they've received recommendations from their PLC on how to improve their practice.

5. What support do you, as the school leader, provide to your teacher teams in order to optimize their continued professional growth?

6. Is there anything I have not asked you about PLCs and PD that would be useful for this research?

APPENDIX F

Interview Protocol (Teachers)

Sage College of Albany

Graduate School of Education

My name is Minerva Zanca, and I am a doctoral candidate at the Sage College of Albany, Graduate School of Education. I am conducting a research study entitled "Collaborative Leadership Practices In Middle Schools To Improve Student Learning In English Language Arts (ELA) And Math." The study will explore how the professional development provided to middle school teachers of English Language Arts (ELA) and math through professional learning communities in the New York City Public Schools affects student achievement. It would be helpful if you could answer 6 or 7 questions about your lived experiences as a member of a PLC. Before the interview, I will review the Informed Consent Form with you, and explain all procedures related to your participation in this interview. After you give consent in writing, we can begin the interview. I appreciate your participation in this study.

1. Do you agree with your district's/school's rationale to establish professional learning communities (PLCs) in order to support teachers' professional development (PD)? Why, or why not?

2. Please describe the most valuable feedback provided to you by your colleagues during a PLC meeting.

3. Are you able to openly express any uncertainties or concerns you may have about your own professional practice during a PLC meeting? Please elaborate.

4. Can you speak about a PD experience, (PLC, or other), that provided you with an instructional technique you were able to implement successfully in your classroom? Explain the impact on both your practice and student achievement.

5. What would you change about the professional development program in your school/district? Why?

6. How has being a member of a professional learning community changed the way you think about teaching and learning?

7. Is there anything I have not asked you about PLCs and PD that would be useful for this research?

APPENDIX G

PLCOP

Professional Learning Community Observation Protocol

4 Core Beliefs	**Work is Centered around 5 Questions:**
Shared Vision Collaborative Culture Focus on Learning Results Orientation	1. What knowledge and skills should every student master as a result of this unit of instruction? 2. How will we know when each student has mastered the essential knowledge or skills? 3. How will we respond when some students do not learn? 4. How will we extend, enrich and personalize learning for students already proficient? 5. How do we support all PLC members in carrying out their professional responsibilities outside and inside the classroom

1. Shared Vision and Norms

Indicator	**Specific evidence observed**
The team has a shared vision and aligns to collective norms in its actions, reflections, and planning:	
The team is committed to delivering on the promise that all students can learn at high levels when provided with the opportunity, extra time, support and enrichment	
The team aligns curriculum around the state standards, assessment frameworks, or criteria that specify what determines rigor and proficiency in student work	
Team members share ideas based on evidence, and there is a collegial challenging of diverse ideas based on the evidence	
The team plans for and seeks to enhance their instructional skills and content knowledge to ensure that students acquire the necessary understandings and competencies that will prepare them for college, career, and civic responsibility	
Instruction and student interventions are planned and modified based on current research	

2. Collaboration

Indicator	**Specific evidence observed**
The team creates an environment that fosters open communication and sharing of ideas. All members have the opportunity to learn from one another and support the team's continuous improvement. The team is organized and managed to achieve its goals:	
Norms are established, followed and revisited on a regular basis	
Members value the contributions of their colleagues and are open to different points of view	
Criticism is constructive, and there is a collegial challenging of diverse ideas	
Smart goals are established, and responsibilities for achieving them are shared by all members of the team	

The team manages its time efficiently by using protocols, processes, and structures designed to guide professional discussions and data conversations	
The team supports all members in adjusting their practices and instruction as needed	

3. Focus on Learning

Indicator	**Specific evidence observed**
The team seeks to engage all students in learning through skillful use of questioning and discussion, and through the integration of assessment strategies into instruction:	

The focus of the team's activities is on students' understanding of the content in order to improve student learning.	
Team members' lesson plans indicate that the purpose of the lesson or unit is clear, including where it is situated within broader learning, linking purpose to student interests	
Team members' lesson plans indicate that questions to students are of high level (DOK 4). Students are also given adequate wait time to respond and formulate their own questions	

Team members' lesson plans indicate planning for project based instruction in order to cognitively engage students in activities and assignments that allow them to explore the content, and make connections between their lives and what they are learning in the classroom	
Team members plan instruction that will make students aware of the criteria and performance standards by which their work will be evaluated	
Team members discuss how to use student assessments to make necessary adjustments to their instruction through the use of differentiation, scaffolding, and a variety of modalities aligned to the learning styles of their students	

4. Results Orientation

Indicator	**Specific evidence observed**
The team monitors its actions, decisions, and reflections based on its common norms and goals:	

The team considers several ways of modifying instruction before deciding what might work best	
Team members make connections between past learning, current goals, and intended applications in order to support student learning	
The team uses data to monitor student progress, and adjusts its activities and processes for greater student outcomes	

Team members' lesson plans indicate planning for project based instruction in order to cognitively engage students in activities and assignments that allow them to explore the content and make connections between their lives and what they are learning in the classroom	
Team members plan instruction that will make students aware of the criteria and performance standards, by which their work will be evaluated	
The Team identifies the concepts, skills, and competencies embedded in each standard, and the appropriate level of rigor and Depth of Knowledge (DOK) for each, and determines what mastery looks like	
The team utilizes pacing guides and curricular materials to support student learning, and improve student outcomes	

APPENDIX H

Letter of Introduction (Principals)

SAGE COLLEGE OF ALBANY
GRADUATE SCHOOL OF EDUCATION

zancam@sage.edu
917-783-5810

Dear Principal:

I am a doctoral candidate in Educational Leadership at Sage College of Albany, who is also a former high school principal. I have received IRB approval to collect data for my dissertation. I will be conducting research under the supervision of Marlene Zakierski, Ph.D. The focus of my research study is to explore how the implementation of the professional development (PD) provided to middle school teachers of English Language Arts (ELA) and math in professional learning communities affects teacher practice and helps improve student achievement. I am requesting your permission to conduct research at your public school regarding the professional development provided to your teachers through professional learning communities (PLCs). I selected your school because of the improvement in student achievement that has occurred in your district over the last several years, and I am interested in collecting data about how PLCs have affected student achievement in your school.

I hope that you will be able to assist me with my research. Principals will be asked to answer 5 to 6 open-ended questions during an in-person interview about the planning and implementation of professional development in their schools. This will take about one hour, and will be audio recorded. I will also attend a meeting of the professional learning community (PLC) at your school during the spring term of 2017. I will use a Professional Learning Community Observation Protocol (PLCOP) to take field notes about the teacher interactions and the decision-making process that occur during PLC meetings. In addition, I will interview teachers about their lived experiences as members of PLCs. All school and student data collected will be kept confidential. There will be no students interviewed for this study.

As a New York City Department of Education retired employee, the researcher is a mandated reporter. If for any reason an adverse event occurs during the scope of the research with a particular participant's data, their involvement in the study will be omitted to prevent distress. Moreover, the data and any transcription will be destroyed. Participation in the study is strictly voluntary, and subjects may withdraw from the study at any time. Pseudonyms will be used to protect the identity of participants and sites. All responses are confidential and will be specifically used for the purposes of this research. Finally, the researcher will provide all participants with the name and contact information for Sage Colleges to report any issues. (See below).

Dr. Donna Heald, PhD
Associate Provost
The Sage Colleges
65 1st Street
Troy, New York 12180
518-244-2326
healdd@sage.edu

If you have any questions, please contact me at my email address, or call me at XXX-XXX-XXXX. I thank you in advance for taking time out of your very busy schedule to provide me with insight into your school. I look forward to meeting with you.

Very truly yours,

Minerva Zanca

APPENDIX I

Letter of Introduction (Teachers)

SAGE COLLEGE OF ALBANY
GRADUATE SCHOOL OF EDUCATION

zancam@sage.edu

Dear Teacher:

I am a doctoral candidate in Educational Leadership at Sage College of Albany, who is also a former principal. I have received IRB approval to collect data for my dissertation. I will be conducting research under the supervision of Marlene Zakierski, Ph.D. The focus of my research study is to explore to what degree the implementation of the professional development (PD) provided to elementary school teachers of English Language Arts (ELA) and math in professional learning communities affects teacher practice and helps improve student achievement. I would like to conduct research at your public school regarding the professional development provided to teachers through professional learning communities (PLCs). I selected your school because of the improvement in student achievement that has occurred in the district over the last several years, and I am interested in collecting data on how PLCs have affected student achievement in your school.

I am hoping that you will be able to assist me with my research. Teachers will be asked to participate in an in-person interview consisting of 6 to 7 open-ended questions. This will take about one hour, and will be audio recorded. The researcher will also attend a meeting of the professional learning community at your school during the spring term 2017. A Professional Learning Community Observation Protocol (PLCOP) will be used to take field notes of the teacher interactions and decision-making processes that occur during PLC meetings. Additionally, your school leader will be asked to answer 5 to 6 open-ended questions during an in-person interview about the planning and implementation of professional development at your school. All school and student data collected will be kept confidential. There will be no students interviewed for this study.

As a New York City Department of Education retired employee, the researcher is a mandated reporter. If for any reason an adverse event occurs during the scope of the research with a particular participant's data, their involvement in the study will be omitted to prevent distress. Moreover, the data and any transcription will be destroyed. Participation in the study is strictly voluntary, and subjects may withdraw from the study at any time. Pseudonyms will be used to protect the identity of participants and sites. All responses are confidential and will be specifically used for the purposes of this research. Finally, the researcher will provide all participants with the name and contact information for Sage Colleges to report any issues. (See below).

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Troy, New York 12180
518-244-2326
healdd@sage.edu

If you have any questions, please contact me at my email address, or call me at xxx-xxx-xxxx. I thank you in advance for taking time out of your very busy schedule to provide me with insight into your professional development processes. I look forward to meeting with you.

Very truly yours,

Minerva Zanca

APPENDIX J

Letter of Permission to Use and Modify PLCOG

Science, Mathematics and Technology Education
516 High Street, SL 220
Bellingham, Washington 98225-9155
(360) 650-7650
SMATE.wwu.edu

To Minerva Zanca November 22, 2016

As the author of the Professional Learning Community Observation Guide (PLCOG), I grant Minerva Zanca permission to use, and modify, the instrument to serve the needs of her research. Please cite the instrument using the following reference:

Hanley, D. (2006). Professional Learning Community Observation Guide [Unpublished instrument]. Retrieved from https://www.ncosp.wwu.edu/Tools/index.php?toolID=6.

Daniel M. Hanley, Ph.D.
Educational Research and Evaluation
Science, Mathematics, & Technology Education
Western Washington University
516 High Street, Bellingham, WA 98225-9155
Phone: (360) 650-4683 E-mail: Daniel.hanley@wwu.edu

APPENDIX K

Data Sources and Corresponding Themes

Correspondence of the themes to the data sources for each research question

Research Question 1	
How does research based PD in ELA and math affect teacher practice and student outcomes?	
Themes:	Sources:
Teacher Collaboration	A, B, C, D
Teamwork and Support	A, B, C, D
Common Planning Time	A, B, C, D

Research Question 2	
How was the PD designed and implemented at the middle school level?	
Themes:	Sources:
Content Area and Grade Level Teams	A, B, C, D
Differentiated PD	A, B, C, D

Research Question 3	
How does the role of teachers as interdependent learners and experts in PLCs, create a collective culture of improvement?	
Themes:	Sources:
Collective Expertise	A, B, C, D
Observation & Feedback	A, B, C, D

Sources:
A – Teacher Interviews; B – Principal Interviews; C – PLC Observation Protocol;
D – Document Review