

INTERDISCIPLINARY MIDDLE SCHOOL TEAMS AS PROFESSIONAL
LEARNING COMMUNITIES

By

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A dissertation submitted to the

Graduate School of Education

Rutgers, The State University of New Jersey

in partial fulfillment of the requirements

for the degree

Doctor of Education

Graduate Program in Educational Administration and Supervision

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October 2016

INTERDISCIPLINARY TEAMS AS PLCS

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INTERDISCIPLINARY TEAMS AS PLCS

ABSTRACT OF THE DISSERTATION:

Interdisciplinary Middle School Teams as Professional Learning Communities

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Problem: Interdisciplinary teaming has been noted as a critical element of the middle school model associated with higher student achievement (Flowers, Mertens, & Mulhall, 1999; McEwin & Greene, 2011; Valentine, Clark, Hackmann, & Petzko, 2004). Yet, research on middle school teams' use of common planning time suggests that the majority of meeting time is spent discussing student behavior/issues, discussing student learning problems/issues, and planning team activities with minimal time focused on matters of instructional improvement (Flowers & Mertens, 2013). Professional learning communities (PLCs) have been recognized in school reform literature for their potential to positively impact teaching and learning (Hord, 1997, 2008; DuFour & Eaker, 1998, DuFour, DuFour, Eaker, & Many, 2006, 2010; DuFour, DuFour, Eaker, Many, & Mattos, 2016; Hord & Tobia, 2012; McLaughlin & Talbert, 2001, 2006; Wells & Feun, 2013). However, limited research has specifically examined interdisciplinary middle school teams as PLCs. The purpose of this study was to explore and describe the extent to which two interdisciplinary middle school teams functioned as PLCs during the initial year of implementation and to identify factors that influenced their development.

Method: A qualitative multi-case study design was employed to capture the ways in which two interdisciplinary middle school teams experienced their first year of PLC implementation. Data were collected through team meeting observations, teacher and

INTERDISCIPLINARY TEAMS AS PLCS

administrator interviews, and documents. Data were organized and analyzed using Nvivo7, a qualitative research application. Further analysis was performed using case ordered matrix displays (Miles & Huberman, 1994).

Findings: During the first year of PLC implementation, each interdisciplinary team experimented and made meaning of the PLC process in a unique way. One team engaged in work that focused on literacy across content areas, while another team addressed more general problems of practice focused on meeting individual students' needs through student accommodations and modifications. Leadership and artifact use influenced PLC development. Administrative leaders provided direction, professional development and resources to support PLC development. Drawing upon their background expertise and PLC training, teacher leaders facilitated PLC meetings and provided guidance for their team's interdisciplinary PLC focus. Use of artifacts such as agendas and protocols helped teacher teams to maintain focus during PLC meeting times.

Significance: This study has implications for how interdisciplinary middle school teams can maximize common planning times to promote instructional effectiveness and student learning across content areas.

DEDICATION

I dedicate this dissertation to my late grandfather, Arthur A. Gittens, Sr., who taught me, by his example, the importance of hard work and service to others. His sacrifices, constant encouragement, and support inspired me to value education and service.

To the late Ben Warren Payton, thank you for your continued encouragement and faith in me. I share your passion for education and your desire to provide opportunities for others. I only wish I could have completed this sooner so I could celebrate with you in person.

I also dedicate this dissertation to all those who encouraged me to pursue further graduate study. I did not think I could do it. But you “encouragers” all knew that I could. Family, friends, professors, colleagues, and students – thank you for the support and words of encouragement. Every time you asked about the dissertation, you inspired me to press on. Finally, I have a different response to your questions about how the dissertation is going!

INTERDISCIPLINARY TEAMS AS PLCS

ACKNOWLEDGEMENTS

To my Lord and savior, Jesus Christ: “Let the words of my mouth, and the meditation of my heart, be acceptable in your sight. O LORD, my strength, and my redeemer.” Psalm 19:14 (King James Version)

To my lovely wife, Malkia: Thank you for bearing with me. Your patience, companionship, and support are truly appreciated. I love you.

To my wonderful children, Gabby, Dani, and Evan: Thank you for your love and patience. It took me quite a while to finish, but now I can spend even more time with you.

To my parents, Celeste and George E. Jackson, Sr.: Thank you. I love you. Mom, I finally finished the “paper.” Thank you for always asking!

To my dissertation committee, Dr. William Firestone, Dr. Catherine Lugg, and Dr. Alisa Belzer: Thank you for your patience and support throughout this process. Dr. Firestone, your patience, longsuffering, and honest feedback have been helpful to me. Dr. Lugg, you inspired me to persist when I was ready to quit. Thank you for standing behind me. Dr. Belzer, thank you for your expertise from start to finish.

To the Plainfield Learning Community (1996-present): My doctoral journey began in Plainfield. The Plainfield Public school district will always hold a special place in my heart – no alibis, no exceptions, or excuses!

To Lawrence Middle School (2006-present): It has been my pleasure to work in a school with so many talented teachers. A special thank you to the Fire House.

To my doctoral support group, Mary, Nicola, and Winston: You have been wonderful. Not only did I gain advice for the doctoral process, you helped me to make some important life decisions as well. My friends, I appreciate you.

TABLE OF CONTENTS

ABSTRACT OF THE DISSERTATION.....	iii
DEDICATION.....	v
ACKNOWLEDGEMENTS.....	vi
TABLE OF CONTENTS.....	vii
LIST OF TABLES.....	viii
LIST OF FIGURES.....	ix
CHAPTER 1: INTRODUCTION.....	1
CHAPTER 2: REVIEW OF THE LITERATURE.....	11
CHAPTER 3: METHODOLOGY.....	46
CHAPTER 4: FINDINGS.....	77
CHAPTER 5: DISCUSSION.....	111
REFERENCES.....	119
APPENDICES.....	131

LIST OF TABLES

Table 1: LMS Initiatives.....	50
Table 2: Study Participants.....	53
Table 3: LMS PLC Professional Development 2011-2012.....	60
Table 4: Data Collection Timeline 2001-2012.....	66

LIST OF FIGURES

Figure 1: Conceptual Framework.....	14
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CHAPTER 1

Introduction

The Possibilities of Interdisciplinary Collaboration

As an assistant principal at Lawrence Middle School (LMS), I have frequented many classrooms and visited several team meetings, which led me to ponder the potential for interdisciplinary middle school teams to function as professional learning communities (PLCs). During visits to LMS teachers' classrooms I witnessed an appropriate and balanced variety of traditional and progressive instructional methods, yet I saw no deliberate connections between classroom instruction and teams' use of common planning time (CPT). When I observed interdisciplinary team meetings I found that their meetings were used to address housekeeping and administrative tasks, such as arranging field trips, and completing mandated paperwork. Team discussions were often focused on student behavior and failing students. At times, teacher teams collaborated and developed student success plans under administrative direction; other times, team meetings were a forum for frustrated staff members to vocalize their concerns regarding policy, students, parents and administrators (Caskey, Anfara, Mertens, & Flowers, 2013; Little, 1982). Blaming was common and collective reflection was rare.

Through the course of my routine, I observed an interdisciplinary team that demonstrated significant potential for instructionally focused collaboration. Among these team members' classrooms, instructional expertise and interdisciplinary content were serendipitously integrated among core subject areas. For example, in a math class, students were engaged in inquiry based problem solving where they were challenged to explain and justify their responses both orally and in writing. Inherent within their

problem solving experiences, students interpreted graphs to identify data trends. The team's science teacher taught the same students how to identify and graph observational data. Students were also expected to maintain an interactive notebook that would require them to demonstrate their understanding of science concepts. Throughout the academic year, students were making meaning, applying, and demonstrating understanding of concepts through engagement in the scientific process. Though the team met two to three times per week, there was no discussion about instruction, therefore interconnectedness across these math and science classrooms were not by design, but coincidental. In fact, when I observed and met with each of these teachers individually, each teacher was pleasantly surprised to learn that there was a curricular connection between their content areas.

On this same interdisciplinary team, the social studies teacher and the team's two language arts teachers did plan to work together. The social studies teacher on the same team engaged students in an annual project that involved interviewing family and community members to develop narratives for publication. This project served as a demonstration of how history is recorded and published, and it also served as an authentic application of the concepts learned in language arts. Both language arts teachers collaborated with the social studies teacher to assist students with developing their essays for the book. The social studies teacher designed the project and the language arts teachers guided students through the writing process to revise, edit, and publish their work. Though this collaborative effort was short-lived, unlike the science and math teachers on their team, these colleagues did seize an interdisciplinary opportunity to integrate curriculum.

As I reflected upon this team, I viewed them as a group of professionals who were presented with a number of opportunities to provide students with relevant, meaningful, learning experiences that fell into place within an interdisciplinary team context. The team had the benefit of essential structural conditions associated with professional community such as: proximity, time to talk, and potentially interdependent teaching roles (Hord & Sommers, 2008; Hord & Tobia, 2012; Kruse, Louis, & Bryk, 1995). While key elements of professional community were present, the team did not focus on teaching and learning during these meetings, nor was there evidence of a collective responsibility for student learning across content areas.

Without fail, despite all of the potential the team held, at the end of the academic year, the mathematics and language arts teachers were either applauded or scrutinized based upon student performance on district and standardized tests limited to these content areas. Though cross content literacy opportunities existed in mathematics, science and social studies, the burden of standardized test result outcomes fell on the mathematics and language arts teachers. The pressures of high stakes testing was a source of stress for the teachers of tested areas such as language arts and mathematics, which left less of an incentive for other content area teachers to take collective ownership for student learning across content areas.

This annual reality caused me to wonder: What if interdisciplinary teams shared collective responsibility for student learning by developing and identifying ways to make learning relevant across content areas? How might teachers across content areas benefit from understanding what team colleagues were trying to accomplish with students they shared in common? I reflected upon these questions in light of the fact that mathematics

and language arts teachers were held accountable for all students' learning across racial and socioeconomic subgroups, even though these students were being taught in four content areas by different teachers.

In essence, I felt it was necessary for teams to interact in ways that would promote collective responsibility for student learning, which is something that I had not seen LMS teams do. Interdisciplinary teams were in place, as were organizational structures such as common planning time, proximity, and potentially interdependent teaching roles. Yet, their interdisciplinary meetings did not focus on instructional improvement or student learning. As is the case with any school, there is a challenge to ensure that all students learn at high levels. However, when there are organizational structures in place without a focus on teaching and learning, it is not likely that interdisciplinary teams will realize their potential for collective responsibility for student learning. The focus of this study was to discover what would happen if established interdisciplinary middle school teams implemented a PLC model intended to promote student learning.

Statement of the Problem:

High Stakes Expectations and Traditional Organizational Structures

Since the enactment of the No Child Left Behind Act (NCLB) in 2002, the transparency of student achievement results increased pressure upon middle school educators to advance student achievement at unprecedented levels. Through published disaggregated student achievement results, sobering realities of persistent racial and socioeconomic achievement gaps became more clearly apparent at the middle school level, where students were expected to make the greatest gains according to NCLB Adequate Yearly Progress (AYP) targets (Wilcox & Angelis, 2009). Despite the demands of NCLB, persisting achievement gaps are evidence of an ongoing struggle to sustain learners' academic growth as students approach the secondary level (Darling-Hammond, 2004; Louis, Leithwood, Wahlstrom, & Anderson, 2010).

The transition from elementary to middle school takes place at a time when pre-adolescent students are at a critical stage of academic, social, and emotional development (AMLE, 2010; NMSA, 2003; Wood, 2007); and is associated with a decline in student achievement (Asplough, 1998; Rockoff & Lockwood, 2010; West & Schwerdt, 2012; Yecke, 2006). In a typical school district, a middle school is often comprised of students from a number of elementary schools, where students transition from the nurturing, insular structure of self-contained classrooms facilitated by one teacher to a more complex organizational structure that requires students to navigate a schedule with a different teacher for each content area. Though U.S. student achievement levels have increased over the past decades, and some racial achievement gaps have narrowed, transitional declines in achievement from elementary to middle school persist (Louis et

al., 2010; NAEP, 2011; Rockoff & Lockwood, 2010; West & Schwerdt, 2012; Yeeke, 2006).

In the 1960s, middle school reform models were developed with the intent of easing the transition from elementary to the middle level through providing developmentally responsive learning environments for pre-adolescents. As middle school reform evolved, teachers have increasingly functioned within an organizational structure where interdisciplinary teams were a key element (McEwin & Greene, 2011; Valentine et al., 2004; Weller, 2004). In the National Middle School Association's (NMSA's) *This, We Believe* position statement (2003), they claimed: "The interdisciplinary team is the signature component of high performing (middle) schools, literally the heart of the school" (p.29).

Common planning time (CPT) is a critical structural requirement for interdisciplinary teaming (AMLE, 2010; Mertens, Anfara, Caskey, & Flowers, 2013; McEwin & Greene, 2011; NMSA, 2003; Valentine et al., 2004; Wells, 2004). The purpose of CPT is to provide interdisciplinary teams with time to work together to develop and implement integrated curriculum, focus on student issues and concerns, and coordinate student assignments and assessments, analyze assessment data and student work, discuss current research, and evaluate instructional effectiveness (AMLE, 2010; George, 2013; Jackson & Davis, 2000; NMSA, 2003). As the standards-based demands for student achievement increase in rigor, so do expectations for content area instruction, which makes it necessary for teachers to engage in meaningful professional learning activities during CPT.

Duly noted as a necessary component of the middle school model, research has primarily focused on amounts of CPT (McEwin & Greene, 2011) and its effects on teaching and student learning (Flowers, Mertens, & Mulhall, 1999, 2000; George, 2013). Recent CPT research suggests that although teacher teams have the time to meet for CPT, there is still a need for professional development on how to make effective use of the time to focus on teaching and learning (Caskey et al., 2013). In fact, the most commonly reported uses of CPT were not directly focused on matters of teaching and learning, but rather to discuss students' learning and behavioral problems, and planning special team activities (Flowers & Mertens, 2013). In sum, securing CPT is important for interdisciplinary teaming, but it is no guarantee that teams will maximize their use of this time for instructional improvement.

When it comes to promoting teachers' professional learning to advance student learning, the concept of professional learning communities (PLCs) has been widely endorsed (DuFour & Eaker, 1998; DuFour, Eaker, & DuFour, 2005; Hipp & Huffman, 2010; Hord & Tobia, 2012; McLaughlin & Talbert, 2006). Hipp and Huffman (2010) define a PLC as "Professional educators working collectively and purposefully to create and sustain a culture of learning for all students and adults" (p. 12). According to DuFour and colleagues (2016), "PLC is an ongoing process in which educators work collaboratively in recurring cycles of collective inquiry and action research to achieve better results for the students they serve. (p.10). PLCs are commonly characterized as collaborative teams of teachers that work together interdependently toward a common goal during common planning time (CPT) (DuFour & Eaker, 1998; DuFour et al., 2006, 2010; DuFour et al., 2016; Hord & Sommers, 2008; Hord & Tobia, 2012). Studies

suggest that student achievement increases and professional learning takes place when teachers participate in stable PLCs (Hord & Tobia, 2012; Lee, Smith, & Croninger, 1995; Vescio, Ross, & Adams, 2008).

Middle schools and PLCs are an ideal structural and conceptual match. Most middle schools share a common organizational structure (Mertens et al., 2013; Valentine et al., 2004) and as per federal policy, all middle schools are charged with responsibility for advancing student learning in core content areas. Middle school interdisciplinary teams were initially intended to plan ways to integrate curricula, analyze data, examine student work, discuss current research, and reflect on the effectiveness of instruction (AMLE, 2010; Jackson & Davis, 2000; Mertens, Flowers, Anfara, & Caskey, 2010; NMSA, 2003). However, research suggests that typical interdisciplinary teams do not achieve its ideal teaming intentions unless there is a collaborative focus on teaching and student learning (Caskey et al., 2013; Wells & Feun, 2013).

The PLC concept is focused on teaching and learning, which suggests the possibility of advancing instructional effectiveness and student learning through implementation in a middle school context. Considering evidence that associates PLCs with increased student achievement (DuFour, DuFour, Eaker, & Karhanek, 2004; Hord & Tobia, 2012; Newmann & Associates, 1996), in light of gaps in middle school CPT research (Caskey et al., 2013), and during the era of the Common Core Initiative, the study of how interdisciplinary teams develop and function as PLCs in a middle school setting is timely and relevant (Teague & Anfara, 2012).

The Study

The main purpose of this qualitative study was to explore and describe the extent to which two interdisciplinary middle school teams functioned as PLCs during the initial year of implementation and to identify factors that influenced each team's development. Employing case study methodology, I examined two interdisciplinary middle school teams to understand how they experienced the initial transition from meetings that focused primarily on discussing student behavior and failure, planning special team activities, and completing administrative tasks to meetings that reflected an increased focus on aspects of teaching practice and student learning. Throughout the study, I analyzed the contexts, interactions, and development of each team in response to the PLC initiative that was launched at LMS during the 2011-2012 school year.

These cases suggest the following conclusions about how middle school teams can function as PLCs that improve teaching and learning:

- Administrative leadership provides the conditions and sets the general direction for how interdisciplinary teams function.
- Internal teacher leadership guides teams' focus on different common areas for improvements.
- Teachers' beliefs influenced interdisciplinary PLCs' collective focus.
- Use of artifacts such as agendas and protocols helped teams to re-conceptualize the way they interact during CPT.

In the chapters that follow, I provide key terms, the conceptual framework, relevant background literature, methodology, findings, and implications of this study. I begin the second chapter by defining key terms, providing an overview of the conceptual

framework, and reviewing the literature on middle school teams and professional learning communities. In the third chapter, I explain the methodology employed to conduct the study, which includes research design, context of the study, data collection procedures, and data analysis. In the fourth chapter, I present the study's findings that resulted from my investigation of the case study teams. I conclude the study with the fifth chapter, where I discuss the study's implications in light of the current challenges and possibilities for interdisciplinary middle school teams as PLCs.

CHAPTER 2

Conceptual Framework and Literature Review

To study how interdisciplinary teams experienced their first year of PLC implementation in a middle school setting, I begin with defining key terms, which are followed by the conceptual framework. Next, I proceed with a general overview of middle school literature with an emphasis on the concepts of interdisciplinary teaming and common planning time (CPT). Then, I provide background literature on PLCs followed by discussion of common goals shared by interdisciplinary teaming and PLCs to identify the ways in which effective PLC implementation can enhance the functionality of interdisciplinary middle school teams.

Interdisciplinary Teacher Teams as PLCs: Key Terms

In studying how interdisciplinary middle school teams transition to PLCs, it is necessary to establish definitions of the key terms used throughout the study.

Interdisciplinary Teaming, Professional Learning Communities (PLCs), and Common Planning Time (CPT) are key concepts that will be defined below.

Interdisciplinary Teacher Teams

According to Weller (2004):

Interdisciplinary teams are organized around teachers representing the four traditional content areas of science, social studies, mathematics and language arts, as well as teachers who specialize in reading, special education, art, music, and physical education. Teachers on the same team teach the same group of students, have the same planning time, and the same teaching schedule, and are housed in one area of the school...Team members work closely together to plan for instruction, implement the curriculum through a variety of instructional strategies and learning materials and evaluate student learning outcomes and the curriculum (p. 175).

The interdisciplinary teams in the study were created according to organizational patterns described above. Each team consisted of two language arts teachers, and one teacher for each content area of mathematics, social studies, and science. There was also a special education teacher for each team. LMS interdisciplinary teams shared organizational characteristics consistent with Weller's (2004) description; however, they did not work closely together to plan and implement instruction, or to evaluate learning outcomes and curriculum. As mentioned earlier, studies suggest that it is typical of middle school interdisciplinary teams to spend CPT to discuss students' behavioral and learning problems.

Professional Learning Communities

Seashore, Anderson, and Reidel (2003) summarized professional learning communities (PLCs) as schools with an established "school-wide culture of collaboration expected, inclusive, genuine, ongoing, and focused on critically examining practice to improve student outcomes (p. 3)." They hypothesized "that what teachers do together outside of the classroom, can be as important as what they do inside in affecting school restructuring, teachers' professional development, and student learning (p. 3)."

McLaughlin and Talbert (2006) provide a comprehensive definition of a teacher learning community below:

Various definitions of "teacher learning community" exist, but they all feature a common image of a professional community where teachers work collaboratively to reflect on their practice, examine evidence about the relationship between practice and student outcomes, and make changes that improve teaching and learning for the particular students in their classes (pp. 3-4).

Given the similarity in definitions, I apply McLaughlin and Talbert's (2006) "teacher learning community" to describe the study's interdisciplinary teacher teams as PLCs for the purpose of this study.

Common Planning Time (CPT)

A structural pre-requisite for both interdisciplinary teaming and PLCs is common planning time (CPT). CPT is a common time arranged for teachers to collaborate. Mertens and colleagues (2013) claim "For teachers on middle level interdisciplinary teams to be most effective, they require shared planning time – common planning time (CPT)" (p. 2). DuFour and colleagues (2006, 2010, 2016) assert, "It is also imperative that teachers be provided with time to meet during their contractual day...one of the most precious resources is time" (p. 95).

Consistent with what the research suggests, the interdisciplinary teams in the study were afforded consistent CPT during their contractual day. In addition to a forty-minute duty free lunch and a forty-minute daily preparatory period each day, LMS teams had a forty-minute common planning period with their colleagues each day. However, the contract stipulated that teams had to meet a minimum of three CPT periods per week.

Traditional interdisciplinary teams and PLCs are distinguished by their interactions during CPT. With interdisciplinary teams as PLCs, their organizational structure remains the same and their interactions during common planning time mark their development as PLCs. In the next section, I explore the transition between traditional interdisciplinary teams and PLCs as I describe the conceptual framework for the study.

Conceptual Framework

To describe the extent to which each interdisciplinary team functions as a PLC, the conceptual framework below details characteristics of traditional teams and those of PLCs. It also describes the transitional factors involved in helping traditional teams to develop as PLCS (see Figure 1).

Figure 1. Conceptual Framework

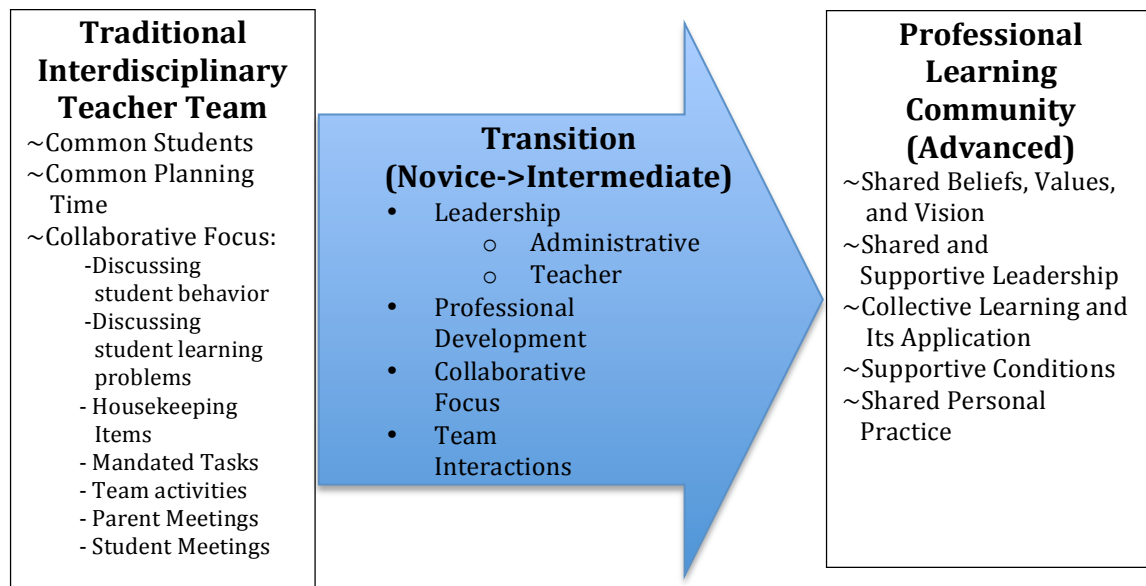


Figure 1 represents the process that an interdisciplinary middle school team undergoes to function as a PLC. The box labeled *Interdisciplinary Team* represents the key characteristics and functions of the study participants' interdisciplinary teams prior to the PLC initiative. The main points of focus from the study are unpacked through the arrow labeled *Transition*, which explores how teachers experience the PLC initiative, the factors that influence PLC development and how PLC participation influenced teachers. The box labeled *Professional Learning Community (PLC)* represents the ultimate goal of the PLC initiative, which is for teams to consistently demonstrate research-based PLC

characteristics. As institutionalized or advanced PLCs, teams have a clearly established focus on collaborating and improving instructional practice that results in positive student learning outcomes (DuFour et al., 2006; DuFour et al., 2016; Fullan, 2007; Hord & Tobias, 2012; McLaughlin & Talbert, 2006).

Consistent with the literature on interdisciplinary teaming (AMLE, 2010; Flowers, Mertens, & Mulhall, 2000; NMSA, 2003; Weller, 2004), the teams had organizational pre-requisites in place such as interdisciplinary composition, common students, common planning time (CPT), and proximity prior to implementing the PLC initiative. Each team's collaborative focus was consistent with the CPT literature regarding common CPT activities such as discussing student behavior problems/issues; discussing student learning problems/issues, planning team activities (such as field trips, team-building events, etc.); dealing with school-wide issues; and parent meetings (Flowers, Mertens, Mulhall, & Krawczyk, 2000; Flowers & Mertens, 2013). Interdisciplinary teaming functions related to instruction, such as developing and integrating curriculum, collectively analyzing test data and student work, and discussing current research and instructional approaches (AMLE, 2010; Flowers, Mertens, Mulhall, & Krawczyk, 2000; Flowers & Mertens, 2013; Jackson & Davis, 2000; NMSA, 2003) were not commonly practiced within the participants' interdisciplinary teams.

The next box labeled *Transition* represents the interventions, foci, and participants' responses associated with the PLC implementation during the study. These include the leadership approach to initiating the PLC initiative, the professional development provided during the academic year, and how the teams interacted in response to the initiative. Evidence of the transition from Interdisciplinary team to PLC is reflected in

any changes in the ways the teams interacted. The ultimate goal was to promote a conceptual shift from the less instructionally focused collaborative activities of the interdisciplinary teams to focus on teaching and learning. Each team's stage of PLC development was described using indicators from McLaughlin and Talbert's (2006) stages of developmental levels of inquiry based reform.

McLaughlin and Talbert's (2006) stages of community development were used to analyze and describe the extent to which the case study teams developed as PLCs.

Novice, *Intermediate* and *Advanced* are the categories of community development.

Novice and *intermediate* appear within the arrow marked *Transition* since they describe the steps involved in the process of becoming a PLC. *Advanced* appears under PLC as an indication of institutionalized research based characteristics. Below, I describe each category of community development.

At the novice stage, teams are developing norms and systems to manage PLC work. During this initial stage of PLC development, novice teams learn about and experiment with collaborative inquiry procedures and discover the value of data and its use (McLaughlin & Talbert, 2006, pp. 30-32). At the novice stage, professional learning for teachers takes place regarding the process of functioning as a PLC. However, professional learning in relation to student learning outcomes is incidental at best, and there is little accountability for application of professional learning (Hord & Tobia, 2012).

At the intermediate stage of community development, teachers begin to develop a norm of questioning and common language for describing student work. Leadership roles within the team are broadened to focus efforts on accomplishing the team's vision, which focuses on teaching and student learning outcomes (McLaughlin & Talbert, 2006,

pp. 32-34). The intermediate stage is characterized by purposeful engagement in collaborative inquiry aimed at professional learning linked to student learning. Accountability for applying professional learning to student learning is normally external, either from administration or an instructional coach (Hord and Tobia, 2012).

At the advanced stage of community development, teams focus on improved practice and shared accountability. Teams establish ownership for reform work, demonstrating the ability to navigate coherence of reform efforts. At this stage, teams develop their own systems for managing data and collaborative inquiry becomes a routine practice. The advanced stage of community development is when teams function as authentic PLCs (McLaughlin & Talbert, 2006, pp. 34-37). Advanced teams focus professional learning based on an ongoing review of student learning evidence. Through examination of student work, they seek professional learning that is relevant to student learning, and they hold each other accountable for application of their professional learning (Hord & Tobia, 2012).

The box labeled Professional Learning Community (PLC) represents the ideal outcome of the PLC implementation efforts. This describes the target goal of the PLC initiative in which teams routinely reflect research-based characteristics of PLCs, such as: shared beliefs, values, and vision; shared and supportive leadership; collective learning and its application; supportive conditions; and shared personal practice (Hord & Sommers, 2008; Hord & Tobia, 2012; Louis, Kruse, & Bryk, 1995). Shared beliefs, values, and vision represent the common guiding purpose of the individuals in the group as they align with the schools mission and goals. Shared and supportive leadership is indicated by sharing of power and authority characterized by principals empowering

teachers professional autonomy and decision making opportunities (Hord & Sommers, 2008; Hord & Tobia, 2012). Collective learning and its application refers to when individuals come together to study and work collaboratively for the purpose of professional learning, which will applied in their teaching practice (Hord & Sommers, 2008; Hord & Tobia, 2012; Louis, Kruse, & Bryk, 1995). Supportive conditions are the logistics such as structural and relational factors that facilitate productive PLCs (Hord & Sommers, 2008; Hord & Tobia, 2012; Louis, Kruse, & Bryk, 1995). Shared personal practice is when teachers share their practice via observing each other and providing feedback (Hord & Sommers, 2008; Hord & Tobia, 2012; Louis, Kruse, & Bryk, 1995). At the advanced stage, PLCs are institutionalized and teacher teams consistently and deliberately focus on professional learning as a result of an ongoing review of student learning with an emphasis on how their teaching has impacted student learning (Hord & Tobias, 2012).

A Review of the Literature

To study how interdisciplinary teams develop as PLCs in a middle school setting, I proceed with an overview of the middle school literature with an emphasis on interdisciplinary teaming. Next, drawing from the literature, I provide historical and theoretical background on PLCs. Then, I conclude the review with a discussion about the ways in which the PLC concept may enhance the functionality of interdisciplinary middle school teams.

The Middle School

In the 1960's, the middle schools movement began in response to findings that the junior high school frequently failed to meet developmental needs of young adolescents

(George, Stevenson, Thomason, & Beane, 1992; Jackson & Davis, 2000; NMSA, 2003, 2010; Valentine et al, 2004). The argument was that junior high schools were structured like high schools, posing a difficulty for students who had to make an abrupt transition from an elementary to a high school-like setting. This provided little to no support to address the developmental needs of students facing the dual challenge of entering adolescence and transitioning between school settings. The response was to develop a structural shift from the traditional 7th through 9th grade junior-high arrangement to 6th through 8th grade, as well as an emphasis on creating a developmentally responsive instructional program (Carnegie Council on Adolescent Development, 1989; NMSA, 2003, 2010; Valentine et al, 2004).

In 1973, the National Middle School Association (NMSA) began to advocate for the further development and implementation of the middle school concept (NMSA, 2003, 2010; Valentine et al. 2004). The following frameworks were developed to guide and support the implementation of middle school reform: Turning Points (Carnegie Council on Adolescent Development, 1989), This We Believe (NMSA, 2003, 2010), and Turning Points 2000 (Jackson & Davis, 2000). Each framework provided a model for reform aimed at increasing the quality of middle school programs by further describing the philosophy and goals of the middle school concept. In sum, each framework centered on a rigorous, developmentally responsive educational program, ideally demonstrating specific characteristics in the areas of curriculum, instruction, and assessment; culture and community; and leadership and organization.

Curriculum, instruction, and assessment

In the areas of curriculum, instruction and assessment, each of the middle school frameworks emphasize the importance of educators who value young adolescents and are prepared to teach them (AMLE, 2010; Jackson & Davis, 2000; NMSA, 2003). Studies of highly successful middle schools suggest that students achieve when teachers actively engage them in purposeful learning through curriculum that is challenging, exploratory, integrative, and relevant (Flowers, Mertens, Mulhall, & Krawczyk, 2003; Jackson & Davis, 2000; Valentine et al., 2004). Middle school students are successful when teachers seek to meet their varying learning needs through multiple approaches to teaching and learning (Jackson & Davis, 2000; Valentine et al., 2004). Furthermore, varied and ongoing assessment serves the dual purpose of advancing and measuring student learning, and middle school students benefit as a result (Jackson & Davis, 2000; Valentine et al., 2004). Resources to support socio-emotional growth, such as comprehensive guidance to meet the needs of young adolescents are present through both staffing and elements of curriculum. Curriculum, instruction, and assessment are aimed at the overall goal of effectively promoting student learning for pre-adolescents.

Culture and community

By design, middle school frameworks were developed for the purpose of creating an inviting, safe, inclusive, and supportive school community, fortified by a strong presence of adult advocacy for all students (AMLE, 2010; Jackson & Davis, 2000; NMSA, 2003; Weller, 2004). Adult advocacy takes place in the form of teacher teams, advisory programs, and parent-school partnerships. In addition to connections with families, community and business involvement provide further supports to strengthen the

bonds of community in a middle school (Flowers, Mertens, Mulhall, Krawczyk, 2001; AMLE, 2010; NMSA, 2003; Rourke, 2006).

Research conducted on middle schools reveals that many schools face the challenge of assuming the cultural and community characteristics that facilitate the progression of middle school reform (McEwin & Greene; Valentine et al., 2004; Weller, 2004). While a number of studies of high performing middle schools suggest that elements of the middle school model hold potential for promoting student achievement (Flowers, Mertens, & Mulhall, 2000; Lee & Smith, 1993; McEwin & Greene, 2011; Mertens & Flowers, 2006; Valentine et. al, 2004), many aspiring middle schools have been plagued by the struggle to make the cultural paradigm shift from a department oriented, junior high mindset to that of a developmentally responsive, student-centered middle school (Russell, 1997; Valentine et al., 2004). Cultural paradigm shifts are associated with effective leadership that communicates and acts upon the most critical values of the organization to achieve its goals (Reeves, 2006, p. 93).

Leadership and organization

Common leadership features of middle school frameworks include: a shared vision developed by all stakeholders (AMLE, 2010; Jackson & Davis, 2000; NMSA, 2003; Rourke, 2006; Valentine et al., 2004); committed, collaborative leaders who are passionate about educating pre-adolescents are able to effectively mobilize staff to accomplish the vision (Brown & Anfara, 2002; Valentine et al., 2004); and leaders that demonstrate an understanding of developmental needs of young adolescents to promote practices that are attentive to both the intellectual and developmental needs of students (Brown & Anfara, 2002; Jackson & Davis, 2000; Valentine et al., 2004; Wells, 2004).

Leadership roles are not limited to building administrators such as principals, supervisors, and counselors, but are also extended to teacher leader roles such as team leaders.

Organizational structures that foster purposeful learning and meaningful relationships frame the context for middle school practices such as teaming, houses, block scheduling, intramurals, and advisory programs (AMLE, 2010; Jackson & Davis, 2000; McEwin & Greene, 2011; NMSA 2003; Weller, 2004). The purpose of these structures is to perpetuate the middle school ideal of a student-centered learning environment that provides students with opportunities to connect with caring adults.

Weller (2004) observed that many middle schools claim to have embraced the middle school philosophy, but are actually described as “middle schools in name only” (p. 17). For example, many schools began the transition by establishing the discrete organizational elements of middle school such as interdisciplinary teacher teams, common planning time, grade level houses, advisory programs, and block scheduling (Weller, 2004). Yet, as with any reform effort, if implementation is fragmented, lack of coherence lends to the reform’s inability to penetrate the culture of the educational organization (Fullan, 2007, 2011). When organizational elements are established piecemeal in middle schools, it is less likely that these schools will fulfill the intended purpose of the ideal middle school concept.

Interdisciplinary Teaming

Interdisciplinary teaming is a key organizational feature of the middle school model that involves collaboration and lends itself to PLC development. Interdisciplinary teacher teams are comprised of teachers from different content areas who meet during a common planning time to serve students they share in common. Large middle schools

are commonly structured around smaller learning communities, where a large student population is organized into schools within a school (George & Lounsbury, 2000).

Teachers are organized as teams in order to provide a personable learning experience for pre-adolescent students (George & Lounsbury, 2000). Accordingly, interdisciplinary teams are assigned to relatively smaller group of students to personalize large school environments and minimize student to teacher ratios.

Interdisciplinary teaming is a common organizational feature in US middle school implementation and is associated with effective middle school practice. A 2009 national survey of random US middle schools revealed that about 72% of US middle schools implement teaming (McEwin & Greene, 2011). The same survey was administered to schools nationally recognized as highly successful middle schools and 90% of these schools reported team implementation (McEwin & Greene, 2011). With middle school teaming, team leaders are either selected by team vote or administratively appointed; interdisciplinary teams are afforded common planning time; they are normally located within close proximity of each other; and they are granted a level of autonomy to design and deliver their core curriculum. Research-based outcomes for interdisciplinary teaming are improved work climate, increased curriculum coordination, increased parent contact and involvement, and positive interactions among team members (Flowers, Mertens, & Mulhall, 2000; Valentine et. al., 2004).

Quantitative research efforts in middle level education have continued to yield reported evidence of correlations between staff collaboration and increased student performance (Flowers, Mertens, & Mulhall, 2000; Valentine, et. al, 2004; Wilcox & Angelis, 2009). Yet, beneath the surface of such work lies the potential for qualitative

case studies to explore the “black box” of middle school interdisciplinary teaming. This has been accomplished, in part, by the studies on common planning time (CPT).

Common planning time (CPT). CPT is a critical pre-requisite for teaming (Mertens et al., 2013). The Middle Level Education Research (MLER) Special Interest Group (SIG) of the American Educational Research Association (AERA) conducted a major study of CPT from 2006 to 2012. This large-scale longitudinal study utilized mixed research methods to answer a number of research questions regarding the prevalence, use, benefits, barriers, and teachers’ perceptions about CPT (Mertens et al., 2013). This body of research provides empirical evidence of how CPT has been most commonly used. Major findings reveal:

- Perceived benefits of positive interactions and communication among colleagues;
- The overwhelming majority of middle schools employ teaming;
- The majority of the teaming middle schools provide more than 30 minutes of CPT from one to four times weekly;
- The majority of teachers were not trained in effective use of CPT;
- The most common CPT activities:
 - Discussing student behavior problems/issues
 - Discussing student learning problems/issues
 - Planning special team activities
- Less common CPT activities related to teaching and learning:
 - Coordinating and/or developing student assessment
 - Engaging in professional development activity

- Coordinating and integrating curriculum across subjects

These findings boast benefits such as increased communication and positive interactions; yet, the limited focus on student learning is cause for concern. The most common CPT activities include discussing students' learning and behavioral problems. While such discussion could serve as a starting point for discussions of instructional effectiveness, it is not likely that they will evolve into conversations that result in action oriented plans that promote student learning without proper guidance (DuFour et al, 2006). The limited focus on student learning is likely related to the fact that the majority of middle school teachers were not trained in the effective use of CPT. Without a focus on student learning, realizing the ideal goals of interdisciplinary teaming, such as planning and implementing instruction, or evaluating learning outcomes and curriculum are not probable. Therefore there are limits to the benefits of increased communication and positive interactions.

In a study of team based learning initiatives aimed at improving instruction and student learning, Supovitz (2002) found that teams succeeded in improving teachers' local school culture, yet this cultural change did not translate into an increased instructional focus. He further argued that for communities of instructional practice to develop, three conditions are necessary. (1) Teams need structures that provide leadership, time, resources, and incentives to engage in instructional work. (2) Teacher teams need to develop a culture of instructional practice that encourages continuous exploration and assessment of instructional strategies to determine their effectiveness in promoting student learning. (3) Professional development that enables teachers to engage in continuous reflection and improvement of instructional practices (p. 1618). In short,

having the organizational structures in place are necessary, but not sufficient to influence student learning. During meeting times, there must be an inherent focus on learning.

More recently, in 2010, in the largest study of its kind, a research team surveyed 303 principals and 3,752 teachers, and analyzed student data outcomes from 204,000 middle school students to identify middle grades practices as they related to student outcomes to understand why some middle schools outperform others (Williams, T., Kirst, M., Haertel, E., Rosin, M., Perry, M., Webman, B., & Woodward, K.M., 2010). The researchers controlled for student demographics and found that among middle level schools that serve similar students, the higher performing middle schools shared a school-wide culture that focused on improved student outcomes. They also found that higher performing middle schools coherently aligned school curricula, state assessments, and instruction to state standards; and they analyzed student assessment data with a focus on improving instruction and student learning. Interestingly, unlike the prior decade of middle school research, this study did not find a correlation between organizational models of teachers and instruction (p. 15). However, teachers were provided with useful professional development and ample common planning time to collaboratively focus on the goal of improved student outcomes.

Through chronicling the evolvement of middle school models and their impact on student learning, there is evidence that the middle school model holds potential to promote student learning. However, though well intentioned, the structural components of the middle school model are not sufficient to advance teaching and learning in and of themselves. The evidence is clear that a collaborative focus on teaching and learning is associated with improved student outcomes (Supovitz, 2002; Supovitz, Sirinides, & May,

2009; Williams et al., 2010). Yet, when discrete elements of the middle school model are implemented without an instructional focus, it is less likely that evidence based teaching and student learning will result.

As a critical element of the middle school model, interdisciplinary teaming is a key organizational feature of the middle school model that involves collaboration and lends itself to PLC development. PLCs, however, may serve as an essential complement to the middle school model with its clear emphasis on student learning.

Below I provide background literature on PLCs, followed by discussion of common goals shared by interdisciplinary teaming and PLCs to identify the ways in which effective PLC implementation can enhance the functionality of interdisciplinary middle school teams.

Professional Learning Communities (PLCs)

Literature regarding professional learning communities (PLCs) emerged from research that examined traditional circumstances surrounding teaching. This work highlighted the possibilities of progressive change to advance teaching as a profession. Below is an overview of the background and impetus for the current literature that ranges from teacher isolation to professional communities of learning.

The evolution of PLCs: From teacher isolation to learning in community

Dan Lortie's classic sociological study *Schoolteacher* (1975) documented traditional realities of the teaching profession that have been, in some regards, counterproductive to teacher development and instructional improvement. His findings revealed challenging factors such as limited opportunities for professional growth via teacher collaboration, struggles with efficacy (which he terms as uncertainty) as a

teaching professional, undesired interruptions, teacher socialization characterized by individualistic norms of isolation, void of sharing, and discussion with other teachers. Now, decades later, these same factors that foster individual conservatism are still present in schools (Fullan, 2014).

In addition to challenging realities, Lortie (1975) also cited psychic and extrinsic rewards of the teaching profession. Major psychic rewards noted were: 1.) Knowing that they have “reached” students and knowing that their students have learned. 2.) Extrinsic rewards of respect from others, and the chance to influence others (p. 105). The discussion section of the study concluded with an insightful prediction: “to expect teachers to contribute to the development of their occupational knowledge seems reasonable; to the extent that they do, their future standing and work circumstances will benefit” (Lortie, 1975, pp. 234-235). This general statement spoke to the possibility of revolutionizing the profession by counteracting the limits of teacher isolation by suggesting how teachers may effect change for instructional improvement.

Thereafter, Judith Warren Little’s seminal study made the case for norms of collegiality and experimentation within teacher communities (1982):

School improvement is most surely and thoroughly achieved when: Teachers engage in frequent, continuous and increasingly concrete and precise talk about teaching practice (as distinct from [talk] about the foibles and failures of students and their families, and the unfortunate demands of society on the school). By such talk, teachers build up a shared language adequate to the complexity of teaching, capable of distinguishing one practice and its virtue from another (p. 331).

While Lortie’s (1975) work spoke to the realities and possibilities of advancing teaching as a profession, Little (1982) explored how teacher communities in practice held promise for instructional improvement.

Schools as PLCs

Almost a decade later, key research efforts shed light on the possibilities and realities of PLCs by providing background evidence of their merits. For example, Rosenholtz's (1989) study of the social organization of 78 elementary schools provided examples of how the culture and interactions of teacher communities influence factors such as collaboration, learning, efficacy, and commitment. In sum, schools were categorized as "learning impoverished (stuck)" and "learning enriched (moving)." The former, impoverished schools, fell victim to the traditional hindrances that work against collegiality and experimentation which result from traditional norms that have typically characterized teaching culture such as procedural, routine practice, sustained by self-reliance.

On the contrary, learning enriched schools were fueled by shared common goals; collegiality, collaboration, and support among teachers; student and teacher learning; teacher efficacy (which she termed "certainty"), and genuine commitment to the learning community (Rosenholtz, 1989). Considering the prevalence of teacher isolation in schools (Goodlad, 1984; Lortie, 1975), it is not surprising that "learning enriched schools" were the minority of her sample. Nonetheless, key characteristics of these schools were further studied in major restructuring studies that explored samples spanning elementary through high school in efforts to assess and describe professional community (Louis, Marks & Kruse, 1996; Newmann et. al, 1996).

Research based characteristics of PLCs

Based upon their work with professional communities, Kruse, Louis and Bryk (1995) developed a framework that is widely cited as a referent for the core aspects of

professional community. Their work served as the basis for practitioner-oriented frameworks for professional community (e.g. DuFour et al., 2006, 2010; DuFour et al., 2016; Hord & Sommers, 2008, 2010; National School Reform Faculty), as well as more theoretically oriented work (Hord, 1997, 2004; Stoll, Bolam, McMahon, Wallace, & Thomas, 2006). The framework highlights five essential research-based characteristics of professional community that consistently appear in the literature. These are shared norms and values, collaborative inquiry, reflective dialogue, shared instructional practice (which they term as de-privatized practice), and a collective focus on student learning (Hord, 1997; Kruse, Louis & Bryk, 1995).

Shared norms and values are reflected in a professional community's collective commitment to achieve their goals, as well as shared beliefs about effective teaching and student learning. Collaborative inquiry is when teachers work together to identify common challenges, analyze relevant student data, and evaluate the effectiveness of instructional methods in an effort to increase student learning (David, 2009). Such collaboration prompts teachers to reflect upon their practice. Reflective dialogue is indicative of the conversations held among PLC members, involving the application of newly acquired and/or created knowledge that is relevant for teaching and learning. The process of making instructional practice public via peer observation, feedback, and case analysis aimed at instructional improvement is indicative of shared instructional practice. The common theme of each of these characteristics is a collective focus that emphasizes student learning (Kruse, Louis & Bryk, 1995).

In addition to the characteristics of professional community, Kruse, Louis & Bryk (1995) also identified structural and human resource factors that support professional

community. Structural factors such as interdependent teaching roles, proximity, time to meet and talk, communication structures, teacher empowerment and school autonomy provide support to promote professional community (Westheimer, 1998). There are also critical human resource factors that foster the development of professional community such as supportive leadership, trust and respect, openness to improvement, access to expertise, and supportive norms of socialization. These structural conditions and human resource factors provide the necessary foundation for the development of learning communities (Hord & Sommers, 2008; Kruse, Louis & Bryk, 1995).

Schools as PLCs

A cadre of researchers (Louis, Marks & Kruse, 1996; Newmann & Associates, 1996) produced research evidence of the effectiveness of professional community from a five-year study that examined connections between school restructuring and student achievement. Mixed methods studies were designed to examine a sample of 24 urban schools that implemented PLCs as part of their reform process. Both studies yielded evidence of the benefits of teachers engaging in professional community.

Louis, Marks and Kruse (1996) examined the impact of professional community on the intellectual quality of student tasks and the relationship of professional community with the technical and social aspects of classroom organization. Their findings supported prior research efforts that associated professional community with what Newmann and Associates (1996) termed authentic pedagogy, which is measured by standards for construction of knowledge and disciplined inquiry in mathematics and social studies. Authentic pedagogy was identified through analysis of academically rigorous tasks (Wehlage, Newmann, & Secada, 1996). Interestingly, they also found that professional

community was most characteristic of the elementary schools and least characteristic of high schools in the sample. However, the cases qualitatively described in the report were one elementary and one high school, leaving one to wonder how middle schools engaged in professional community.

Similarly, Newmann and Associates (1996) found that the schools that were more successful than others in offering authentic pedagogy were those that routinely engaged in professional community practices. They provided case study descriptions of how elementary, middle, and high schools engaged in professional community. These schools benefited from the structural and cultural conditions that support professional community (Hord & Sommers, 2008; Kruse, Louis & Bryk, 1995). Structural conditions such as size and complexity, time and place to meet, communication structures, and professional development worked in tandem with the cultural factors such as a climate of professional inquiry, trust, and open communication. Academic tasks were scored based on their level of rigor according to the criteria for authentic pedagogy in mathematics and social studies and compared with each school's survey scores based on five dimensions of professional community: shared sense of purpose, collaborative activity, collective focus on student learning, de-privatized practice, and reflective dialogue (Louis, Kruse, & Marks, 1996). In fact, the codes and variables used to identify and measure professional community in the school restructuring studies were drawn from Kruse, Louis and Bryk's (1995) framework.

The two middle schools that exhibited the highest levels of authentic pedagogy were noted for their strengths in enacting particular aspects of professional community. The highest performing middle school in the sample (in terms of authentic pedagogy as

assessed by the researchers), was Red Lake Middle School (RLMS), which demonstrated strengths in the areas of shared norms and values, a collective focus on learning, and collaboration as reported by teacher surveys. Louis, Kruse & Marks (1996) describe RLMS as follows:

School life there (at RLMS) centers on the value of individuality embedded in community. Democracy and choice permeate the school's daily progress and long-term goals (p. 184).

RMLS promoted teacher autonomy that focused on teachers' skills and strengths. Such autonomy empowers teachers to take ownership of their school's long-term goals. Likewise, students were able to exercise choice as they collaborated with their advisory teachers to create their schedules. RMLS demonstrated a focus on learning through their strong commitment to diversity by encouraging teachers to teach to their strengths in order to meet students' individual learning needs. In fact, these teachers extended their collaboration beyond scheduled planning time to carry out their philosophy of democracy and choice.

Okanagon Middle School (OMS) was the second highest performing middle school (in terms of authentic pedagogy). OMS demonstrated strengths in the areas of reflective dialogue, de-privatized practice, and collaboration. Staff reported engaging in reflective dialogue during team meetings. Interdisciplinary teams of teachers engaged in discussion about performance assessment expectations for students and how teachers from varied disciplines could support student learning in core areas. School-wide participation in scoring students' performance tasks served as a way to share instructional practice. In addition, interdisciplinary teams worked together to develop standards to evaluate student performance. Accordingly, most OMS teachers found engagement in

professional community valuable for gauging student strengths and weaknesses and to adjust their instruction to support student performance in core discipline subjects. The successful schools excelled at collaboration, a key characteristic of professional community.

Teacher groups as PLCs

As the professional community research base continued to gain momentum, variations of the concept appeared in the literature, narrowing the focus from schools as units of analysis to a closer look at groups of teachers within schools who engage in professional community. McLaughlin and Talbert's (2001) large-scale study examined professional community in the context of departments from a diverse sample of high schools from California and Michigan. Analysis of survey data revealed generally weak levels of community across schools, yet greater variation existed within rather than among schools. For example, within Oak Valley high school, the English department of teachers described their community practice where teachers provide collegial support through feedback to improve practice while the social studies department in the same school maintained norms of privacy. As one department took collective responsibility for professional learning, seeking to innovate and develop instructional practice, the social studies teachers across the hallway held to the individualistic norms that have traditionally hindered teachers' professional growth. As a result, Oak Valley social studies teachers typically taught in a teacher directed, transmission oriented, and routine manner while their more progressive English department colleagues sought to develop innovative methods of instruction and looked to each other for support when faced with instructional challenges (McLaughlin & Talbert, 2001, pp. 51-55).

Similar to Rosenholtz' (1989) classification of "learning impoverished (stuck)" and "learning enriched (moving)" school communities, McLaughlin and Talbert (2001) categorized the cultures of teacher learning communities as weak, strong-traditional, and strong-innovative. These categories were ascribed to departments, rather than entire schools, as professional communities. They later published an adapted version of their professional community types labeled as typical (weak) community, strong traditional community and learning community (McLaughlin & Talbert, 2006). They further clarified that the community types differ according to technical culture, professional norms, and organizational policies (McLaughlin & Talbert, 2006).

Typical (weak) community is the norm for American secondary and elementary schools. Consistent with the traditional isolationist norms of teaching mentioned earlier (Lortie, 1975, Goodlad, 1984), weak communities do not engage in what Little (1982) termed "precise talk about teaching," nor do they effectively demonstrate any of the other characteristics of professional community as framed by Louis, Kruse, & Bryk (1995). Individual teacher expertise is fueled by private practice. A weak community is bound by a dominant belief system that students differ in their ability to succeed academically, and they respond to challenges in teaching practice by looking outward for excuses or alibis rather than to reflect upon their own instructional practice. Dominated by individuals who view teaching as a routine practice and respond to instructional challenges alone, typical (weak) communities' outcomes result in persistent implementation of traditional methods; when traditional methods fail, expectations are lowered. Seniority takes priority concerning teaching assignments and access to

resources. A typical (weak) community is stagnated due to the lack of structural and critical human resource factors contributing to professional community.

Strong traditional community is when teachers engage communally, however, their practices serve to reinforce traditions. The traditional community's perspective about the technical culture of teaching is that students differ in their ability to succeed. Therefore, the students' role as a learner is based upon the teachers' perception of student ability; students (with the exception of advanced students) play a passive role in learning. Professional expertise is based upon discipline knowledge, which is acquired privately. Teaching assignments and access to resources are often based upon teacher expertise. An example of strong community would be a team or department of teachers who meet about student testing outcomes and accountability mandates rather than instructional practice and student learning. The group ensures that bureaucratic tasks are complete, yet there is little to no discussion about teaching practice. Some teachers' students may perform well while others may not, yet, practice remains private and reflective dialogue is limited, therefore traditions remain. Strong traditional communities may have access to the structural conditions that support professional community but lack the human resource conditions, such as openness to improvement, trust and respect, access to expertise, and supportive leadership (Hord, 1997; Hord & Sommers, 2008; Kruse, Louis & Bryk, 1995), thus limiting opportunities for instructional innovation.

Learning community according to McLaughlin and Talbert (2001, 2006) fits the description of Kruse, Louis, and Bryk's (1995) definition of professional community. Fueled by the belief that all students can learn and driven by a stance of inquiry (Cochran-Smith & Lytle, 1993), the members of a learning community seek ways to

engage students in the role of active learner. Assessment practices are varied, including performance based and formative tasks, providing students with feedback to promote learning. Collaboration centers on teaching and learning. Collective expertise is valued over private practice. Professionals seek equity regarding teaching assignments and resources. Though rare, and difficult to establish, learning communities have been associated with improved student achievement outcomes and influence upon instructional practice (DuFour et al. 2004; McLaughlin & Talbert, 2006; Newmann et. al., 1996).

Through their extensive work studying PLCs, McLaughlin and Talbert (2006) asserted that differences between communities are primarily based upon belief systems and cultures of practice that prevail within each community. They further purported that school-based learning communities primarily serve to build and manage knowledge to improve practice (Cochran-Smith & Little, 1999); create shared language, vision and standards for practice; and to sustain school culture (pp. 5-7).

There is sufficient empirical evidence to suggest that effective PLCs result in improved teacher attitudes, collective responsibility for student learning, increased feedback for instruction, professional learning and support for reform implementation (Hord, 1997, 2008; Lee & Smith, 1995; Newmann & Associates, 1996; Stoll et. al., 2006). There is less concrete evidence of the influence that professional community has on teachers' instructional practices and ultimately student achievement.

A broad range of literature across varied contexts speaks to the potential for improved teacher effectiveness and student achievement through effective implementation of professional community (DuFour & Eaker, 1998; Kruse, Louis, & Bryk, 1995; McLaughlin & Talbert, 2001; Newmann & Associates, 1996). To date,

empirical evidence examining connections between professional community and changes in instructional practice offers mixed results, based upon the context and culture of the professional community (McLaughlin & Talbert, 2001, 2006; Smith, Corbett, and Wilson, 2010). While influence on instructional practice has been difficult to ascertain on a large-scale basis, there are important studies that provide evidence of how learning focused PLCs are associated with student learning.

PLCs and student learning

A growing research base provides evidence that when PLCs focus their work on teaching effectiveness and student learning outcomes, improvements in student learning result (Hord & Tobia, 2012; Lieberman & Miller, 2008; Supovitz & Christman, 2003; Supovitz, Sirinides, & May, 2010; Wells & Feun, 2013). Below I will discuss important research that contributes to what we know about PLC effectiveness and resultant outcomes.

Supovitz and Christman (2003) conducted a study that explored correlations between professional community and student learning outcomes. They analyzed large-scale reform efforts that instituted communities of instructional practice in two major U.S. cities in order to examine the impact of professional community upon teachers' instructional practices. As a result, they found that professional community had a positive influence upon teacher relationships. PLCs within a subset of schools demonstrated evidence of influence upon instructional practice. Supovitz and Christman (2003) found that only when professional communities were focused on the improvement of instruction, there were measurable improvements in student learning, which speaks to the importance of focusing on the clear purpose of improving teaching and learning.

These findings were confirmed a decade later when Wells and Feun (2013) performed a mixed methods study that examined PLC implementation in four middle schools from each of two districts. While schools from each district reported a focus on analysis of student results, discussing instructional methods, and reflecting upon student outcomes, they found that the district that reported a greater focus on these actions demonstrated evidence of raised student achievement (pp. 253-254). This empirical evidence confirms Supovitz and Christman's (2003) work, which suggests that a deliberate focus on instructional improvement is associated with improved student learning. This is also similar to the findings from Williams and colleagues' (2010) earlier cited study, when teachers analyzed data with a focus on improving teaching and learning, student learning resulted. In sum, student-learning results when PLCs engage in a deliberate focus on teaching and learning.

PLC Implementation

DuFour and colleagues (2004, 2006, 2010, 2016) espoused a PLC framework that built upon the research-based characteristics of PLCs, with additional characteristics that promote a clear focus on improving teaching and learning with an action oriented emphasis on improved student achievement outcomes evidenced by results on teacher created common assessments. They acknowledged characteristics previously described such as: shared mission, vision, and values; collective inquiry; and collaborative teams, which are similar to the above-mentioned frameworks. Yet they depart from the prior models with their focus on an action orientation and experimentation, continuous improvement, and a results orientation. These outcome-based characteristics involve

actions that engage educators in a continued effort to promote and seek evidence of student learning. Their PLC model is based upon three big ideas:

1. *Ensuring that students learn.* The main purpose of a school is to ensure that all students learn at high levels with the intention of improving teaching. Four critical questions drive PLCs to focus on student learning:

- What are students supposed to learn?
- How do we know they learned it?
- How do we respond when students are not learning?
- How will we respond when some students have clearly achieved the learning goals?

2. *A culture of collaboration.* Collaborative team members work interdependently to achieve common goals for the learning of all. This takes place during common planning time reserved for learning focused PLC work.

3. *Focus on results.* PLC members work together to develop specific, measurable, attainable, results-oriented, time-bound (SMART) goals to produce evidence for student learning, which is analyzed to inform instructional practice.

This PLC model employs the theoretical characteristics of professional community with the intention to spur team members into action through a balanced approach called reciprocal autonomy. Participants are privileged with professional autonomy to engage in the process focusing on the “right work,” while school leaders ensure that PLC members have the resources they need by way of materials, professional development, and structural resources such as time and scheduling (Ermeling & Gallimore, 2013; Talbert, 2010). This approach avoids the pitfalls of a top-down approach to reform,

where teachers are not likely to respond if they do not have ownership of the goals (Ermeling & Gallimore, 2013; Talbert, 2010). It also guards against the challenges of bottom up reform efforts where teachers may not focus their work on teaching and learning, which goes back to the three big ideas.

In consideration of the unique context of interdisciplinary teams as PLCs, I will discuss the common features of middle school teams and PLCs, with an emphasis on their complementarity.

Middle School Teaming and PLCs: A Structural and Conceptual Match

Middle schools teams and PLCs share structural characteristics, which provide opportunities for developing the conceptual tenets of each model. Common structural characteristics shared by both PLCs and interdisciplinary teaming are common meeting time, teacher teams, and proximity. Human resource characteristics such as supportive leadership, teacher empowerment, and school autonomy are necessary to advance both interdisciplinary team and PLC development (DuFour et al., 2006; Flowers, Mertens, & Mulhall, 2000; Kruse, Louis, & Bryk, 1995). Therefore, it stands to reason that middle school teams could effectively function as PLCs within a school community (Teague & Anfara, 2012).

Conceptually, both interdisciplinary teams and PLCs share essential goals in common. Each exists as a community of professionals who collaborate to provide support and promote learning for all students; and to provide professional support for colleagues. Such goals are admirable, ambitious, and not easily achieved. Therefore, authentic interdisciplinary teams and PLCs are not commonplace. A reality that the research makes clear is that establishing and sustaining professional learning

communities is difficult, but worthwhile work (DuFour et al., 2006, 2010; DuFour et al., 2016; Ermeling & Gallimore, 2013; Fullan, 2007; Hargreaves, 2006; Jones, 2010; McLaughlin & Talbert, 2006; Talbert, 2010). In like manner, such difficulty applies to middle school implementation, which is why many middle schools exist in name only, partially implementing elements of the middle school model (Valentine et al., 2004; Weller, 2004). The effectiveness of interdisciplinary teams and PLCs is determined by both their ability to collaborate and their focus of collaboration.

Collaboration

While all of the inter-related aspects of interdisciplinary teaming and PLCs are important, effective and focused collaboration is essential. Studies of professional community (Kruse, Louis, & Bryk, 1995, Kruse & Louis, 1996, Westheimer, 1998) and high performing middle schools alike (Flowers, Mertens, & Mulhall, 2000; Valentine, et. al, 2004; Wilcox & Angelis, 2009) consistently refer to the importance of collaboration.

Collaboration is an action-oriented characteristic that encompasses elements of other professional community characteristics, such as reflective dialogue, a collective focus on learning, and shared norms and values. Louis, Kruse, and Marks' (1996) described the criticality of collaboration as follows:

Collaboration is a natural outgrowth of reflective dialogue and de-privatized practice. As teachers work together with students from increasingly diverse backgrounds and as the curriculum demands more intellectual rigor, teachers require new information and skills. Sharing expertise with one another can increase teachers' technical competence. (p. 183).

Both interdisciplinary teams and PLCs typically collaborate for different reasons. Interdisciplinary teams typically collaborate with a focus on housekeeping items such as distributing information, field trip planning, team events, and parent meetings. Team

meetings often include discussion about failing students and student behavior problems (Flowers and Mertens, 2013). Although interdisciplinary teams should ideally collaborate to integrate curriculum also, this is not a common practice (Flowers and Mertens, 2013). As mentioned earlier, depending upon context, PLCs engage in collaborative inquiry where “teachers work together to identify common challenges, analyze relevant data, and test out instructional approaches” (David, 2009, p. 87). In reality, the ability to effectively engage in collaborative inquiry is developed over time (Whitford & Wood, 2010). For both interdisciplinary teams and PLCs, there exists the challenge and professional opportunity to develop proficiency with collaborative inquiry.

Given the proper context and conditions, and in light of what is known about the potential and promise of PLCs, implementation at the middle school level will positively influence teaching and learning. Experts make it clear that when PLCs focus on teaching and learning, there is a positive impact on student learning (Hord & Tobia, 2012; Supovitz & Christman, 2003; Wells & Feun, 2013). Hord, Roussin, and Sommers (2010) suggest that schools are best served when either grade level or subject matter teams meet as PLCs. Research also supports that when smaller groups come together to meet as a school-wide community to share their learning, they progress toward the school’s goals (Marzano & DuFour, 2011; Wells & Feun, 2013). Interdisciplinary teams meet both structural/organizational conditions as PLCs.

PLCs in a middle school context

Based upon their experience and research, Lieberman and Miller (2008) presented various case studies that proffer evidence of the potential for teachers to improve teaching and learning in professional communities. Five themes emerged from their

work: context, capacity, content, commitment, and challenge. Given the various connotations of professional community, its study warrants a focus on the theme of context:

Context matters. Factors such as where a community is located, the culture that surrounds it, the way it gets started, and its conditions of membership combine to impact the trajectories it takes and the challenges it faces (Lieberman & Miller, 2008, p. 97).

Context becomes critical when it comes to reform efforts and desired outcomes. Few studies directly examine relationships between professional communities and instructional change, specifically in the context of interdisciplinary middle school teams. What may work at the elementary level may not yield the similar results in an middle school setting for a number of contextual reasons, such as the likelihood of sharing common instructional goals, leadership roles, and organizational differences, to name a few (Firestone & Herriott, 1982). Regarding the interdisciplinary context, DuFour and colleagues (2010) warn:

If teachers share no common content or objectives, they will inevitably turn their attention to the one thing they do have in common: their students. A seventh-grade team's discussions regarding Johnny's behavior and Mary's attitude can be appropriate and beneficial, but at some point the team must clarify the knowledge, skills, and dispositions Johnny and Mary are to acquire as a result of their seventh-grade experience (p. 122).

Given what is known about the potential and promise of professional community – and considering the challenges faced at the middle school level – it is necessary to explore and describe how successful implementation at the middle school level may alter teachers' instructional practices in order to improve teaching and learning in this unique and common context. DuFour and colleagues (2010) offer an additional important note regarding interdisciplinary middle school teams as PLCs:

Middle schools make a mistake when they put all their eggs in the interdisciplinary basket...The best middle schools embrace the Genius of And To utilize both team structures to focus on and improve the academic achievement of their students (p. 123).

Using case study methodology, this study examined two middle school teams in the process of developing as PLCs in a unique interdisciplinary context. In the next chapter, I discuss the research design, setting, data collection procedures, and data analysis for the study.

CHAPTER 3

Methodology

The main purpose of this qualitative study was to explore and describe the extent to which two seventh grade interdisciplinary middle school teams at Lawrence Middle School (LMS) functioned as PLCs during the initial year of PLC implementation. The following research questions guided this study:

1. How do teachers experience the transition from interdisciplinary middle school team to professional learning community (PLC)?
2. What factors influence the development of interdisciplinary teams as PLCs in a middle school setting?
3. How do interdisciplinary PLCs collaborate?

According to Yin (2009), case study methodology is a suitable method for exploring a contemporary phenomenon within a real life context (p. 18). Since interdisciplinary middle school teams are a unique context for PLCs, I chose to conduct a descriptive case study, which Merriam (1998) posits is useful in “presenting basic information about areas of education where little research has been conducted” (p. 38). I employed a “two case” case study design for comparison and contrast across cases (Yin, 2009, pp. 60-61). Interdisciplinary teams were the primary units of analysis and individual teachers were embedded units of analysis.

Qualitative data collection procedures were used to gather information from various relevant sources to generate thick description of the phenomenon under study. Interviews, observations, and documents were collected and analyzed during the course of the 2011-2012 academic year. As I collected data, I engaged in early analysis through

the use of tools such as contact summary sheets, code lists, and a research journal (Miles & Huberman, 1994). Interviews and observations were digitally recorded, transcribed, and reviewed for accuracy. During observations, I focused on team interactions and the focus of their work as they progressed through the school year. I utilized strategies such as member checking, reflective memoing, inductive coding, and maneuvering various data display matrices to assist in interpreting the data (Maxwell, 2004; Miles & Huberman, 1994). Throughout the process, I gained critical insight on the development of these two interdisciplinary teams in their journey to become PLCs.

In the following sections, I provide a detailed account of the research setting, background information about the study participants, and my role as researcher. Next, I explain details about data collection and analysis procedures. Lastly, I address the limitations and validity of the study.

Research Setting

This study was conducted at Lawrence Middle School (LMS) in Ethel Township (pseudonym), New Jersey during the 2011-2012 academic year. Ethel Township is a K-8 district is comprised of six elementary schools (grades K-4) and one upper elementary school (grades 5-6). LMS is the only middle school in the district, which served a slightly decreasing population of 975 students in grades seven and eight. Based on New Jersey's District Factor Group system, which groups districts according to six variables associated with socioeconomic status, ranging from "A" being the lowest to "J" as the highest, the district was listed in District Factor Group "I." At the time of the study, about 15% of the increasingly racial and socioeconomically diverse student population

qualified for free or reduced lunch. Racially, the student population was comprised of 69% White, 15% Black, 10% Asian, 5% Hispanic, and 1% Native American.

At the time of the study, LMS staff consisted of approximately 120 employees. The administrative team consisted of a principal, two assistant principals, and a curriculum supervisor. The faculty included about 70 teachers and 25 paraprofessionals. Non-instructional staff included two guidance counselors, a three-member child study team, two nurses, three secretaries, and a custodial team. The teaching staff was organized into four houses, each consisting of one seventh and one eighth grade interdisciplinary team of teachers. Each interdisciplinary team consisted of two language arts teachers and one mathematics, science, social studies, and special education teacher. Off-team teachers provided support by teaching advanced courses, related arts, electives, and instructional support classes.

Lawrence middle school: context of the study

In 2004, LMS was re-organized from a departmental structure to interdisciplinary teams under the leadership of Principal Franks. Assistant Principal Hess served with Principal Franks and developed a schedule that provided LMS teacher teams with daily common planning time. In 2006, as the school became acclimated to an interdisciplinary teaming structure, Mr. Hess assumed the Principal role. In 2009, Hess organized the seventh and eighth grade interdisciplinary teams into houses to develop a structure that could provide a personable school experience for the 1,100-student population at the time. The transition to houses involved changing the school organization from separating seventh and eighth grade students to integrating them throughout the building. Principal Hess retired at the end of the 2009-2010 academic year.

Principal Starks succeeded Hess as principal during the 2010-2011 academic year. As a former supervisor with an instructional coaching background, he was knowledgeable about instruction and curriculum. His passion for instruction was respected and admired by staff. During his tenure as principal, he facilitated instructional conversations during team and department meetings. However, after his first year as principal, he took another position in his former district.

The 2011-2012 academic year was Principal Merida's first year as principal at LMS. As the sixth principal in ten years, she symbolized a new start for the middle school. She came through the ranks of the Ethel Township Schools as an elementary teacher Gifted Academic Program (GAP) teacher, and curriculum supervisor and was warmly received by the LMS school community. She came to LMS with a clear instructional agenda aimed at empowering teachers to promote student achievement.

Prior to the 2011-2012 school year, the Ethel Township School district had invested in a number of progressive initiatives aimed at building teachers' capacity to teach effectively. In addition to annually required state mandated trainings, the initiatives required ongoing professional development, which led to a full professional development agenda for the school year. District initiatives that related to the middle school during the 2011-2012 academic year are listed in Table 1.

Table 1**LMS Initiatives**

Initiative	Goals	(District/School)
Understanding by Design (UbD)	Teaching for meaning to promote student achievement	District
Differentiated Instruction (DI)	Teach to students individual needs to promote student achievement	District
MAP growth targets NWEA (MAP Testing)	Provide teachers with specific growth data, aligned with state testing	District
Instructional Coaching (LA teachers)	Provide teachers literacy coaching support through reflective practice	District
Data driven Goal Sheets (DDGS)	Promote student achievement through developing instructional goals aligned with student growth data and state testing results.	District
Benchmark assessments	Provide content area data to inform instructional decisions.	District
Social Studies Revised Curriculum Pilot	Provide social studies teachers with an opportunity to implement one unit from the next year's curriculum.	District
Professional Learning Communities (PLCs)	Understand and implement the PLCs in an effort to promote student achievement	School

Initiating PLCs: the implementation process at LMS

During her first year at LMS, Principal Merida had to inform staff of LMS' adequate yearly progress (AYP) status and the building goals for the upcoming year.

LMS did not meet AYP according to the state's target goals, due to their 2010-2011

performance on the NJASK standardized assessment. Ethel Township's school superintendent emailed district principals the 2011-2012 building goals for the year, which were as follows:

- Ensure effective teaching for every student as demonstrated by student academic growth and evidenced by multiple measures of quantitative data.
- Ensure effective teaching for every student as demonstrated by student social-emotional growth and evidenced by multiple measures of quantitative data.

In light of LMS' AYP status and the building goals, Principal Merida sought to understand LMS teachers' views on teaching and learning through conversations and surveys. Through her initial weekly meetings with team leaders, monthly faculty meetings with staff, and monthly administrative meetings with teams, she gathered feedback in the form of questionnaires, observations, and discussion.

She collaborated with her administrative team, the School Professional Development Committee (SPDC), and teacher leaders, such as the teacher association president to devise a plan for meeting the building goals. They reviewed staff survey results that were administered by the SPDC regarding professional development in consideration of the school goals and LMS's AYP. As a result, it was decided that implementing PLCs would be the focus of professional development for the 2011-2012 school year. This was in addition to state and district mandated professional development.

Study Participants

I gained IRB approval for the study in January 2012. Two seventh grade interdisciplinary teams and the school principal volunteered to take part in the study (see Table 2). Teams Aspen and Cypress (pseudonyms) were the interdisciplinary teams that agreed to participate in the study. Each interdisciplinary team was comprised of at least

six core members: two language arts teachers, a mathematics, science, and social studies teacher, and at least one special education teacher. According to the teachers' collective bargaining agreement, each teacher taught six periods out of a nine period day. Teachers were afforded a daily 40-minute prep period, a 40-minute team-planning period, and a 30-minute duty free lunch. Teams were obligated by contract to meet no more than three times weekly during their 40-minute team planning period. Each participant agreed to participate in the study based on the terms stated in the consent form (Appendix A), which included four team meeting observations, a 45-60 minute interview, and access to relevant documents that relate to PLC development. The school principal also volunteered to take part in the study and agreed to the terms of participation.

Meetings at LMS

Professional development, collaboration and team interactions took place during meeting times. At LMS teachers met as a faculty, in content area departments, and as interdisciplinary teams.

Faculty and department meetings. According to the collective bargaining agreement at the time, staff was required to stay for no more than 25 one-hour meetings beyond the typical school day. Faculty meetings and department meetings were each held once monthly after school on the first Monday afternoon of the month during the school year, for a total of 20 meetings per academic year. Faculty meetings were typically used for professional development. Department meetings were used for content area professional development and collaboration. Curriculum supervisors and/or assistant principals set the agenda and facilitated the department meetings.

Table 2**Study Participants**

Participant	Position	Team/PLC	Years of Experience	Years on the Team
Mrs. Merida	Principal	N/A	1	N/A
Cassidy	7 th grade math teacher Team leader	Aspen	11	7
Jennifer	Language Arts Teacher	Aspen	14	7
Loretta	Language Arts Teacher	Aspen	12	7
Inez	Science Teacher	Aspen	8	7
Zoe	Special Education Language Arts Teacher	Aspen	12	4
Beth	Special Education Language Arts/Math Teacher	Aspen	5	6
Steven	Social Studies Teacher	Aspen	10	7
Esmerelda	7 th grade Special Education Teacher Language Arts Team leader	Cypress	10	5
Kathleen	Language Arts Teacher	Cypress	7	6
Celeste	Language Arts Teacher	Cypress	2	1
Samantha	Mathematics Teacher	Cypress	8	7
Rafael	Science Teacher	Cypress	12	6
Mufasa	Social Studies Teacher	Cypress	13	5

Team meetings. Team meetings took place during CPT during the school day.

These meetings were used for a variety of purposes including information sharing,

discussing students' behavioral and academic concerns, parent meetings, and to plan team events. According to the collective bargaining agreement, it was agreed that interdisciplinary teams would meet for no more than three periods per week during CPT.

By contract, administrators could not attend teacher led team meetings unless they were invited. Nonetheless, teams would typically grant administrators a standing invitation to attend team meetings. Administrative team meetings were held once monthly, where the principal or assistant principal would set the agenda and facilitate a meeting during the common planning period. Administrative meetings were usually focused on student celebrations or building/district mandates.

Team leaders were responsible for facilitating the team meetings. Once weekly, the principal held team leader meetings to relay information and to gain feedback from team leader representatives from each of LMS' eight teams. In turn, team leaders would relay information from the team meetings to their respective teams on a weekly basis. Below, I provide a description of each of the case study teams prior to the LMS' PLC initiative.

Team Aspen

Team Aspen had been together for over six years. Through changes in administrative leadership this team had maintained a reputation as a united team that held students to high standards for both academics and behavior. Team members supported each other throughout the years and were known for vocalizing what they deemed right and fair for students. Whether it was a district reform effort or a nonconventional student accommodation, the more outspoken members of this team ensured that their voices were heard in both team and department settings as well as with administrators. When it came

to team decision-making, the less vocal members either assented through silence or affirmed team perspectives with few words. The team worked together to plan and implement team-wide events such as school-based team activities and the team field trip. Such efforts promoted solidarity among Aspen students as well. As assistant principal in charge of class and team placement, I found that Team Aspen was highly requested by community parents each year, based on their strong reputation for high academic and behavioral standards.

The four language arts teachers on this team held distinct roles, where each balanced the other. One teacher consistently served a higher performing general education student population by teaching the enriched section and a co-taught inclusion class; while another taught all general education classes which, by default, served a greater number of general education students on average. The remaining two language arts teachers taught special education; and one was highly qualified to teach mathematics also. Due to their varied backgrounds and experiences, each of the language arts teachers contributed to the Aspen Team in a unique way.

Every year, co-teaching took place on this team to serve inclusive sections of general education and special education students. Class sections of mathematics and language arts were co-taught on the team during the 2011-2012 school year. Co-teaching relationships on this team primarily involved one teacher in both mathematics and language arts. Based upon interviews and a history of past co-teaching assignments, these teachers worked well in co-teaching relationships. Each of the special education teachers also taught self-contained sections of language arts.

Aspen teachers met with each other during common planning periods two to three times per week. Prior to the professional community effort, the team would spend their common planning meeting times discussing typical team matters that center on student concerns. These meetings would involve parents, students, and administrators to share concerns and brainstorm solutions in an effort to support student success. During team meetings it was not uncommon for a meeting session to result in venting about frustrations with student concerns and/or changes in policy. As one team member put it, “Instructional practice was not generally discussed during common planning time.” In sum, the team met to address the needs of individual students they shared in common, especially those who presented challenges to the majority of the team. One language arts teacher expressed a downside to these discussions since she always taught the enriched sections. She confessed, “Sometimes I am just sitting there because I have nothing to add because I don’t teach those kids.” Regarding such meetings, another member admitted, “team meetings have gone off course numerous times and we never actually talked about what we needed to talk about.” Team Aspen worked together productively to complete mandated tasks and to handle procedural team housekeeping matters, such as field trips, student of the month selections, etc.

Team Cypress

The majority of Team Cypress had been together for the past four years prior to data collection. Parents had been known to request placement on this team due to their reputation as a nurturing and flexible team. They were known for their collective ability to serve both special needs students and challenging general education students well. Cypress’s social studies teacher, Mufassa, remarked, “We really haven’t gotten to the

point ever where, as a team, we have ever had a parent that was really unhappy.” These are among the number of reasons the administrative team and the child study team agreed to select this team to teach a cohort of incoming hearing-impaired students during the 2011-2012 school year.

Team Cypress had undergone a number of minor changes over the years. Team leader nomination politics was a source of conflict in the recent past of the team when two members vied for the team leader position. Nonetheless, the team leader during 2011-2012 was a teacher of the deaf, certified in special education and language arts, and she maintained the position for a third consecutive year. A language arts teacher resigned for personal reasons, presenting the opportunity for a newly hired replacement from a neighboring district as a welcomed addition to the team. Despite the changes, the team maintained its reputation as easygoing, cooperative with administrative requests and committed to making connections with students.

Team Cypress met two to three times per week during their common planning time. During this time the team handled team housekeeping issues such as mandated administrative tasks, field trip organization, student concerns and parent meetings. Meetings were usually about concerns with students’ academic performance and behavior issues. Meetings regarding student concerns meetings were spent discussing challenging students with the goal of developing plans to promote their success. At times, these meetings included scheduled parent meetings and/or intervention meetings with students.

Role of the Researcher

In Chapter 1, I shared my experience as an assistant principal at LMS who witnessed a number of exceptional teaching and learning experiences that took place at

LMS, yet teachers rarely seized opportunities to learn from each other in team meetings. Considering the number of progressive initiatives that were in place, the contractual provisions that were made for common planning time, and in light of the school's newly acquired school in need of improvement (SINI) status due to AYP issues, I felt that LMS held great potential to function as a school-wide PLC. As a result of discussing these issues with the principal, she entertained the prospect of interdisciplinary teams as PLCs. After surveying the staff and discussion with the SPDC, a plan for PLC implementation was created. As a doctoral student, I had been studying the concept of professional community and was grateful for the opportunity to study interdisciplinary teams at LMS as they experienced PLC implementation.

There are advantages and disadvantages of performing research in a setting where one serves in an administrative capacity. I had the advantage of gaining access to the research site and acceptance into each micro-community without suffering the woes of a "professional stranger" (Agar, 1996). As such, I was familiar with the history and context of the participants and the research site. However, as an administrator conducting research in my own building, issues of power and coercion were raised during the proposal stage of the study. I acknowledged these concerns as valid and made every effort to be transparent about my intent, which was to support PLC development at LMS in an effort to maximize our collective efforts to advance student learning.

As a researcher, I assumed the role of observer as participant (Merriam, 1998, p. 101) to conduct a multi-case study in a building where I had served as an assistant principal for five years. Though I did not directly supervise the participants in the sample, I had supervised them in years past. For the study participants, I communicated that my

participant role was secondary to that of researcher. In my interactions with the teams, I assumed a coaching stance as opposed to a supervisory role. I observed, asked questions, and provided suggestive feedback without requiring compliance. I sought to understand how the teams really felt about the PLC experience in light of district mandates in hopes of informing both interdisciplinary teams and the administrative team of ways to advance a culture of learning at LMS.

PLC Professional Development

Several professional development opportunities were planned to support PLC implementation at LMS. Initially, the whole staff participated in an in-service by an outside presenter to acquire knowledge about professional community and DuFour's (2004) model for PLC implementation. The in-service was followed by a number of subsequent administrative efforts to support PLC development. A summary of planned staff development experiences and additional actions to promote PLC development are listed in Table 3.

PLC In-Service: Creating Professional Learning Communities

An outside presenter facilitated a two-part, day long in-service for the entire LMS staff based on DuFour's (2004) PLC model entitled: Creating Professional Learning Communities, which took place on the third successive full day of district in-services. The first two district in-service days were devoted to district-wide initiatives. Day one focused on Understanding by Design (UbD) for all teachers. The second in-service day focused on curriculum implementation specifically for content area teachers. The third day was left to the respective schools to engage in professional development planned by

their school professional development committee (SPDC); and LMS planned professional development for staff to learn about PLCs.

Table 3

LMS PLC Professional Development

Date	Professional Development	Description
November 2011	In-service	An outside presenter facilitated a two-part daylong workshop on PLCs.
November 2011 – June 2012	Team Leader Meetings	The principal met with team leaders on a weekly basis to gather feedback and support PLC development.
January 2012	Off-site PLC Workshop	Two administrators and two teacher leaders attended an off-site workshop facilitated by PLC experts.
February 2012	Staff Meeting turnkey	Inspired by the offsite workshop, teacher leaders developed a turnkey presentation that applied PLC concepts in an interdisciplinary context.
March 2012	Administrators' PLC Workshop	LMS administrators reviewed expectations for PLCs at LMS. They reviewed protocols and modeled a consultancy protocol for staff.
January 2012-June 2012	Participation in Dissertation Study	Two teams agreed to team meeting observations and individual interviews. This provided additional coaching support and researcher feedback.

The PLC in-service took place over the course of two sessions, a morning and an afternoon session. The morning session took place in the auditorium, where the presenter gave a PowerPoint that focused on the theoretical background of PLCs. The afternoon

session took place in the school cafeteria, and the presenter facilitated activities focused on creating PLC teams. Below I provide description of each session.

Creating PLCs: morning session. The first session introduced PLC concepts to the LMS staff through an interactive lecture in the school auditorium. The presenter provided a practical overview and theoretical background of PLCs. She began with a review of research-based characteristics of a PLC, traits of traditional team meetings; and the goals of PLCs according to DuFour (2004). This informational presentation included some participant activity through turning and talking segments, and some question and answer opportunities. Turn and talk segments were when the presenter would pose a general question to the audience and have the participants engage in paired discussions. Then participant volunteers were asked to share their responses with the group at large. There were questions inherent throughout the presentation, where the facilitator would either ask for individual responses, or pose rhetorical questions for reflection.

PLC goals according to DuFour (2004) were presented as follows:

- Focus on student learning over teacher and ensure that students learn.
- Create a culture of collaboration among educators.
- Focus on results.
- Gather periodic evidence of progress and shift teacher goals as a result of the findings.

After presenting the overview of the PLC model, the presenter posed “Initial Questions for PLCs,” where she asked staff members to turn and talk with each other to respond and then she asked for respondent volunteers to share their responses. Teacher leaders, from the teachers’ association and the local professional development committee,

volunteered to share responses with the staff as a whole, while the majority of staff only responded to colleagues during the turn and talk segments. The Initial Questions are listed below:

- How do we define student achievement?
- What is student achievement?
- What student behaviors, effort, work, experiences are needed for the achievement goal to be reached?
- What teacher behaviors are most likely to generate the desired student behaviors?

Next, she presented DuFour's (2004) *Four Critical Questions of Learning*:

If we believe all kids can learn:

1. What is it we expect them to learn?
2. How will we know if they have learned it?
3. How will we respond when they do not learn?
4. How will we respond when they already know it?

These four critical questions were presented rhetorically to staff as an orientation to the model, as the responses to these questions are specific to each school and district that implements the model.

The final section of the morning session focused on examples of PLC Meetings. The presenter began with questions about what an effective PLC meeting might look and sound like as compared to traditional team or department meetings. As the time period came to a close, the presenter omitted the parts of the presentation that consisted of video

examples of ineffective and effective PLCs. The first session ended with conversational questions about PLC implementation, which were presented rhetorically:

- What resistance do staff members have to participating in PLCs?
- What benefits from PLCs would staff find most rewarding?
- How willing are you to invest in making PLCs happen?
- What ideas do you have for increasing PLC participation?
- What do we risk from implementing your idea?
- What's the risk of not trying?

At the end of each topic, the facilitator asked staff members to turn and discuss with neighboring participants. Administrators and teacher leaders, such as SPDC members and association representatives, seemed receptive to the training, as they were attentive, took notes, and posed questions. Yet, some teachers were talking off task during the discussion segments of the workshop. Some teachers were overheard stating that the information was “not new” and “this is what we already do.” Other teachers displayed annoyed facial expressions and others were fidgeting during the first session. At the close of the first part of the workshop, most teachers were hesitant to share responses or ask the presenter questions. At the conclusion of the first session, conversations among LMS teachers did not reflect discussion about PLCs. Aside from teacher leaders and administrators, no teachers followed up with the presenter with follow up questions or discussion. Staff broke for a one-hour lunch and they reconvened in the school cafeteria for the second session on *Creating PLC Teams*.

Creating PLC teams: afternoon session. The afternoon session began in the cafeteria where teachers were seated into PLC break out groups assigned by the

administrative team. LMS staff was grouped according to their grade level interdisciplinary teams. Related arts teachers were grouped according to grade levels and all seven LMS physical education teachers were grouped together as one team.

Using materials from DuFour and colleagues' (2006) PLCs at Work, the presenter facilitated the second half of the training sessions to engage teacher teams in outcome-based team activities for developing formalized team norms and creating SMART goals. DuFour and colleagues (2006) define norms as specific shared commitments made by a team so they may function effectively (pp. 102-104). SMART goals are specific, measurable, attainable, results-oriented, and time-bound goals that are collectively set by teams to actively promote student learning (DuFour et al., 2010, pp. 158).

The teams collaborated in a norm development activity that required participants to discuss ideal characteristics of their teams, which would be the basis for developing formalized norms, or ground rules for team meetings (DuFour et al., 2010, pp. 136-139). Teams were asked to generate a list of words to describe the key components of PLCs and to use their words to create a *Wordle*, which is an electronically created word cloud generated from text. However, teams were given colored markers and chart paper to create them. Teams were responsive to the activity by participating and creating the Wordles. Participants listed words like "kind, respectful, caring, helpful" in their Wordles. The presenter and administrators went to each group to monitor progress. As groups were finished with the ten-minute activity, they waited idly for the next activity, which was to convert the Wordles to formal team norms.

Next, the presenter led the staff in a norm development activity. She asked each team member to generate 5 ideal behaviors for working as a team. After each member

recorded their ideas on an index card, teams shuffled the cards then shared and discussed their responses with their team. As each team agreed on ideal team behaviors, they listed these as norms on chart paper. The majority of the afternoon session was consumed by the Wordle and norm activities. Time ran out before the presenter had a chance to get to SMART goals.

While the PLC in-service marked the first formal professional development effort of the PLC initiative, the administrative team continued to provide ongoing professional development support in the form of weekly team leader meetings and monthly faculty meetings.

Data Collection

Qualitative case study methodology typically involves multiple methods of data collection (Merriam, 1998; Yin, 2009; Cresswell, 2007). Data for this study consisted of observations, interviews and documents. These sources of evidence were chosen because of their complementarity and usefulness in informing case construction regarding each team's PLC experience. Table 4 provides an overview of the data collection timeline. Below are descriptions of each method.

Observations

Observational data was collected through participant observation of team meetings. Merriam (1998) makes a distinction between the *participant as observer* and the *observer as participant* (p. 101). In the study, I took the stance of observer as participant, which meant that participants knew I was observing and open to involvement in meetings, but my participation was secondary to my role as researcher. As an observer, I had the advantage of possessing background knowledge of participants and I was able

to gather authentic descriptions of meeting interactions (Marshall & Rossman, 1999, 2006; Stake, 1995; Yin, 2009).

Table 4

Data Collection Timeline 2011-2012

<p>October – December 2011</p> <ul style="list-style-type: none"> • Field notes, documents, and artifacts • School-wide PLC Professional development (observer as nonparticipant)
<p>January/February 2012</p> <ul style="list-style-type: none"> • Field notes, documents, and artifacts • DuFour PLC workshop (participant observation) • Faculty meeting observations (observer as nonparticipant)
<p>March/April 2012</p> <ul style="list-style-type: none"> • Team Meeting Observations (audio recorded and transcribed) • Faculty meeting observation (participant observation) • Member check forms
<p>May 2012</p> <ul style="list-style-type: none"> • Team Meeting Observations (audio recorded and transcribed) • Member check forms
<p>June 2012</p> <ul style="list-style-type: none"> • Field notes, documents, and artifacts • Participant Interviews (audio recorded and transcribed) • Member check forms
<p>July 2012</p> <ul style="list-style-type: none"> • Field notes, documents, and artifacts • Principal Interview (audio recorded and transcribed) • Member check form

Merriam (1998) lists general elements to guide observation such as: physical setting, participants, activities and interactions, conversation, subtle factors, and the observer's behavior (pp. 97-98). I used these as an initial framework to guide observation and later reviewed the observation notes with focus on characteristics of

professional community from the conceptual framework such as shared norms and values, reflective dialogue, shared instructional practice, collaborative inquiry, and a focus on student learning (Kruse, Louis, & Bryk, 1995). A contact summary form (Miles & Huberman, 1994) was used to conduct early data analysis and aided in reflection at the conclusion of each observation and to guide future data collection.

I observed school-wide professional development sessions and faculty meetings centered on PLC development. Through field notes, contact summary sheets, and my research journal, I sought connections between the professional development experiences and teams' meeting interactions.

Ideally, I planned to conduct one team meeting per month for each team from February to June 2012, for a total of 10 team meetings. However, schedule conflicts due to report cards, parent conferences, spring break, and testing preparation prevented me from observing on a more consistent observation schedule. Nonetheless, I was able to perform four team-meeting observations per team, two in March and two in May, for a total of eight. These observations allowed me a first hand opportunity to understand the different ways the teams used their meeting time. Team meeting observations were recorded using a digital recorder in conjunction with taking observer notes.

Transcriptions of meetings were professionally created, and each team member was given copies of the transcripts to review for accuracy. In brief follow up meetings after observations, I shared my observations with each team in light of the research-based characteristics of professional community (Kruse, Louis, & Bryk, 1995) and shared suggestions and resources to further promote PLC development.

Teachers offered minor corrections for the transcripts, many of which were related to names, acronyms, or terms that are specific to educators (i.e. rubric, NJASK). Corrections were made and noted on my working copies of the transcripts. Otherwise, the transcripts of the meetings were deemed accurate and approved by consensus of the teams. Participants were also receptive to the feedback and suggestions. In some instances, they heeded suggestions and applied them in practice. Other times, teachers limited their responses to reviewing and correcting transcript errors.

Interviews

At the end of the school year, I interviewed five teachers from each team for a total of ten teachers. To represent a teacher from each content area and specialty from each team, interviewees included a language arts, social studies, mathematics, science, and special education teacher from each team. By default, this also included the team leader from each of the case study teams. The purpose of the interviews was to gain evidence to provide a descriptive account of each team's PLC development, how participants experienced their respective PLCs, and the ways in which PLC participation influenced individual members (De Simone, 2009; Yin, 2009). Through interviews, I was able to collect data that focused on the research questions, while seizing the opportunity to investigate individual and team experiences that spanned beyond the limited observation period (Yin, 2009).

A semi-structured interview guide (Patton, 1990) was designed to collect data regarding individual PLC experiences, instructional practices, and influences (see Appendices B & C). These questions were field tested in the school with a teacher who

was not a member of the participant teams. Responses from the field test interview informed further development and revision of the interview guide.

To gain perspective on teachers' PLC experience during the academic year, interviews were conducted with each teacher at the end of the academic year in June 2012. Each volunteer was given the questions a day prior to our scheduled interview. Interviews were digitally audio-recorded and professionally transcribed. Contact summary sheets were maintained to record my post interview thoughts and reflections after each visit as they related to the focus of the study (Miles & Huberman, 1994). Transcripts and member check forms (Appendix E) were given to each participant to review for accuracy and to gain additional thoughts or comments from participants.

Due to time constraints and schedule conflicts, two participants responded to the interview questions in writing and submitted them to me via email. In addition, the principal's interview took place during July 2012, following the academic year. All participants completed the member check forms and all interview transcripts were confirmed for their accuracy. Only the principal and one teacher chose to add additional reflections.

Documents

As an unobtrusive source of evidence, documents offered broad coverage of events across settings and individuals (Yin, 2009). Meeting agendas, minutes, professional development materials, protocols, emails, and articles were collected to provide a comprehensive understanding of the professional development provided as well as the focus of PLC team meetings. The primary purpose of collecting documents was to provide evidence of each team's PLC experience and to triangulate data sources (Stake,

1995; Yin, 2009). The verity of documents was confirmed through observations and interviews. Documents afforded broad coverage of events that took place over the course of the academic year and beyond; they were also useful to corroborate or challenge findings from observations and interviews.

Validity of the Study

Marshall and Rossman (2006) assert, “the credibility/believability of a qualitative study that aims to explore a problem or describe a setting, a process, a social group, or a pattern of interaction will rest on its validity” (p. 201). Cresswell and Miller (2000) define validity as “how accurately the account represents participants’ realities of the social phenomena and is credible to them” (pp. 124-125). The validity of qualitative inquiry increases as researchers use an appropriate combination of data types (Patton, 1990, p. 244). Cresswell (2007) lists eight validation strategies that help to assess the accuracy of qualitative findings (pp. 206-207). These strategies are applicable through various stages of the study from design through data collection and during the analysis process. Of the eight strategies, three were fully employed in this study, which included clarifying researcher bias, triangulation, and rich, thick description.

Clarifying researcher bias

As described in the “role of the researcher” section of this chapter, I communicated my role as an administrator conducting a multi-case study in my place of employment to all study participants. Considering my confidence in the participants’ abilities to learn from each other to promote professional growth and in an effort to minimize my role as an administrator, I had to be mindful of my position of authority and its potential bearing on my role of researcher. This necessitated critical self-reflection of

my role in the study. As a result, I chose to study volunteer teams that I did not supervise. In addition, I took a coaching stance as opposed to supervisory or facilitative leadership role. During observations, I took an observer as participant stance and made it clear to participants that I was present to observe and provide support, feedback and assistance, as they desired. I did not interfere with the team leaders' roles as facilitators of their team meetings. Teams set their own agendas and conducted their meetings as they saw fit.

Triangulation

As described in the data collection section, multiple data collection methods were employed to capture case study evidence and to corroborate findings. Stake (1995) referred to this approach as methodological triangulation (p. 114). Observations, interviews, and documents were the primary sources of data used for the study. I observed professional development sessions during an in-service and during faculty meetings to gain a background of what the professional learning teams were exposed to regarding PLCs. I also conducted four team-meeting observations with each of the two case study teams to gain an understanding of how the teams interacted. At the end of the school year, I interviewed the principal and I conducted interviews with four content area representatives and a special education teacher from each of the two teams for a total of 11 interviews. During interviews, I gained an understanding of participants' perspectives on their team's PLC development and how the PLCs influenced participants. I collected documents such as meeting agendas, minutes, professional development materials, protocols, emails, and articles to confirm or disconfirm findings across data sources during analysis. These various data collection methods aided in creating the cases.

Rich, thick description

Rich, thick description was used to present the setting and context of the study with the intention of providing readers with a clear account of the participants' experiences. Such description affords readers to the opportunity to determine whether or not findings may be transferred to a similar setting or situation (Cresswell, 2007; Merriam, 1998).

Reliability is the extent to which a study's operations and procedures could be replicated to achieve the same results (Merriam, 1998; Yin, 2009). According to Yin (2009), "the objective is to be sure that, if a later investigator followed the same procedures as described by an earlier investigator and conducted the same case study all over again, the later investigator should arrive at the same findings and conclusions" (p. 45).

Data Analysis

Analysis took place during the data collection process and continued after the end of the school year. Early analysis began with the use of contact summary sheets, coding (Miles & Huberman, 1994), and memoing (Maxwell, 2005). I read, reread, and listened to the data transcripts repeatedly to become increasingly familiar with the data. At the conclusion of data collection, qualitative software enabled me to manipulate the data and identify recurring codes, which I used to create various concept maps. I also created matrices to display and analyze data, which I used to construct cases for teams and individual teachers. Below I describe the strategies and procedures I used for data analysis.

Contact summary sheets

At the conclusion of each data collection session, contact summary sheets were used for a preliminary assessment of how the data collected may be used to answer the research questions (See Appendix A). These sheets were used to capture my initial reflections after each observation or interview and to inform future data collection efforts.

Memoing

Memoing took place throughout the data collection process (Maxwell, 2005; Miles and Huberman, 1994). Memos were reflective writings that involved thoughts and concepts that emerged during data collection (Miles & Huberman, 1994). Memos informed the coding process, which began deductively and concluded with inductive coding. Memos were logged into my research journal and kept throughout the course of the study. During the course of the study I changed the journal format from a running word document to a GoogleDocs form that allowed me easier and more consistent access to my research journal. These early analysis strategies assisted in focusing and adjusting data collection for the study.

Coding

Marshall and Rossman (2006) suggest, “coding data is the formal representation of analytic thinking” (p. 160). The processes of deductive and inductive coding facilitated the data analysis process for this study by guiding the categorization and reduction of the data set. According to Stake (1995), analysis of a case may involve direct interpretation or categorical aggregation.

Deductive coding. I began the coding process with categorical aggregation through deductive coding. Prior to observing and interviewing, I created a list of codes

from my conceptual framework and research questions. I began with theoretical comparison relative to the research questions (Miles & Huberman, 1994). On hard copies of transcripts, I began deductive coding using the initial code list. Though deductive coding assisted me in making meaning of the data, I found that the pre-determined codes did not always accurately identify relevant data. I found that the pre-determined codes were limiting in that they did not suffice to describe the concepts that I found in my observations, so I turned to direct interpretation of the data through inductive coding (Coffey and Atkinson, 1996; Corbin and Strauss, 1998; Stake, 1995).

Inductive coding. Through repeated review of field notes and transcripts, I made marginal notes on hard copies of observations and transcripts. As a result, I developed additional codes from the literature as well as concepts inherent within the data that I did not anticipate. For example, when reviewing field notes and transcripts from observations and interviews, I found evidence of *conflict* (Achinstein, 2002), which was not a predetermined code, yet relevant when studying team and PLCs. Another example of a relevant code that did not appear in the middle school literature was that of *disciplinary identity*. This caused me to further explore relevant literature that informed analysis. I continued to inductively develop codes and expanded the list for future coding. In addition, I adapted my contact summary form under “notes significant to analysis” to include a section for newly developed codes. This same process was followed for coding interviews.

Qualitative software

I used NVivo7 qualitative software to store, organize, and analyze data. I imported all of the observation and interview transcripts into a personal computer and

used the software application to code according to the comprehensive code list that I developed. The codes were defined in an analytic memo, which was imported into the project as well. Once the codes were entered into the NVivo project, it facilitated my ability to retrieve and manipulate the data in various combinations. Through the coding process, I identified patterns and relationships within and across cases. I began to categorize data according to the research questions and used a memoing feature as a reflecting aide for data analysis.

After rounds of coding, I used an analytical feature of Nvivo7 that showed the percentages of codes that were common within and across data sources. Recurring codes within and across cases and individuals inspired me to continually revisit the literature to expand my view of elements from the conceptual framework. For example, I looked deeper into PLC literature that addressed relevant topics that prompted me to further conceptualize my data to develop themes. I studied aspects of team dynamics (Goleman, Boaytzis, & McKee, 2002; Lencioni, 2002), distributed leadership (Spillane & Diamond, 2007), identity (Gee, 2000; Siskin 1991), social capital (Coleman, 1988), and professional capital (Hargreaves & Fullan, 2012) as they related to the study.

Within-case displays

Through various matrices, patterns and relationships were identified and explored in light of the research questions. Analyzing matrices helped me to conceptualize the data to identify themes. I was able to reduce the data sets in light of the research questions and draw preliminary conclusions, which I reflected upon through memoing. As mentioned earlier, the memoing process involved re-visiting literature. The resulting themes were compared to both the literature and supporting data from more than one

source in order to confirm and/or disconfirm findings. Next, the themes and supporting data were organized according to research questions for case construction.

Case construction

Cases were constructed for each interdisciplinary team according to the recurring themes supported by observations, interviews, and documents. Each PLC group was analyzed in light of the characteristics of their community culture and the nature of their interactions. For each case, I described how PLC implementation influenced their team experience, factors that influenced their PLC development, the way their team collaborated, and how PLC participation influenced individuals.

Individual member cases were constructed as profiles based upon their views of the PLC experience and evidence of how they were influenced by their PLC. These teacher profiles were based upon observations, interviews, and document data.

Cross-case analysis. After cases were constructed, I analyzed the common and contrasting themes within and between PLCs and among individual teachers within PLCs. I examined the relationships and interactions within and across PLCs. Using case study data, I analyzed inner workings of each PLC with an emphasis on how the groups interacted. Lastly, I analyzed participant profiles in relation to their respective PLC cases.

The study's findings are presented in chapter 4 where I describe the LMS' PLC implementation process, followed by description of the extent to which each team transitioned from interdisciplinary teacher team to PLC.

CHAPTER 4

Findings

The purpose of this study was to explore and describe how LMS interdisciplinary teams experienced their first year of PLC implementation. In these teams, leadership, and artifact use were key factors in facilitating interdisciplinary PLCs. Principal leadership provided general parameters, resources, and structure to support implementation. Teacher leadership provided more specific guidance for PLC implementation according to the team leader's area of expertise. Through the use of artifacts such as agendas and protocols, teams were able to maximize their CPT to focus on aspects of teaching and learning. Factors such as teacher leaders' expertise and teacher beliefs regarding content area instruction were associated with each case study team's PLC focus. By the end of the 2011-2012 school year, each team made meaning of PLCs in its own way. One team focused on literacy across content areas while another team focused on providing modifications, accommodations, and social emotional support for students. These findings suggest how middle school teams can function as PLCs with a focus on teaching and learning. These findings are presented followed by cases, which describe how each interdisciplinary team functioned as a PLC.

Leadership for interdisciplinary PLCs

Both principal and teacher leadership influenced PLC implementation for each team. Below I will describe each in the context of the 2011-2012 academic year at LMS. I begin with principal leadership and conclude with LMS teachers' perceptions of principal leadership. Next, I follow with a summary of the role of teacher leadership.

Principal Leadership

I use *principal leadership* to include Principal Merida and the building assistant principals. Below I describe how LMS principals set the general direction and provided supportive conditions for interdisciplinary PLC development.

Principals influence PLCs through setting direction, developing people, and redesigning the organization to focus on learning (Fullan, 2007; Hallinger & Heck, 1999; Leithwood et al., 2004). LMS principals enacted each of these leadership aspects to support PLC implementation.

Setting direction. Principal Merida attempted to set direction by collaborating with the SPDC, teacher leaders, and administrators to determine the PLC focus to increase teachers' capacity to promote student learning. This was initiated through the November in-service on PLCs. Though not clearly understood at the outset, the purpose of interdisciplinary PLCs was to advance student learning through changing the focus of team interactions. Principal Merida wanted teacher teams to be able to collect and analyze student data and "learn about our students authentically" and "set goals for student improvement." Through professional development, the LMS administrative team tried to provide staff with ideas about how they could function as PLCs. As the year progressed, LMS administrators aimed to support PLC development through responsive professional development efforts. Some teachers expressed concern about a lack of specific direction and Principal Merida used team leader meetings to listen and respond to teacher feedback.

Developing people through team leader meetings. Through planned and responsive professional development experiences, Principal Merida provided time and

resources to develop people. With each professional development experience, she gained feedback from team leaders to inform next steps to support implementation. Below I describe how team leader meetings were used as a formative process to develop people through identifying implementation concerns, sharing relevant professional resources, and following up to monitoring team progress.

Identifying implementation concerns. Team leader meetings held a significant role in LMS' PLC development. Every Thursday morning, Principal Merida held team meetings, where she met with leaders from each team to share critical information pertaining to the school-wide community. As team leaders communicated teacher feedback and concerns to the principal for discussion, administrators gained feedback on the status of PLC implementation. Based on the feedback from team meetings, the administrative team responded to support PLC implementation with additional professional development experiences. In turn, the team leaders relayed the information and resources to their respective teams. Prior to Principal Merida, LMS team leader meetings had traditionally focused on housekeeping matters and information sharing. Unlike the former use of team leader meetings, the shift in focus to PLC development served to develop people.

Sharing professional resources. Principal Merida used team leader meetings as a venue to support PLC development through sharing professional resources. As the 2011-2012 academic year progressed, Team leader meeting agendas continually reflected support for PLC implementation. For example, Principal Merida used these meetings to address staff misconceptions regarding their purpose as PLCs, formalized norms, agendas, reviewing student work, and SMART Goals. Feedback about the PLC development

process was communicated through these meetings and appropriate resources were discussed and distributed at these meetings as well. Sample protocols, agendas, questioning templates, and articles were shared as ways to assist teams in developing as PLCs.

Following up and monitoring progress. After identifying issues and providing resources for support, LMS principals also used team meetings as a follow up to monitor progress. Team meeting follow-ups were a conduit for staff feedback to the administrative team. PLC misconceptions held by staff were communicated to Principal Merida during team leader meetings. Once misconceptions were addressed and relayed to teams, a noticeable difference became evident among staff throughout the building.

Redesigning the organization. There was an emphasis on developing and enacting PLC elements such as norms, agendas, student work review, and SMART goals, which all served to reflect a deliberate focus on teaching and student learning. Below I describe how team meetings were used to redesign the team meeting structure and function.

Before the PLC initiative, teams maintained minutes, but did not regularly create meeting agendas for their team meetings. After the PLC in-service, teams began to use agendas for team meetings. However, the majority of team meeting agendas continued to reflect discussion about student behavioral and learning concerns. Meeting agendas, team leader notes, past observations and teacher comments confirmed that shortly after the in-service, teams were not yet using meeting time to focus on teaching and learning.

The intention of the initial in-service, as well as team leader follow up was for teachers to understand that PLC implementation involved team collaboration centered on

improving instruction and focused on a common goal to promote student learning. It was a challenge to get teams to focus on teaching and learning as interdisciplinary collectives. Principal Merida felt strongly about engaging staff in review of student work as a way to focus on teaching and learning. She expressed the following about student work review:

Within these PLCs, really looking at student work, I think what is going to be most beneficial for teachers to know and identify: What do I want students to know and be able to do and how do I get them there and how do I know they got there or they did not get there? And going back and circling through that process as a team... It is important to start with the small, but I am hoping that this grows to the whole building.

In an attempt to develop a focus on teaching and learning, Principal Merida collaborated with the administrative team and team leaders to create an academic agenda template that incorporated questions to guide discussion (see Appendix F). Starting “with the small” the administrative team sought to support PLC development by engaging teams in instructionally focused work. Previously, much of what teams experienced had been theoretical presentation and practical tools for PLC implementation. The hope was that discussion of student work would promote a conceptual shift in interdisciplinary team interactions.

Halverson (2007) defines artifacts as “programs, policies and procedures that leaders use to influence the practice of others” (p.37). He further posits that when they are effectively designed and implemented, they can shape new practices and routines. Principal Merida promoted the use of artifacts such as norms, agendas, student work review, and SMART Goals to redesign the organization to promote PLC development.

Administrative presence and feedback.

Despite the principal leadership efforts in place, participants expressed the need for more clarity regarding specific expectations. When asked what support they needed to

help their PLC grow, teachers from each of the case study teams communicated the need for administrative feedback and direction:

I think we just need more examples. You know, maybe an administrator coming in twice a month, maybe. Coming in and giving us constructive criticism or ideas, working together, collaborating together, because there is nothing worse than having you do something and then not knowing if you are doing it right or not and not getting that support. Then it will just go downhill. That negativity will just come in, and people will just not want to do it.

Jennifer, Aspen language arts teacher

...you know, the idea that you were in there, the feedback was interesting to see. It would almost be interesting to get feedback on a team meeting. I mean, I think you guys are good at giving feedback, but reading the thing [meeting observation feedback and suggestions], it was helpful to see this is what we did here, here, here... I think just even feedback with administration stuff [non-PLC meetings] would be helpful.

Mufassa, Cypress social studies teacher

As the academic year progressed, teams made meaning of how to proceed with interdisciplinary PLCs, yet there was not a consistent administrative presence during PLC meetings. The case study teams appreciated the feedback and suggestions I provided at the conclusion of my meeting observations. For example, Mufassa noted that it was interesting to get feedback on their meetings. When asked about Aspen's progress as a PLC, Jennifer shared "I think we are learning, and I think we are all doing really good with your help [administrative feedback]."

The comments above suggest the importance of administrative support beyond professional development. Principal Merida's comments concur with the teachers' views expressed above when she shared the following about administrative presence:

I would like to have our administration present as participants and members of the PLCs and not as evaluators but yet working within the team...I think that they need that. I think that there are some that are looking for more guidance and I

think they would want us to be there more often. I have had some [teachers] invite me and I could not make it, which I want to work on next year.

Although LMS principals began with the intention of providing professional autonomy, both principals and teachers agreed that administrative presence and more consistent feedback for PLCs would have strengthened implementation. However, Hord and Sommers (2008) assert that principals play a critical role in initiating PLCs, but they eventually step back to develop teacher leadership capacity to promote PLC growth (p. 28). Next, I turn to a summary of how teacher leadership influenced PLC development at LMS.

Teacher Leadership

Observations, interviews and agendas were evidence of teacher leaders' critical role in supporting PLC implementation. Principal Merida spoke to the critical role of teacher leadership:

The one thing that I can say worked this first year is leadership in the room. There are teachers that have taken a leadership role that allowed for other teachers to engage and they are paying attention and they are questioning, which is a good thing, and that is where I wanted it to at least start out--looking, observing, and questioning. I believe that what works in those PLCs that started with teachers that were really believing and were expressing what was working in their classrooms and other teachers were listening and paying attention to that and wanting to also be included in that... Their voices are all included in those meetings.

Principal Merida describes how teachers fulfilled a leadership role during PLC meetings. Team meetings that reflected equitable teacher participation were a shift from traditional meetings that were either focused on information sharing or dominated by vocal, disgruntled team members. When each of the participant teams engaged in productive meeting interactions, it was teacher leaders who facilitated. Young (2006) describes agenda setting as a leadership activity useful for promoting professional dialogue and

data use. Teacher leaders led the charge by developing agendas and facilitating protocols, which ensured equitable participation that differed from past traditional team meetings.

Teacher leaders influenced interdisciplinary focus. There was an association between teacher leaders' background strengths and the interdisciplinary PLC focus. For example, on one case study team, a language arts teacher took the lead in facilitating PLC meetings and the team focused on literacy across content areas. On another case study team, a special education teacher facilitated PLC meetings and focused on modifying student work and providing student accommodations. Contextual descriptions of how teacher leaders influenced PLC development are found in the cases that follow at the conclusion of this chapter. Though there was a difference in interdisciplinary focus, a common factor was how artifacts such as agendas and protocols were useful in facilitating PLC meetings.

Artifact use

A number of artifacts were used to focus LMS teachers on work related to teaching and learning, namely: agendas, protocols, data driven goal sheets (DDGS) (see Appendix G). Across the case study teams, observations and interviews indicated that agendas and protocols were useful for guiding and focusing interactions during PLC meetings. The DDGS were also a useful district mandated artifact that required teachers to review student data and plan instruction to meet students' needs. Below I describe how each artifact influenced PLC implementation.

Agendas

Before PLC implementation, teams did not regularly use written agendas to guide meetings. A shift from traditional team meetings to the PLC format made a difference in

team interaction. Across teams, I observed how teams were focused and on topic when they had an agenda. Participants from each team affirmed the importance of meeting agendas:

Having an agenda has been very helpful.

Inez, Aspen science teacher

I think specifically with our team, we need to have a strict agenda...I think that's one of our issues as a team is that we go off on tangents a lot and then at the end we don't even know why we were together.

Beth, Aspen special education teacher

I think having the agenda this year also helped out a lot in terms of saying these are the kids we want to talk about, not just randomly saying, 'this person' and then somebody brings up somebody else and then all of the sudden you are talking about that person and we are behind [schedule].

Mufassa, Cypress social studies teacher

Case study teams attested to the difference that agendas made for their team meetings.

Agendas helped teams engage in focused discussions. As described earlier, the academic agenda template had guiding questions, which prompted teams to interact in a protocol.

Protocols

Protocols helped teams to manage equitable participation in team meetings. They were helpful in organizing each team to work together to engage in work beyond their traditional team interactions.

It was just a different way of thinking. It was a different way of talking about a kid, making sure that we had some type of work samples so that we can see if there is a correlation between what he does for me and what he does in math, what he does in language arts. We never ever really looked at it that way.

Rafael, Cypress Science teacher

We, right now, go around from person to person and talk about what we are doing as far as instruction in our classrooms individually. Once we do that, then we do have a conversation, and we ask each other questions and give each other positive feedback or constructive criticism.

Jennifer, Aspen Language Arts teacher

According to the quotes above, protocols were useful for promoting student work review as well as interdisciplinary professional sharing. Rafael gained a different perspective about students as he reviewed their work from across content areas. Jennifer described how her team shared their practice through an interdisciplinary sharing protocol that her team developed. Both activities promote professional community development and depart from traditional LMS CPT activities.

Data Driven Goal Sheets (DDGS)

DDGS were implemented during the 2011-2012 academic year. DDGS completion had the potential to prompt data analysis, since they required teachers to review various streams of student data and to identify instructional strategies to support student learning. LMS teams were required to complete (DDGS) early on in the academic year, prior to PLC training. As a district mandate, these were completed and kept on file during the academic year. Depending upon the team, they were either collectively developed, or completed by a team delegate.

The Cases

The two cases below provide insight from each team's experience during the study. According to McLaughlin and Talbert's (2006) stages of community development framework, both teams functioned primarily at the novice stage of PLC development, which is typical for the first year of implementation (Fullan, 2007). As discussed in

chapter two, the following are characteristics of PLC teams in the novice stage of community development:

- *Teacher Community* – teams develop collaboration norms
- *Shared Leadership* – leadership roles within the team are broadened
- *Focused Effort* – team meetings focus on teaching and student learning
- *Data Use* – teams discover the value and importance of data use
- *Inquiry procedures* – teams learn about and experiment with collaborative inquiry procedures

(McLaughlin & Talbert, 2006, p. 36)

For each case, I use McLaughlin and Talbert's (2006) framework to describe how each participating team experienced PLC implementation. First I present the Cypress team, followed by the Aspen team.

Cypress PLC

During the 2011-2012 academic year, some Cypress teachers had mixed feelings about PLCs. Language arts teachers on the team were open to the effort, while other content area teachers saw less enthusiasm about PLCs due to the team's interdisciplinary makeup. Samantha, the math teacher, saw little value in how interdisciplinary PLCs could help her with content area pedagogy. She felt that it was difficult to relate her content area to what her team colleagues taught. As for Mufassa, the social studies teacher, he felt that PLCs provided an opportunity to "bring some positivity into the meetings" and explained that their team focused on student concerns because they all taught different subjects. Rafael, the science teacher, admittedly took a "wait and see" stance regarding PLCs, based upon his experience with past district mandates. When

asked if PLCs were a change from the way the team functioned last year, Rafael stated “I’m not taking much stock in the PLC because honestly, the way that things have gone in the past, it just seems like it will change next year.” According to McLaughlin and Talbert’s (2006) developmental levels of inquiry-based reform, Cypress functioned at the novice level. Below, I describe the Cypress team in terms of teacher community, shared leadership, focused effort, data use, and inquiry procedures.

Teacher Community

As described in the previous chapter, Cypress was known for being a flexible, nurturing, and understanding team with diverse personalities and strengths, which came together in the best interest of their students. Most of the teachers on the team held a reputation for their ability to connect with students. As Esmerelda, the team leader, put it, “...the one thing I absolutely love about my team is the way they come together for students who are emotionally struggling.” Celeste was a first year language arts teacher at LMS, and was also a former LMS student. One team member described Celeste as a “breath of fresh air” because she brought new perspectives to the team. Kathleen was a respected language arts teacher on the Cypress team, and teachers looked to her for advice and implementation support for literacy. Mufassa, the social studies teacher had a great sense of humor and he demonstrated interest in how to help struggling students. Science teacher Rafael was also known for his sense of humor and one of his strengths was connecting with students. Rafael emphasized the importance of “the relationships that you build and it’s not always the education part.” Samantha was the mathematics teacher for the team. She was passionate about making math relevant and ensuring that students understood math content. She appreciated how her team helped her with

addressing students' emotional needs. As a team, Cypress had a shared commitment to come together to support the social emotional well being of their students.

Prior to PLC implementation, Cypress' team meetings were centered on information sharing, team activities, discussing students' behavioral and learning problems, and parent conferences. As a PLC, the team devoted at least one of their three weekly team meetings to PLC implementation. Their formal meeting norms were as follows:

Cypress Team Norms

- We believe that communication is key to any meeting
- We need to respect and accept each other's opinions and beliefs to come together and work together
- We should come into the meeting with positive viewpoints
- We should support each other and do what is best for the whole team

During PLC meetings, they enacted the academic agendas and used guiding questions to assist team members with affective student concerns. Cypress had a difficult time with identifying a common instructional focus to guide their work as an interdisciplinary team, so they worked together to assist each other to support individual students in ways that were not content specific. Such support involved more general problems of practice related to individual students, such as making modifications and accommodations for students and addressing social emotional concerns.

The Cypress team interpreted common content area experience and content knowledge as pre-requisites for interdisciplinary PLC work. When asked about how their PLC talked about instruction, Esmerelda shared, "I think we solved a lot of problems this year, I just don't think that they were as much instructional. Similarly, Samantha admitted, "I'll be honest, it's not very instruction based. What it has helped with has definitely helped on the emotional side. Academically, there hasn't been much..."

Teacher beliefs: disciplinary identity. Teachers' views on the absence of connections across content areas contributed to their PLC's limits on content-specific instructional support. When asked about the challenges of functioning as a PLC, Rafael shared that there was no instructional connection with his interdisciplinary team, "I have no connection. There's no connection because we teach totally different subjects and we're never on the same page." Cypress' mathematics and social studies teachers each shared similar perspectives regarding their content areas and their interdisciplinary team:

We don't teach the same subject, so how are we going to help each other when you know, I say order of operations, social studies will be like, "what?" And you can even look at science. Science and math go together, but the topics are so different.

Samantha, mathematics teacher

I mean, obviously, we all teach different subjects. For me to ask like the math teacher what she is doing in math...I mean maybe they are doing fractions or whatever. It wouldn't really relate to what I am doing in history

Mufassa, social studies teacher

Cypress teachers clearly expressed concerns about a lack of connection among content areas. The Cypress language arts teachers also noted this. Language arts teacher, Celeste, shared how she felt that the PLC meetings were helpful to her, yet she demonstrated understanding of her interdisciplinary colleagues' perspectives when she remarked, "I think I mean I don't blame them, but they have to be there when we talk about language arts, they don't see the correlation, so they kind of zone a little bit." At the same time, Celeste was also optimistic about how the common core standards requirements would potentially bring the content areas together in the future,

"I feel like now they [the team] are going to be responsible for teaching parts of it [common core standards], so I think there's going to be a huge difference that I'm

kind of anticipating. So I think now that is probably a thing I am looking forward to. I think it's going to change the team a little bit.

Cypress' math, science, and social studies teachers participated in team meetings, yet they connected more with their department area colleagues from other teams concerning content specific instructional matters. When asked to whom they would turn for feedback on their teaching, the math, science, and social studies teachers each identified their department as a primary resource. Similarly, the team's language arts teachers turned to each other and off-team language arts teachers for resource support. The Cypress language arts teachers were more deeply engaged when sharing ideas, reviewing student work, and providing each other with content specific advice and support. As a result, a micro PLC developed among Cypress' language arts teachers.

PLC within a PLC: Cypress language arts teachers. As the year progressed, a micro-community developed among Cypress' language arts teachers. This subgroup included the team leader, two team language arts teachers, and a reading support teacher that served Cypress students. The benefit of sharing student work among language arts teachers was confirmed by the other content area teachers' responses regarding instruction. Analysis of teachers' interactions and influences confirmed that language arts teachers looked to each other for feedback and support. Aside from the support of an outside literacy coach, language arts teachers expressed confidence in their content area colleagues. When asked how the PLC influenced their professional growth, Cypress language arts teachers identified each other and responded as follows:

Kathleen [language arts teacher] is amazing! She's just phenomenal! And Celeste [language arts teacher], she brings so much energy and so much excitement to the job that I could go to her when I just needed a fresh look at something...so it was more individual as opposed to the PLC in general.

Esmeralda, team leader/co-teacher

I think they've been a great help this year. I mean Kathleen (language arts teacher) has been awesome just giving me ideas for like how guided reading is done a little bit different here, so I was able to talk to her about how guided reading is done here and what options they have.

Celeste, language arts teacher

Disciplinary identity division has been documented in past studies of professional community, where teachers do not share a common content area of focus (Grossman & Stodolsky, 1995; Siskin, 1991). When teachers belong to distinctive content area subcultures, it constrains their ability to engage in collective reform efforts (Grossman & Stodolsky, 1995; Siskin, 1991). Cypress' professional sharing centered on general problems of practice that were not content area focused; instead, they supported each other with how to meet the needs of individual students through modifying student work, providing student accommodations, and providing students with social emotional support.

Shared Leadership

At the novice stage of shared leadership, teams are in the process of developing systems to manage PLC implementation. Esmeralda, the team leader and special education co-teacher for the team, assumed a leadership role in Cypress' PLC. She was elected by the majority of her team colleagues to fulfill the team leader role. She took the lead in facilitating all of Cypress' meetings. She implemented the strategies shared at team meetings, such as using the academic agenda and its guiding questions to facilitate. Though optimistic about the PLC effort at the beginning of the school year, she became

disenchanted as the year progressed, largely due to her experience with reluctant team members,

There are personalities on my team that are very negative, very contrary, just anchors, and no matter what strategies were provided to me as their team leader, no matter what scaffolding I was given, it was very, very difficult to fight those anchors, to fight those people that are just sticks in the mud and they don't want to change and they don't want to bring any positivity to the room.

Esmerelda described tension she perceived from some team members' responses to the challenges of embarking upon interdisciplinary work, which clearly had an impact on her. However, despite her feelings about some of her team members, her team valued her special education expertise when it came to modifying work for students with special needs or making accommodations for students with individualized education plans (IEPs).

Esmerelda co-taught with the mathematics, science, social studies, and one language arts teacher on the team. By default, her dual role as team leader and co-teacher role provided her with consistent opportunities to interact with each of her team colleagues, both inside and outside of the classroom.

Focused Effort

Cypress' meeting interactions focused on providing each other with support to help students of concern. They accomplished this through brainstorming ways to support and motivate students and through providing student accommodations and modifications during academic concerns meetings.

Student accommodations are defined as ways to help students learn the same material and meet the same expectations as their classmates (Strom, 2016). Examples of accommodations included providing students with checklists, word banks, study guides and graphic organizers to assist them with demonstration of content proficiency.

Modifications are defined as changes to what a student learns based on their academic needs and/or abilities (Strom, 2016). Examples of modifications include providing student with fewer problems on an assignment than the rest of the class, asking students questions verbally to assess their knowledge of the content rather than requiring a written response, or providing alternatives for students to demonstrate understanding.

As a special education teacher, Esmerelda advocated for Cypress students with special needs to ensure that her team teachers were aware of the modifications stated in students' individualized education plans (IEPs). This benefitted special education students, and it also helped the team find ways to support struggling general education students through accommodations and modifications as necessary.

When asked about how Cypress talked about instruction, Rafael offered the following response:

No, I don't think it talks too much about it [instruction]. I mean other than what are we doing to help this kid and to me that just seems like more of modification than instruction, which is really what I think we do in most of the cases. We figure out where are they weak at and how can we help them. To me, I would look at it as more of a modification for a kid than total instruction.

Content area teachers found such guidance and support to be helpful in their practice. In fact, more than half of Cypress participants' attested to the professional benefits of learning general strategies and modifications to promote student success. Samantha, the mathematics teacher benefitted from her team's focus on general strategies and modifications as she reflected, "I realize that, you know, every single child is different, but you never know that until you hear it, and then you see how you can use that in an effective way to engage and keep that student in the classroom." Rafael also came to

realize the importance of being flexible to meet the varying needs his students through modifications and accommodations:

I think it (PLC) helped our team come up with better strategies to help an individual child...On the education part, I've learned to be a lot more flexible through PLCs and learning how to again modify and just make adjustments for different kids' learning styles I think...What did I get from the PLC? We looked at student work. I learned about how to make accommodations.

Rafael, science teacher

These teacher perspectives are evidence of how Esmerelda's background as team leader had a direct influence on the team's interactions. In fact, the very "anchors" she referred to in the previous section attested to learning how to meet student needs as a result of their PLC.

As team leader and co-teacher with each content area, Esmerelda used her special education expertise to support the team in how to differentiate to meet Cypress students' needs:

I'm co-teaching with all the content area teachers, which I've never done before...so this year I've been the learning expert that specifically in science and social studies, where I don't have the [content] knowledge about specific topics...but I did very much have the knowledge of how to bring information to the students. So a lot of it was working with the regular teachers and helping them see how they can get their lesson across more clearly to the students who do have struggles.

Esmerelda mentioned that she did not have the content knowledge in science and social studies, yet she had the expertise of how to reach struggling learners. In her role as team leader, she was able to facilitate limited opportunities for her team to make meaning of PLC tenets such as reviewing student work and sharing professional expertise. However, the majority of Cypress' PLC meetings were focused on providing teachers with collegial

support to help students. Esmerelda facilitated these meetings using the academic agenda and its guiding questions.

Inquiry Procedures

Cypress' PLC focus was helping teachers to address concerns they had with individual students. During Cypress team meetings, team members brought concerns about students to the team and they engaged in a protocol to discuss ways to support the teacher to help the student. As Mufassa explained,

What we generally do is kind of open the floor a lot in terms of the days that we meet prior to like the academic concern day, we might say the day before, "Who are some kids we want to talk about tomorrow?" So we kind of bring some kids to the forefront that we want to talk about. From there we kind of discuss, again, some of the strengths and weaknesses of the kid where they need to work a little bit harder, etc. I guess what we try to do from there is kind of bounce ideas off of each other in terms of maybe things that are working.

What Mufassa describes is a variation of a consultancy protocol. The National School Reform Faculty (NSRF) (2014) defines a consultancy as "a structured process for helping an individual or a team think more expansively about a particular, concrete dilemma."

The team usually identified students for discussion prior to the meetings, as described earlier. However, during two of the four observed meetings the team identified a student at the beginning of the meeting and the team created an agenda on the spot and began discussion.

The following vignette provides an example of how Cypress teachers interacted during a PLC team meeting in March 2012:

The bell rings and one by one, Cypress team members file into Kathleen's classroom. Desk-chairs are arranged in an ovular pattern so everyone is in view of each other. Esmerelda has the team notebook preparing to start the meeting while Samantha

and Celeste are engaged in small talk. Mufassa was seated quietly, waiting for the meeting to begin. Kathleen was making adjustments in her classroom in preparation for her next class. After Esmerelda calls the meeting to order, Rafael comes in to take a seat.

Esmerelda: Today we are going to do our academic concerns. No one emailed me, so we will not have any student work to show.

Samantha: I have some concerns about Fred.

Esmerelda: Should we discuss Fred? I'll put him on the agenda; let's make it official. Before we start with the [guiding] questions, what is your concern?

Since Samantha, the mathematics teacher, shared a concern she was having with one of her students, Esmerelda used a consultancy protocol to involve the group in supporting Samantha. Using the academic agenda template, she asked Samantha a standard bank of questions to help accurately describe the problem and identify how she had tried to resolve the matter. The problem that Samantha shared was that a particular student was not motivated. Her goal was to motivate the student to work independently on a task without one on one attention.

After Samantha shared her problem, Esmerelda opened the floor for the team to pose clarifying questions: "How long has this been a problem?" "Is it with every topic?" "Is he organized?" Various team members asked probing questions about what Samantha had tried previously. Once the problem was defined, team members brainstormed ideas to assist the Samantha with motivating the student to work independently. Samantha listened and took notes as her colleagues offered suggestions such as:

- One on one check for understanding during independent work time
- Chunking assignments
- Limiting the number of problems required
- Checking in with Fred after a set time to monitor his progress

- Pair him with a buddy

Samantha took a moment to reflect and then shared that she would try her teammates' suggestions of checking in with the student before the task begins and following up with student intermittently during an independent work period. She also agreed to follow up with the counselor and the student's mother via email. She said she would follow up with the team at a later date to share progress.

Next, the team began to talk about a former student who was in the local newspaper. This prompted conversation about another student whose parents needed assistance with managing their child's behavior. At this point, the group began to discuss the other student and his circumstances. The team did not stay with the agenda or guiding questions for the second student up for discussion. As a result, the remainder of the meeting was spent discussing the student and his behavior without arriving at a concrete solution.

The vignette above is characteristic of the way that Cypress functioned. While the account is not pedagogically focused and does not involve academic assessment data, it is an example of how the Cypress team used protocols to guide discussion to support each other to resolve general problems. Esmerelda facilitated the protocol to ensure equitable participation that focused on collaborative problem solving. When they used the agenda and the guiding questions, it helped to focus the discussion to arrive at a solution. Team members drew from their experiences and sought new ideas to provide collegial support for Samantha.

The Cypress team created and used an agenda and the guiding questions focused the discussion, which is something they did not do prior to PLC implementation. Yet, the agenda was not set ahead of time and there was no reference to the team's norms to help

re-direct the meeting once they lost focus. Once the topic changed, the discussion was less focused. In fact, in three of the four Cypress meetings observed, agendas and protocols were effective for about half of the meeting period, before the team discussions lost focus and spiraled into discussion about student behavior.

When asked how her team functioned differently as a result of PLC to discuss instruction, Esmerelda lamented about this pattern she saw with her team:

...When we were having PLC talks...before it was recognized that we would always go to behavior, always go to just, excuse my language, bitching about the students, you know, just, oh, they're driving me crazy with this, this, that, where when we were in PLC mode, we were constantly being pulled back, okay, well, how can we help this child, what we can do instructionally to help this child? So those days we did focus more on instruction as opposed to behavior, but in general it always went back to behavior.

Esmerelda's description of "PLC mode" referred to when her team worked from an agenda to focus on helping a colleague with how to best assist a student using the guiding questions. However, like in the vignette, when the team had no agenda and the facilitator did not call the group back into attention, the PLC meetings lost focus.

Data Use

Cypress collectively reviewed student work as a data source during PLC meetings. While there was little observed data use, Cypress teacher interviews indicated that they brought student work to meetings when discussing student concerns. Language arts teacher Celeste describes how Cypress reviewed student work during PLC meetings,

I'll bring in the letters [student work] for kids, maybe I saw a good thing and then maybe there was something [standard expectation] that they didn't reach and they should have reached by this time in the year. We would kind of go back and forth with me like, okay this is what one of my letters looked like and we will just talk about it. We brought any type of work and then you talk about is this okay, is this something that a typical seventh grader should be writing well or is it organized? Like we will just talk about it...it was nice to have their [team] input as well...So just to have the teachers there to see the work and then they were able to say, "Ah

you know, I see that too. I see that in my class [social studies] and [with] the writing pieces, they [the student] did this with current events [social studies] too.” So I felt that was helpful.

Celeste’s account described academic concern meetings that took place earlier in the year, where looking at student work samples served as an entry point into data analysis. When the team prepared beforehand to discuss a student, they brought in student work and focused on individual students across content areas. During student work review, they looked at an individual student’s work through the lens of various content area teachers. Celeste mentioned how the social studies teacher remarked about how he saw patterns in student work based on students’ reader response letters. This tended to happen more often with the language arts teachers and the social studies teacher.

Summary: Cypress PLC

Team Cypress’ case highlights the unique benefit of student-centered collaboration with multiple perspectives. Team discussions provided members with suggestions for varied personal approaches to making learning accessible to all students and to improve teacher student interactions. If a Cypress teacher had a difficult time with a student performing in their classroom, they could consult with their team during a PLC meeting, and teacher colleagues would brainstorm and share ideas and strategies that were successful with the student in another setting. Cypress teachers were able to turn to each other for support with general problems of practice.

Esmerelda’s assessment of the Cypress team shed light on the team’s strength of providing students with social-emotional support, as well as some team limitations:

I really credit my team members ... when we have students who have high anxiety, or students who are dealing with a lot of things emotionally - they’re wonderful. They’re so flexible. They’re so caring. They’re just, they really, every

single one of them really give everything to help that child when it comes to anything not just academic.

The common theme among Cypress members was that the team as a whole, did not collaborate around matters of content and pedagogy. What team members did share in common was how to address general affective concerns. Individual team members' attested to the benefit of agendas and protocols for providing an opportunity to see students in light of their performance across content areas. Bearing in mind that this was the first year of PLC implementation and the interdisciplinary focus was a new expectation, it is highly likely that as the team matures as a PLC, they may identify additional opportunities to engage in meaningful interdisciplinary work.

Aspen PLC

During the 2011-2012 school year, team Aspen readily participated in the study and was receptive to the idea of functioning as a PLC. Initially, some members expressed concerns about being overwhelmed with initiatives and mandates; however, the harmony that characterized their team carried over into their PLC implementation. They experimented with the procedural tenets of professional community, such as norms, agendas, and protocols to reflect teaching and learning. According to McLaughlin and Talbert's (2006) developmental levels of inquiry-based reform, Aspen primarily functioned at the novice level and at the intermediate level with one element. Below, I describe the Aspen team according to the categories of teaching community, shared leadership, focused effort, data use, and inquiry procedures.

Teacher Community

The previous chapter described the Aspen team as having a strong reputation for high standards for both academics and behavior. Aspen's team leader Cassidy (a

mathematics teacher) describes her team as one that “does not always need designated time to discuss students, concerns, and issues so we informally handle many situations outside of our team planning period which is productive and for the betterment of the student population.” Social studies teacher Steven shared, “I definitely think we function pretty well as a team and we’re centered on the kids.” According to Inez, the science teacher, her team helped her to stay organized and that Aspen was a successful team, because “everyone is happy working together.” Beth, a special education teacher, expressed confidence in the team’s ability to communicate with each other and to contribute to her professional growth as a teacher. Loretta and Jennifer, the team’s language arts teachers complemented each other in their roles both in and outside of the classroom. In the classroom, Jennifer taught the enriched and co-taught language arts classes, while Loretta taught only general education sections. Outside of the classroom, Loretta maintained the team meeting minutes and Jennifer volunteered to facilitate PLC meetings. As a team, Aspen got along well and they were open to the interdisciplinary PLC experience.

Prior to PLC implementation, the Aspen team would meet for information sharing, planning team activities, and to discuss traditional team topics such as student learning problems, behavioral concerns. As a result of PLC implementation, Aspen experienced a change in the way they functioned as an interdisciplinary team. Jennifer describes this below:

Our team would normally focus on students and the kids who are not doing well and focus only on those kids, nothing about our instruction, and nothing about what the other kids are doing well. It was all about bringing guidance or bringing child study team and talking about those kids who are not doing well and not even what we can do to help them. It is kind of like complaining...that is not what those (PLC) meetings are about...Now we have a strict agenda. We have an

objective. We come prepared with our agenda and jot down notes. There is no going away from that agenda, and it is not about individual kids, at least this year it hasn't been. It is about us as a community of teachers who can learn from each other and what is going on in each other's classrooms. We had no idea what was going on in each other's classrooms [before PLC implementation].

In the novice stage of learning community development, teams are in the process of developing collaboration norms. Aspen developed formal norms for collaboration at the beginning of the academic year. As they experimented with agendas and protocols to guide team meetings, they enacted their norms, as listed below:

Aspen Team Norms

- Bring a positive attitude.
- Keep on task; stick to objectives.
- Cooperate and support each other.
- Share ideas equally.
- Respect and listen to each other's contributions.
- Be flexible and compromise.
- Develop realistic solutions and proposals and high expectations for students.

During PLC meetings, Aspen engaged in interdisciplinary sharing to gain an understanding of what their team colleagues were teaching, which was different from the way the team functioned in the past. The observed meetings were focused on the agenda and did not devolve into complaining, as with meetings prior to PLC implementation.

Shared Leadership

Regarding shared leadership, Aspen functioned at the intermediate level, where there was evidence of broadening teachers' leadership roles in reform. There was a distribution of leadership tasks between Cassidy, the team leader and Jennifer, a language arts teacher who assumed an informal leadership role in Aspen's interdisciplinary PLC. Cassidy, the team leader, handled all of the housekeeping matters and mandated tasks required for the team. Matters such as field trip organization, administrative tasks, and parent meetings were under Cassidy's direction. Having been the team leader for the past

three years, Cassidy ensured that the team business was handled in a timely and efficient manner. Aspen team members were respectful and encouraging towards their colleagues in leadership roles. For example, during the PLC meetings, Jennifer, although she was not the formal team leader, facilitated some team meetings with a firm adherence to the team's norms. The team stayed focused and on task during PLC meetings when teacher leaders facilitated effectively.

Focused Effort

Aspen focused their PLC meetings on ways to connect with each other regarding teaching and student learning. As social studies teacher Steven describes it, "our PLC focuses on improving our teaching strategies by showing each other what we do in class and sharing those ideas and providing suggestions to improve." Primarily through interdisciplinary sharing, they gained increased understanding and familiarity with each other's classroom practices.

This focused effort also prompted professional reflection. Science teacher, Inez, shared, "[PLC meetings] make me self reflect much more than I have in past. I feel more organized in our meetings, which then causes me to try and stay organized in the classroom."

When asked about how the PLC meetings differed from their typical meetings before PLC implementation, Steven declared,

I will tell you that the PLC structure, it does keep us from getting stuck on one kid. We will make sure that we hit [address] different kids. We will try to get through the agenda that we set. I will tell you what it does - I will say there's a greater focus on the work itself rather than maybe the behaviors of the kids.

Steven's comments evince a shift in the focus of Aspen meetings from general housekeeping issues and student behavior concerns to more focused discussions about

curriculum implementation across content areas and students as learners across classrooms and content areas. Research on teachers' use of common planning time (Anfara & Caskey, 2013) reveals that teachers commonly discuss students during this time, with a focus on behavior and learning issues. Aspen's PLC focus prompted them to move beyond discussing student behavior into professional dialogue and reflection about teaching and learning.

Data Use

At the novice stage of community development, teams "discover [the] value of data and how to use it" (McLaughlin & Talbert, 2006, p. 36). Aspen analyzed standardized assessment data using DDGS. The team collectively reviewed state and district level student data to develop a plan for instruction to help the students who were below proficient on standardized tests to meet proficiency in math and/or language arts. The team engaged in the process to the point of analyzing relevant data and identifying common challenges. Cassidy provided further insight gained from engaging in data analysis:

We have been identifying students with low reading abilities...and we are seeing how this affects certain students in various content areas; the responsibility to help these slower readers is now a focus of science, social studies, and math.

As Cassidy mentioned, teachers across content areas were using student data to identify students' needs. Her comment above referred to the team's collective review of student data through DDGS completion.

Cassidy further explained how the team collaborated to discuss students as an interdisciplinary PLC,

We have begun to focus more on a few kids instead of previous conversations about general concerns and issues. We are now talking about specific strategies that work for certain children. What's working in one class versus another?... looking into specific skill deficiency and how students are impacted in one or more of the content areas.

Cassidy described interdisciplinary collaborative inquiry. David (2009) defines collaborative inquiry as when “teachers work together to identify common challenges, analyze relevant data, and test out instructional strategies” (p. 87). It is through collaborative inquiry that teachers engage to create knowledge that informs instructional practice (Cochran-Smith & Lytle, 1999). The act of collectively analyzing student data broadened the Aspen teachers’ perspectives on the relevance of literacy across content areas.

Inquiry Procedures

Jennifer, a language arts teacher, facilitated PLC meetings. She used an agenda form that she adapted from a personal/professional resource (her husband, who was an administrator in another district) to facilitate Aspen’s PLC meetings with an emphasis on adhering to the team’s norms that were developed during the school year. In doing so, team members devoted PLC time to engage in professional sharing and reflection across content areas.

As meeting facilitator Jennifer played a critical role in the way Aspen used their PLC time. As a teacher leader, she gathered team input to develop the agenda, which she distributed to the team. When she facilitated meetings, she referred to the teams’ shared norms when the team started to go off task. At the end of each meeting, she prompted the team to reflect upon their effectiveness. She also elicited team input to develop the agenda for the next meeting. During PLC meetings, Aspen experimented with

interdisciplinary sharing, SMART goal development, and student celebrations as they related to teaching and learning.

Interdisciplinary sharing. As an entry point to de-privatized practice, interdisciplinary sharing encouraged Aspen teachers to engage in talk about what was going on in each other's classrooms. The team had been working together for years, yet they were unaware of what their colleagues were doing regarding curriculum implementation. Such conversations are a start for interdisciplinary work. Being aware of what their colleagues were doing in the classroom provided teachers with opportunities to make connections across content areas (Vansant, 2011).

During interdisciplinary sharing, every subject area teacher got a chance to discuss his or her progress with curriculum implementation and current instructional strategies. Jennifer explained the following about interdisciplinary sharing:

We, right now, go around from person to person and talk about what we are doing as far as instruction in our classrooms individually. Once we do that, then we do have a conversation, and we ask each other questions and give each other positive feedback or constructive criticism.

The interdisciplinary sharing protocol afforded everyone an opportunity to share what was going on in his or her respective classrooms. As a result, community members were intrigued and inspired by the shared instructional practices. This was the first time that team members discussed what they were teaching in their respective classrooms. As a team that had been working together for over six years, members found it refreshing to learn what was going on in their colleagues' classrooms:

I did not know that Inez was doing ballads in her [science] classroom, and I taught my kids ballads...like how awesome is that? And then Steven [social studies teacher] with his writing. But this was something I was proud of, he [Steven] saw kids using compositional risks, and one of my own kids who came in struggling, he [Steven] said he could see growth in his [the student's] writing. That is the

kind of stuff we need to hear from each other to validate each other and not complain about children.

Jennifer, language arts teacher

What I like most is that we were able to see and talk about what each teacher was teaching...then I mean you can use that and bounce it off in your class and incorporate it in your class...

Beth, special education teacher

Aspen teachers validated each other through professional dialogue and inspired each other to take professional risks. This resulted in professional learning opportunities among Team Aspen teachers. Professional learning was a byproduct of PLC meetings, prompted by interdisciplinary sharing. For example, special education teacher Beth remarked that she and team language arts teachers facilitated professional learning among interdisciplinary colleagues with open-ended question responses:

So we were able to all meet together for a given time and say, because I know Inez (science) and Steven (social studies) weren't sure how it (QASI - an open-ended response strategy) worked... and we were able to use that time to explain to them like how it works, you know? So it gave us time to actually discuss something we can all use together.

QASI was a strategy that Aspen teachers adapted and applied across content areas. Beyond sharing professional knowledge, this brought a level of coherence among content areas. This was an example of how Aspen met the challenge of identifying a common instructional goal. Steven also attested to the professional learning that resulted from the PLC experience:

You have to know your strengths and weaknesses as a teacher. I wasn't trained in literacy. I can read and write. I know a well-formed paragraph. I know when messages are conveyed clearly. I know when people are on point and off point and with things in the content. But the literacy I don't have. I needed to get it from someone. That's what the district wants us to do and the kids tended not to use the stuff from language arts in social studies class. They tend not to evidence it that way in the tests and assessments...For me, the PLCs have helped me in that

area, and with the emphasis on curriculum and structure and assessment I want to make sure I'm on the same page as my district in knowing what they want.

For Steven, the PLC experience increased the level of coherence among district initiatives, school goals, and his content area. His comments above are indicative of how PLC discussions of standardized and classroom assessments and their outcomes, inspired him to infuse cross content literacy strategies into his social studies instruction.

Coincidentally, Steven experimented with the newly revised social studies curriculum that was aligned with the Common Core standards, which integrated English Language Arts and Literacy in History/Social Studies, Science, and Technical Subjects (CCSSI, 2010).

SMART goal. As a result of analyzing their students' performance open-ended responses in reading and math from the state standardized test, the Aspen team identified the common instructional goal of improving students' ability to effectively answer open-ended questions across content areas. During a PLC meeting, the team discussed how to best implement QASI across content areas and they decided to formally implement it as a team for the next academic year. Based on the data analysis and the team discussion, the team developed an interdisciplinary SMART goal for the start of the following academic year.

Student celebration meetings (SCMs). When Principal Merida facilitated quarterly SCMs, Aspen team members voluntarily brought student work to share as a way to celebrate student achievement. Every Aspen team member participated in acknowledging a student to celebrate; and over half of the team seized these voluntary opportunities to share, describe, and review student work.

Summary: Aspen PLC

Even though they had already worked as a team for over six years, Aspen participants stated that they learned more about and from each other as professionals from their engagement in the 2011-2012 PLC experience than they had in previous years. Data analysis, interdisciplinary sharing, professional learning, SMART goal development, and student celebrations were much different from previous team meeting interactions. As an interdisciplinary PLC, they began collaborating with a teaching and learning focus.

Aspen operated at the novice stage of PLC development in each category except shared leadership (McLaughlin & Talbert, 2006). However, as evidenced by their comments, observed conversations, and outcomes, Aspen used PLC time to function differently than they did prior to PLC implementation. By attempting to use common planning time to deliberately focus on open ended responses across content areas, Aspen began to transcend the traditional ways in which they met in previous years, such as information sharing, team activities, discussing students' behavioral and learning problems, and parent conferences. As a result, their professional dialogue and interdisciplinary sharing resulted in professional learning and an identified common instructional SMART goal. Although they had yet to collect and review student data to provide evidence of student learning, their experience provided direction for continued implementation.

CHAPTER 5

Discussion

This case study investigation explored and described the development of interdisciplinary middle school teams as PLCs. In this transitional process, these teams broadened their scope from the tradition of discussing student problems and completing administrative tasks (Caskey et al., 2013) to engage in professional dialogue regarding teaching and student learning (McLaughlin & Talbert, 2001, 2006). Both principal and teacher leaders used artifacts as systems of practice to guide PLC development (Halverson, 2003, 2007a, 2007b). Findings concur with existing literature regarding leadership and professional community. Relevant literature purports that effective leadership provides direction, support, and structures that enable collaboration that focuses on teaching and learning (DuFour & Marzano, 2011; Halverson, 2007b; Louis et al., 2010; Wahlstrom & York-Barr, 2011). Case descriptions portrayed ways in which these teams exercised professional autonomy to collaborate as interdisciplinary PLCs during CPT, which suggests that interdisciplinary teams can successfully work together as PLCs.

Below I discuss the challenges and opportunities of interdisciplinary PLCs in light of current professional community literature followed by this study's implications for professional community in middle schools. I conclude this chapter with recommendations for future research.

Interdisciplinary PLCs: Challenges and Opportunities

These case study teams illustrate challenges and opportunities experienced by interdisciplinary PLCs. Although each case study PLC had a different focus, findings

were consistent with past research that reflects the challenges and opportunities associated with interdisciplinary PLCs (Curry, 2008; Grossman, Wineburg, & Woolworth, 2000; Siskin, 1997).

Challenges

In their discussion of creating collaborative cultures, DuFour and Marzano (2011) mention five team structures for PLCs. However, the interdisciplinary team structure is the only structure described with the disclaimer that “can be an effective structure if members work interdependently to achieve an overarching curricular goal that will result in higher levels of student learning.” (p. 73). Challenges associated with interdisciplinary collaboration include: finding a common instructional focus, and tension between embracing content specific collaboration and an interdisciplinary approach to professional learning.

Finding a common instructional focus. As described in the previous chapter, The Cypress team experienced the challenge of finding a common instructional focus. Rather than embrace or attempt to engage in literacy across content areas, the science and math teachers expressed a preference to work in professional community with their content area colleagues because they had more in common.

Subject specific vs. interdisciplinary professional learning. A contrast between the case study teams illustrates this tension. For example, Cypress had little interest in learning literacy across content areas, yet they were open to learning how to make modifications and accommodations, which did not necessitate discussing content. The teachers that did not embrace the idea of literacy across content areas did express interest in working with their content area colleagues during department meetings.

Conversely, Aspen embraced an interdisciplinary approach to teaching content across content areas. Teachers from across content areas were open and willing to learn and implement writing open-ended responses across content areas.

Both of these challenges to interdisciplinary collaboration have been documented by research involving PLCs with interdisciplinary membership (Curry, 2008; Grossman, Wineburg, & Woolworth, 2000).

Opportunities

Despite challenges, there are a number of opportunities that interdisciplinary collaboration presents. Increased awareness of school-wide instructional practices, opportunities for curriculum integration, and support for collaborative problem solving are all possible through interdisciplinary collaboration.

Increased awareness. Both Cypress and Aspen teachers experienced increased awareness of their colleagues' instructional practice as a result of their PLC experience. Cypress teachers learned about the students they shared in common through student work review. Aspen teachers gained insight into their colleagues' instructional practices through interdisciplinary sharing.

Curriculum integration. The original intent of interdisciplinary teaming is to integrate curriculum to provide students with authentic, relevant, and exploratory learning experiences that reflect real life. Curriculum integration is possible through interdisciplinary collaboration. While neither team demonstrated evidence of curriculum integration, interdisciplinary collaboration centered on an interdependent curricular framework would advance such a possibility.

Collaborative problem solving. The Cypress team demonstrated collaborative problem solving during their PLC meetings where they supported each other with student concerns. Using a consultancy protocol, the team harnessed their collective experiences and insights to support each other through problem solving to meet their students' needs.

Implications for Practice

This case study provides anecdotal responses to the Middle level research community's recommendation for professional development focused on the effective use of CPT with a specific focus on teaching and learning (Caskey et al., 2013). Bearing in mind that every school setting has a specific context, it is critical for leaders to aim to develop teacher capacity to capitalize upon the existing structures. This study provides an example of how leaders can support PLCs.

Professional community literature supports the idea that grade level and content area focused teams are in organizational contexts that are likely to succeed as PLCs (DuFour et al., 2010; DuFour et al., 2016; DuFour & Marzano, 2011; Hord & Sommers, 2008; Hord and Tobia, 2012; Talbert, 1995). Yet the middle school model, with interdisciplinary teams, remains as a constant organizational structure in public schools (McEwin & Greene, 2011; Mertens et al., 2013; Valentine et al., 2004). This reality makes it necessary to devise ways to maximize interdisciplinary teams' CPT use.

To maximize teachers' professional learning to support student learning, teachers need support for both interdisciplinary teaming and content area support. As with the teachers in this study and in past research, content area teachers, specifically in math and science, tend to lean toward their colleagues for advice in their teaching (Siskin, 1997). This was also evidenced by how the language arts subgroup on the Cypress team seized

opportunities to meet with each other for content area support. Content area teachers' need to collaborate should be encouraged and not minimized at the expense of interdisciplinary team development. Both are important to promote school-wide professional community in a middle school.

Middle Level School-wide Professional Community: The Genius of AND

In his studies of how companies achieve greatness over time, Collins (2001) explains "the genius of AND" as being able to "Embrace both extremes on number of dimensions at the same time...instead of choosing A or B, figure out how to have A and B" (p. 198). This idea is applicable to the middle school in that there are opportunities for both interdisciplinary and content area collaboration. Rather than choosing engagement in interdisciplinary or content specific PLCs at the middle school level, schools can have both.

The genius of AND was demonstrated in a case study of Freeport Intermediate School, an effective middle school professional community that promoted both departmental and team collaboration in the interest of advancing student achievement (DuFour et al., 2004). Their schedule allowed for teams to collaborate in each configuration every other day. They also implemented PLC principles and tenets. This afforded teachers the opportunity to reap the benefits of both interdisciplinary and content areas, as well as to devise ways to promote high levels of learning for all students (pp. 86-91).

Similarly, teachers from the LMS case study teams were participants in both departments and interdisciplinary teams. However, the deliberate, teacher-centered collaboration that was encouraged for LMS interdisciplinary PLCs did not drive the

department meetings. While some departmental interactions were collaborative experiences, they were rare. Consistent with the bureaucratic hindrances that limit PLC development (Talbert, 2010), LMS department meetings were primarily administratively driven. To maximize the use of the structures in place, it is necessary to provide content area teachers with an increased level of autonomy through a gradual release of professional responsibility.

DuFour and Colleagues (2016) warn, “Middle schools make a mistake when they put all their eggs in the interdisciplinary basket” (p.63). Considering the challenges and opportunities inherent within interdisciplinary work at the middle level, it would behoove middle schools to heed the warning. The way the case study teams made use of interdisciplinary collaborative opportunities would only enhance the LMS school-wide community if similar implementation support and efforts were applied to developing the content area departments as well. The leadership efforts that were successful in promoting interdisciplinary PLC development involved ongoing professional development, responsive to the teachers’ needs coupled with autonomy to experiment and develop. Such efforts should be applied to both interdisciplinary teams and content area departments.

Suggestions for Further Research

There is a need for strategies to develop professional community models that apply to the middle school interdisciplinary context. Professional resources from PLC experts make mention of interdisciplinary organizations, yet they offer limited advice about how PLCs operate in this context (DuFour et al., 2006, 2010; DuFour et al., 2016; Hord, Roussin, & Sommers, 2010; McLaughlin & Talbert, 2006). At the conclusion of

their study of over 40 middle schools that implemented PLC models, Gallimore and Ermeling (2013) suggested the need for more successful PLC models that are neither too prescriptive nor overly general. As an overarching recommendation for CPT research, Caskey and Colleagues (2013) identified “the need to learn more about the skills and knowledge essential for CPT to function well in a middle school... (p. 341).” This study offers insight to address the concerns listed above.

Conclusion

To date, empirical evidence reveals that middle school teams most commonly use their common planning time to focus on students’ behavioral concerns, to identify student-learning problems, and plan special team activities (Caskey et al., 2013). In order to increase effectiveness in promoting student learning, discussions must go beyond identifying students’ behavioral and learning problems to engage in productive dialogue and professional learning activities that focus on instruction and that build coherence across content areas. This study described two interdisciplinary middle school teams that demonstrated productive uses of CPT that went beyond identifying problems.

Though uncommon and challenging to establish, interdisciplinary PLCs are a possibility. Implemented concurrently with a departmental structure that emphasizes core ideals of professional community, middle school teams as PLCs hold the potential to boost the professional capacity of middle school educators. To benefit students and teachers, middle level administrators would do well to provide middle school educators with necessary resources and opportunities to effectively collaborate with a focus on teaching and learning across both interdisciplinary teams and content area departments.

For middle schools to gain maximum benefit from an interdisciplinary teaming structure, teachers need opportunities to collaborate in both interdisciplinary and content specific contexts. In addition, teams must receive training and support in how to engage in professional learning activities such as examining student work, discussing current research, and reflecting on instructional effectiveness (Flowers & Mertens, 2013). Under the right conditions, these collaborative opportunities serve to counter isolation and increase the likelihood of further developing PLCs at the middle level.

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Appendix A

Consent Form INTERDISCIPLINARY MIDDLE SCHOOL TEAMS AS PLCS STUDY Rutgers University Graduate School of Education

You are invited to participate in a research study of interdisciplinary middle school teams as professional learning communities. Participants will include two interdisciplinary teacher teams and their respective administrators. This study may involve video observations of team meetings, a survey and no more than two 45 to 60-minute audiotaped interview with individual team members. All data collected will be kept confidential. Pseudonyms will be used for your team, individual, school and district names. Actual names will not be used in any documents or reports that will be shared with the principal investigator's professors and may be published.

Risks and benefits: The only foreseeable risk associated with your participation in this research study may be exposure to repercussions for candor, which could only occur as a result in disclosure of your identity. However, the principal investigator will take every step necessary to ensure confidentiality throughout the process of the study.

As a benefit, summary reports will be shared with you and may provide a professional learning opportunity, as well as insight into your practice.

Time involvement: Your participation in this study will take place over the course of the 2011-2012 academic year. I will observe team meetings throughout the year. The initial survey should take less than a 30 minutes to complete. Individual interviews should take no more than 45-60 minutes. You will be able to review meeting and interview transcripts and provide any feedback if you so desire.

Payments and costs: You will receive no payment for your participation in this study, and there are no foreseeable costs for you associated with your participation.

Subject's rights: Your participation is purely voluntary. You have the right to withdraw your consent or discontinue participation at any time without penalty. You have the right to refuse to answer any questions.

Research products: Your name and organization will not be identified in any reports of the findings from this study. You will be given a copy of a summary report describing the study's findings.

If you have any questions about the study, please contact the principal investigator:

George Jackson
C/O Dr. William Firestone
Rutgers Graduate School of Education
10 Seminary Place
New Brunswick, NJ 08901
732-932-7496

If you have any questions about your rights as a research subject, you may contact the IRB Administrator at:

Rutgers University at Rutgers University Institutional Review Board for the Protection of Human Subjects

Office of Research and Sponsored Programs

3 Rutgers Plaza, ASB III

New Brunswick, NJ 08901-8559

Tel: 732-932-0150 ext. 2104

Email: humansubjects@orsp.rutgers.edu

Signature _____ Date _____

Name _____

I consent to having my interview audio-taped. Yes ____ No ____

Signature of Investigator _____ Date _____

Appendix B

Teacher Interview Guide

1. What do you consider effective teaching?
Probes:
What kinds of guidance/direction do you get about the content you teach?
What instructional methods do you use?
How does the district assist you to reach those outcomes?
2. How do you use assessment in your instructional practice?
Probes: Formative? Summative? Standardized? How does it inform your instruction?
3. Tell me about the most useful professional development you have participated in over the past year.
Probes:
Did you have a choice of what to attend?
How was the quality of the PD?
Has it changed/improved the way that you teach?
4. What experiences have been most influential in your growth as a teacher?
5. Tell me about your (content area) department.
Probes:
How often do you meet?
How is it organized?
What do you discuss?
What was most useful to you?
How does it influence your teaching practice? (If no, why not?)
6. If you wanted someone else to provide you feedback on your teaching, whom would you turn to?
7. Since the beginning of the current school year, what experiences do you think have been most influential in your professional growth as a teacher? Why?
8. Tell me about a time when the PLC came together to solve a problem.
How did you arrive at a solution?
What was the outcome?
9. Tell me about a time when you tried something new in the classroom? What led you to experiment and try something new?
10. Does your interdisciplinary team help you in your professional growth as a teacher?
Probes: If so, share some examples of how they have been helpful.
If not, why do you think the team does not contribute to your professional growth.
How could they be more helpful?

Appendix C

Administrator Interview Guide

1. How long have you served as an administrator in this school? In this district?
Probes: Were you a teacher prior to becoming an administrator?
Subject? Grade Level?
2. What are the district's expectations for instruction?
Probes: What kinds of guidance/direction is available to content area teachers?
Interdisciplinary teacher teams?
How do you assist in supporting instruction?
3. Tell me about the professional development for teachers in the past year or so.
Probes: How were professional development topics decided upon?
Were teachers offered choices of what to attend?
4. What experiences do you think have been most influential in supporting teacher growth?
5. What is your vision for your school?
Probe: How do PLCs fall into these?
6. Could you talk to me about Harrington's transition to PLC's.
Probes: What were highlights? Challenges?
7. Ideally, how do you want your PLCs to function?
Probe: Have any teams come close to ideal? Or moving in the right direction?
Describe some of the characteristics of the more effective PLC's.
Tell me about the less progressive PLC's.
8. What challenges/hindrances did our PLC's face?
9. How do you envision your PLC's working together next year?
Probes: Do you anticipate any changes?
How will you know that you have been successful?
What support do you need to improve?

Appendix D**Contact Summary Form****Name, Position, Team:****Date/Time:****Location of Meeting:****Type of meeting (circle):** Interview

Meeting Observation

Summary:

Research Questions	Significance to Analysis:
1. How do teachers experience transition from interdisciplinary middle school team to PLC?	
2. What factors promote/hinder the development of interdisciplinary teams as PLCs in a middle school setting?	
3. How do interdisciplinary PLCs collaborate to improve instruction?	
4. How does participation in an interdisciplinary PLC influence individual teachers' instructional practices?	

Comments/Reflections:

Appendix E

Member Check/Reflection Sheet

Thank you for your participation in this study. Attached is a transcript of the interview.

Please sign/initial this sheet to confirm the accuracy of the transcript. In the event that there are inaccuracies, please feel free to correct them and initial to confirm accuracy.

(sign/initial here)

Reflection (Optional)

Please share reflections about your experience as part of the teacher learning team.

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

Appendix F

LAWRENCE MIDDLE SCHOOL

TEAM MEETING:

DATE:

TIME:

TEAM MEETING AGENDA

Goal: To improve student learning by connecting what is learned to what is taught.

- ❖ **Review Team Norms- (List for every agenda)**
- ❖ **Guiding questions for student achievement: (Be specific)**
(Bring student work samples) Two levels?

Student Name:

- ❖ **What are the student's academic strengths?**
- ❖ **What are the student's academic areas that need improvement?**
- ❖ **What connections were made between disciplines?**
- ❖ **How can we help this student improve?**

Student Name:

- ❖ **What are the student's academic strengths?**
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Student Name:

- ❖ **What are the student's academic strengths?**
- ❖ **What are the student's academic areas that need improvement?**
- ❖ **What connections were made between disciplines?**
- ❖ **How can we help this student improve?**
- ❖ **Inter-disciplinary content share:? Tests or quizzes?**

Appendix G**LAWRENCE MIDDLE SCHOOL
DATA DRIVEN GOAL SETTING SHEET**

Student Name _____

2012 NJ ASK Scores**MAP****RIT/Projected Growth****MATH:****MATH:** /**LANG:****LAL:** /**RDG:** /**IDENTIFIED WEAKNESSES:****(Less than 50% accuracy on NJASK)****MATH****Numbers and Operations****Geometry and Measurement****Data/Probability/Discrete Math****Problem Solving****LANGUAGE ARTS****Reading****Working with Text****Analyzing Text****ROAD MAP FOR PROFICIENCY:****(List specific instructional tasks)****MATH****LANGUAGE ARTS****EVIDENCE OF STUDENT PROGRESS:****(Observable and measureable)****MATH****SCIENCE****LANGUAGE ARTS****SOCIAL STUDIES**

Appendix H

Interdisciplinary PLC Study – Initial List of Codes

Table of Codes		
Description	Code	RQ
Traditional Teaming Behavior	TTB	1, 2
Discussing Student Behavior	TTB-SB	1, 2
Parent Meetings	TTB-PM	1, 2
Student Meeting	TTB-SM	1, 2
Team Building Activities	TTB-TBA	1, 2
Developing Plans of Action	TTB-DPA	1, 2
Mandated Tasks	TTB-MT	1, 2
Teacher Learning Community (TLC)	TLC	1, 2, 3
Shared Norms/Values	TLC-SNV	1, 2, 3
Reflective Dialogue	TLC-RD	1, 2, 3, 4
Shared Instructional Practice	TLC-SP	1, 2, 3, 4
Collaborative Inquiry	TLC-CI	1, 2, 3, 4
Focus on Student Learning	TLC-FSL	1, 2, 3, 4
Collaboration	CO	1, 2, 3, 4
Protocols	CO-P	1, 2, 3, 4
Data Use	CO-DU	1, 2, 3, 4
Shared Readings	CO-SRe	1, 2, 3, 4
Artifacts (Student work, graphic organizers, etc.)	CO-Ar	1, 2, 3, 4
Shared Experiences	CO-SE	1, 2, 3, 4
Professional Community	PC	1, 2, 3, 4
Joint Enterprise (negotiated enterprise, mutual accountability, interpretations, rhythms, local response).	JE	2, 3
Mutual Engagement (engaged diversity, doing things together, relationships, community, social complexity, community maintenance)	ME	1, 2, 3, 4
Shared Repertoire (stories, artifacts, styles, tools, discourse, actions, concepts, historical events)	SR	3, 4
Teacher's Instructional Practice	TIP	3, 4
Planning	TIP-Plan	3, 4
Assessment	TIP-ASSES	3, 4
Instructional Activities	TIP-ACT	3, 4
Leadership Behaviors*	LB	1, 2, 3, 4
Setting Direction	LB-SD	1, 2, 3
Developing People	LB-DP	1, 2, 4
Re-designing the organization	LB-RdO	1, 2, 3
Managing the Instructional Program	LB-MIP	1, 2, 4
Teacher Leadership	TL	1, 2, 3, 4
Meeting Facilitator	TL-MF	1, 2, 3
Professional Development Provider	TL-PDP	2, 3, 4
Mentor	TL-M	4
Association Representative	TL-AR	1, 2, 3
Influences on Instructional Practice	IIP	3, 4
PLC	IIP-PLC	3, 4
Colleagues (in-general)	IIP-Co	4
Co-teacher	IIP-CoT	4
Coaches	IIP-C	4
Administrators	IIP-Ad	4
Supervisor	IIP-Su	4
Department Colleagues	IIP-DC	4
Professional Development	IIP-PD	4
Other	IIP-Other	4

Appendix I

Name: Harrington Teachers	Dates: Marking Period #
Goal	
Subject: Team Meetings	Unit: Your Focus for All
Content Areas	
NJCCS:	

Stage 1: Determine the Desired Results

Transfer Goal: All team members will collaborate to identify a common student need and execute a plan to yield student improvement in that need.

Enduring Understanding(s):

- **A PLC is our school.**
- **PLCs are comprised of meaningful subgroups/teams/subjects that come together** to talk about concerns, implement strategies for success, and evaluate self results to increase student achievement.
- Each team (or subject) comes together as a group during a schedule time to work towards student success.
- A common assessment given within a common, planned time frame is needed to measure students' progress.
- The groups that make up the school (or PLC) should have a focused agenda.
- When one concern is addressed, another one should become a SMART goal.

Knowledge:

- Work within the schedule we have: teams.
- We have team planning periods; therefore, at this time, our learning groups need to focus on a goal that all members of that subgroup can work towards making successful for all students they teach.

Essential Question(s):

- What is something all content teachers want the students to be able to do well by _____? (EX. Marking Period 1)
- How does each person on the team play a role in creating success in this area of need?
- What factors will be looked at to create a common assessment?
- How and when will the team come together to discuss the results of the assessment?
- What happens when the timeline lapses and students are unsuccessful in the desired skill?

Skills:

- Creating an agenda for the meeting.
- Identifying an area of need (within a content or across contents)
- Collaborating with a team to develop an expectation.
- Collaborating with a team to develop a common assessment. (rubric)

Stage 2: Assessment Evidence

Performance Task:

- Students will be able to show evidence of understanding of the SMART Goal. A common assessment will be used. Results will be compared to determine other areas of success/concern
- SPECIFIC
- MEASURABLE
- ATTAINABLE
- REALISTIC
- TIMELY

Other Forms of Assessment:

- Formative, midpoint check-ins
- Re-teaching groups

Stage 3: Learn Plan

AMT	Learning Activity	Differentiated Instruction/Assessment Strategy
A	What's our Role in Harrington's PLC?	Discuss (a) How is your time currently being used? (b) Are you functioning as a group of people who come together to discuss topics and then disperse back to isolated classrooms, or are you a group of people who come together to discuss a shared purpose, vision, and goal? (c) What can change to yield more common discussion about student learning?
A	What's our Goal	Develop a SMART goal based on the needs of the students.
M	How Will We All Have a Role?	Identify how this goal will be a part of all content areas on the team.
M	Get on the Same Page	Develop a common assessment and a time frame to administer the assessment.
A, M	Assess	Within the time frame, teachers will administer the assessment
T	Evaluate Findings	Come together with the purpose to discuss findings.
A.M	Backup Plan	When students don't show success across contents or within a specific area, have a plan in place to re-teach, re-assess, re-evaluate.
M	Final Remarks	What worked? What needs tweaking? What's missing?
A	Select a new SMART Goal	Develop your group's next common focus.