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Change in the Middle: Implementing Professional Learning Communities for Sustained Instructional Change

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Change in the Middle: Implementing Professional Learning Communities for Sustained Instructional Change.

by

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ABSTRACT

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Johnna L. Byrd-King
Old Dominion University, 2018
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The purpose of this research was to explore the influence of school leaders and teachers on surface level vs. sustained change through the implementation of professional learning communities, furthering the understanding of why some schools increase student achievement and others do not. Two predominant psychological theories, Kruglanski's lay epistemic theory and Schwartz's value theory, were used to explore the influence of cognition formation and values on the phenomenon within a complex environment. This research studied three Southeastern Virginia suburban middle schools. Case study methodologies were utilized, including school leader and PLC teacher member interviews, and an online survey that included the following measures: demographic and information questionnaire, sociogram questionnaire, need for cognitive closure scale, and value questionnaire 5X value survey. Triangulation was met through interviews, online survey measures, and other artifacts.

Four themes were identified: power structures, school leader involvement, school culture factors, and sustained change. Findings suggested these four interrelated factors influenced PLC implementation to create an environment for sustained change vs. surface level change. Each school case was unique, as was each PLC studied. Two school cases

were suggested to have more PLC implementation than the third school case. The factor of effectively dealing with conflict was indicated as a possible gateway factor to sustained change. More PLC implementation was indicated as creating more collaboration beyond PLCs to influence the whole school community.

This dissertation is dedicated to my mother and father. Both my mother and father told me my entire life that they expected me to have more education and go farther than they did. Through their unconditional love, guidance, and parental nudging (sometimes nagging when I needed it), they have always been my safety net as I continue to strive to do better, be better, and make a positive change in this world.

ACKNOWLEDGMENTS

First, I would like to acknowledge my family for their uncanny support through this journey. My husband, Garth, was especially helpful to me, knowing when to push me if I lost motivation and reassure me when I was frustrated and overwhelmed. Without his understanding of my lack of dinner (and sometimes groceries in general), late nights at Starbucks, and my grumpiness at times, I would not have made it to this point. I love you, honey! And to my parents that encouraged me and aided with both technology and financial assistance throughout. My sister, Amy, was also instrumental, spending hours discussing my research and helping me to ensure I was staying on the path of analysis and not getting lost in the forest.

To my dissertation chair, who helped me to venture beyond my comfort zone and pushed me to develop as a writer, a researcher, and a deep thinker. Thank you for being a wonderful resource, teacher, and friend from my very first experience in educational leadership through ELS 600. Without your support, I would not be a soon-to-be PH.D.

My committee members also taught me important concepts which became integral in this research. Dr. Tony Perez, thank you for introducing me to the work of Dr. Albert Bandura and pushing me to question the motivational link between learning and achievement in schools. Dr. Jay Scribner, thank you for questioning me until I pushed my mind to formulate my own opinions and take on complexity as the backbone in this study. All three of you have insight and knowledge which has benefitted me greatly, and while it was sometimes uncomfortable, I am absolutely certain your prodding of me to think at a higher level and question more has helped to develop my “big picture” views

which assist me each and every day. I am truly blessed to have had the experience to learn from you and look forward to finalizing this journey with you at the table.

I have had so much support through this very long journey, from family, friends, professors, church family, and colleagues. I do not take for granted those around me that have allowed me to take the time and effort from other things in order to complete my dissertation. It is poetic justice that my study is on the relational context of workgroups, as the relationships I have built through this experience will be what I remember the most. Thank you all!

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CHAPTER 1

Introduction

"Then some of those barriers are going down and I think it goes back, when you talk about professional, everybody knows what that is. When you talk about learning, pretty much everybody knows what that is. When you talk about community, people don't know what that means."

-Green Middle Principal

As a young assistant principal, I was excited to influence instruction on a schoolwide level. I soon learned, however, that instructional best practice varied from classroom to classroom and many teachers were reluctant to change. This created an environment of stagnation in regards to student achievement. Professional learning communities (PLCs) were introduced through a training one hot August day before I started my fourth year as assistant principal. It was a quick hour and a half training but the purpose was clear: school workgroups would collaborate and plan to implement best practice in order to improve student achievement. It seemed like a quick and easy way to create sustained change.

I discovered, however, that PLC implementation was not quick or easy. As the research on PLCs suggest, PLC implementation showed great gains in student achievement for some schools while others did not show much growth (Barton & Stepanek, 2012; Cuban, 2012; Hubbard, Mehan & Stein, 2006). Similarly, within my own school district, some schools jumped in student achievement scores and others did not. This led me to the following question which became the basis of my dissertation research: why are some schools more successful in student achievement when implementing PLCs? Traditionally, education in the United States is a complex system working within a linear model. Expected outcomes, in this case student achievement, should have been seen in every case, but they were not.

Unlike the more traditional industrial revolution factory model, where input procedures create known, expected outcomes, our growing understanding of the field recognizes education as an organic system in which initial conditions, both small and large stimuli, influence the system in often unexpected and emergent ways (Alhedeff-Jones, 2008; Byrne & Callahan, 2014; Chillers, 2010; Cuban, 1990; Levy, 1994; Smitherman, 2005; Trueit, 2013; Tyack, 1990). The educational environment is a complex system, and in order to remain in balance, complex systems attempt to incorporate new stimuli with small changes which maintain balance (Byrne & Callaghan, 2014; Chillers, 2010; Curlee & Gordon, 2010; He, 2014; Julien, 2009; Ross, 2014; Shoup & Studer, 2010; Smitherman, 2005; Trueit, 2013). While small changes are considered surface level change, large changes are seen when the system is far-from-equilibrium, or unable to make small calibrations to remain balanced. These large changes are known as sustainable change because they emerge as part of the new normal within the complex system (Alhedeff-Jones, 2008; Julien, 2009; Krstacic & Krstacic, 2014; Levy, 1994; Orzen & Karatas, 2013; Pollock, Adler & Sankaron, 2014; Ross, 2014; Shoup & Studer, 2010; Smitherman, 2005; Trueit, 2013).

In recent years, large scale changes in education were realized through overarching, widespread calibrations (Barton & Stepanek, 2012; Cuban, 2012; Cuban, 1990; Glickman, 1991; Hubbard, Mehan & Stein, 2006; Linn, 2000; Northouse, 2013; Resnick, 2009; Shoup & Studer, 2010; Tyack, 1990). Current feedback in accountability has created a lasting influence, with high stakes testing and achievement versus learning taking center stage in the press, courts, and within schools themselves (Cuban, 1990; Glinton, 2012; Hubbard, Mehan & Stein, 2006; Linn, 2000; Sawchuk, 2012; Shoup & Studer, 2010; Tyack, 1990). Placing this new high stakes accountability on the complex system, however, creates an environment in which the system is

polarized and reactive. Unable to make small changes to incorporate widespread accountability plans, big changes happened. Some states decided to decline federal monies to avoid accountability, new initiatives were enacted by states and trickled down to school system administrators reporting to the state their efforts, and teachers felt the pressure for students to perform, leading to cheating scandals reported at the top of the hour and teacher union strikes (Barton & Stepanek, 2012; Hubbard, Mehan & Stein, 2006; Linn, 2000; Northouse, 2013; Resnick, 2009; Shoup & Studer, 2010). With the realization that a 100% pass rate was impossible, states fought to create new system benchmarks through waivers and Race to the Top funds for new and better resources. As data became king, new initiatives meant to utilize and scrutinize each fact and figure were implemented. Almost twenty years after President Bush signed the No Child left Behind Act into law, school districts still seek to demonstrate accountability. The large scale stimuli placed upon the complex education system has created an environment of changes in order to seek out a new, balanced environment.

Within this complex system, some schools have been successful in making positive changes toward student achievement while others remain unable to reach the benchmarks set through accountability mandates. Why have some schools found sustained change for success and others have not? Within our current environment of accountability, it is important to study how schools create sustained change in order to better understand how to improve student achievement. While many studies have noted the need for change in schools, and even factors that relate to sustained change, school systems currently using the same initiatives have different levels of success within their districts. For example, PLCs have been instituted in school districts across the country, but different levels of success have been seen from school to school. The influence of cognitions and values of school leaders as well as teachers as PLC members

have not been often studied, especially as it influences PLC implementation for sustained changes that promote student achievement (Homan, Hollenbeck, Humphrey, Knippenberg, Ilgen & VanKleef, 2008; Huckman & Staats, 2013; Polzer, Milton & Swann, 2002; Teague & Anfara, 2012; Riveros, Newton & Burgess, 2012). For the purposes of this study, school leaders include principals and assistant principals; teachers include regular educational and special education teachers that teach core subjects: English, history, math, and science. The frame of this study is sustained change within a complex system. A two-pronged approach, the influence of school leaders and the influence of teachers, was used within a framework that utilizes two theories: Schwartz value theory and lay epistemic theory (LET). Using this lens, a deeper understanding of the relational context of school leaders and teachers, influenced by their cognitions and values, impacts PLC implementation to create sustained change or not.

School Workgroups

Accountability, which links student learning to performance on statewide testing, continues to be an unreachable reality for most states (Barton & Stepanek, 2012; Cuban, 2012; Hubbard, Mehan & Stein, 2006; Linn, 2000). School districts continue to work toward accreditation of both state and federal benchmarks through research based action plans and implementation mandates to schools. While many industries have understood the importance of workgroups to achieve organizational goals, teacher collaboration for improvement has been slower to take hold (Barton & Stepanek, 2012; Homan et. al, 2008; Leclerc et. al, 2012; Riveros, Newton & Burgess, 2012). The middle schools initiative has pioneered team teaching as a way to present an integrated curriculum for students in the middle (Riveros, Newton & Burgess, 2012). However, the middle school concept groups different content teachers working together to improve the social, emotional, and learning needs of younger adolescents without the focus of

instructional best practice (Riveros, Newton & Burgess, 2012). One initiative that has gained momentum recently is the professional learning community (Barton & Stepanek, 2012; Leclerc et. al, 2012; Lujuan & Day, 2010; Riveros, Newron & Burgess, 2012; Teague & Anfara, 2012; Wells, 2008). Although schools routinely have workgroups to implement programs and make school-based decisions, the professional learning community (PLC) allows data based decisions to take place in the context of teacher collaboration and encourages respectful conflict to create higher instructional expertise in the classroom. Simply put, teachers learn from each other and then take this learning into the classroom to create a higher level of student achievement (Barton & Stepanek, 2012; Leclerc et. al, 2012; Lujuan & Day, 2010; Riveros, Newron & Burgess, 2012; Teague & Anfara, 2012; Wells, 2008).

The focus of PLCs is that teacher learning improves student learning, resulting in a higher degree of student achievement and accountability (Barton & Stepanek, 2012; Leclerc et. al, 2012; Lujuan & Day, 2010; Teague & Anfara, 2012; Wells, 2008). This is accomplished through teacher development, both strategies and curriculum expertise, in workgroups that include teachers of the same subject and/or grade (Barton & Stepanek, 2012; Leclerc et. al, 2012; Lujuan & Day, 2010; Teague & Anfara, 2012; Wells, 2008). Within PLCs, teachers develop through collaboration and respectful conflict, questioning the status quo and creating sustained change (Barton & Stepanek, 2012; Leclerc et. al, 2012; Lujuan & Day, 2010; Riveros, Newron & Burgess, 2012; Teague & Anfara, 2012; Wells, 2008). Sustained change comes through in depth questioning of current practice, sharing information that results in improved student learning, and focus on the work (Leclerc et. al, 2012; Lujuan & Day, 2010; Teague & Anfara, 2012; Riveros, Newton & Burgess, 2012). PLCs assist in instructional change through a relational process of

collaboration. However, instructional change begins with exploration of the new: new strategies, new methods, and new failures in which to learn.

The PLCs effectiveness has come into question. On one side, PLCs have shown to be effective in increasing student achievement through an environment of discourse and exploration born from these meetings (Barton & Stepanek, 2012; Leclerc et. al, 2012; Lujuan & Day, 2010; Riveros, Newron & Burgess, 2012; Teague & Anfara, 2012; Wells, 2008). However, the gap in proof of the effectiveness of PLCs comes from outside education- research on workgroups have analyzed characteristics that create change, but the relational context, which delves deeper into the interworking of the workgroup, have been difficult to ascertain (Homan et. al, 2008; McGrath & Tichan, 2007; Ellemers, Sleebos, Stam & de Gilder, 2013; Schopler, 1987; Huckman & Staats, 2013; Lujuan & Day, 2010; Riveros, Newton & Burgess, 2012; Barton & Stepanek, 2012; Leclerc, Moreau, Dumonchel & Sallafranque-St-Louis, 2012). In this way, the relational context of the PLC, while discussed, has demonstrated sustained change in some schools but not in others (McGrath & Tschan, 2007; Riveros, Newton & Burgess, 2012). The aim of this study is to explore the influence of the relational processes within PLC implementation that allows opportunity for sustained instructional change.

School Leadership

As the complex educational system continues to organically grow and change to maintain balance, the question becomes: How does sustained change take place in a system which seeks to maintain the status quo? Beabout (2012) adds to this discussion through his analogy of shaking the cage. During an interview, he was told by one superintendent to shake the cage, meaning to cause a disruption so severe it produced sustained change. Human nature dictates that when psychological safety is threatened, people tend to hold tighter to what is known, creating a flaw

in the logic of shaking the cage (Beabout, 2012, Myers, 2014). While an imbalance, or disruption, is needed for sustained change, threatening the feelings of safety and security causes the opposite reaction (Alhedeff-Jones, 2008; Beabout, 2012; Byrne & Callahan, 2014; Chillers, 2010; Levy, 1994; Myers, 2014). Therefore, for sustained change to occur within a complex system, both disruption and a sense of psychological safety must occur. At the school level, school leadership is an integral part of the PLC as leaders dictate the correct climate in which these processes take place, directly influencing both disruption and psychological safety within a relational context (Beabout, 2012; Myers, 2014). PLCs that are most effective take place in an environment of both disruption and security (Barton & Stepanek, 2012; Beabout, 2012; Leclerc et. al, 2012; Lujuan & Day, 2010; Myers, 2014; Riveros, Newron & Burgess, 2012; Teague & Anfara, 2012; Wells, 2008).

Researchers agree that school leadership is a defining element in the success of PLCs (Barton & Stepanek, 2012; Leclerc et. al, 2012; Lujuan & Day, 2010; Riveros, Newton & Burgess, 2012; Teague & Anfara, 2012). Leaders must be involved in helping groups develop norms and procedures, including handling conflict in a productive way (Barton & Stepanek, 2012; Leclerc et. al, 2012; Lujuan & Day, 2010; Riveros, Newton & Burgess, 2012; Teague & Anfara, 2012). School leaders must also demonstrate appropriate behaviors within the PLC, monitor progress, and refocus teachers on the work (Barton & Stepanek, 2012; Leclerc et. al, 2012; Lujuan & Day, 2010; Riveros, Newton & Burgess, 2012; Teague & Anfara, 2012; Wells, 2008). As the gatekeeper of school climate, the school leader must show that he or she thinks the PLC process is important, or the members will not participate fully. This is demonstrated through protected PLC time within the school day, presentation of clear expectations for PLC meetings, and modelling of appropriate PLC norms and procedures (Barton & Stepanek, 2012;

Leclerc et. al, 2012; Lujuan & Day, 2010; Riveros, Newton & Burgess, 2012; Teague & Anfara, 2012; Wells, 2008). Beyond the structure of the PLC, school climate must include the opportunity for teachers to feel secure in trying the new, including strategies and methods, as well as the opportunity to learn from failure (Beabout, 2012; Glickman, 2002; Glickman, 1997; Myers, 2014). A definitive vision, purpose to the work of the PLC, and a climate of disruption and security is directed by the school leader, and therefore, school leaders directly influence the process of change, including whether PLCs create surface level or sustained change (Barton & Stepanek, 2012; Leclerc et. al, 2012; Lujuan & Day, 2010; Riveros, Newton & Burgess, 2012; Teague & Anfara, 2012).

Until recently, school leaders were more managerial in establishing an environment of processes and policies to ensure a school was efficient and effective. In current educational practice, the school leader has become the instructional leader (Northouse, 2013; Resnick, 2009). Just as the goal of students is to learn and then transfer this learning through achievement, the goal of the PLC is teacher learning and instructional improvement (Barton & Stepanek, 2012; Leclerc et. al, 2012; Lujuan & Day, 2010; Teague & Anfara, 2012; Wells, 2008). However, the research on PLCs focuses primarily on teacher learning; it does not explore the motivation to transfer this learning into practice. Additionally, PLC research focuses on the leader's role as manager more so than teacher, or instructional leader. In this way, sustained change is achieved in some schools and not others (Barton & Stepanek, 2012; Leclerc et. al, 2012; Lujuan & Day, 2010; Riveros, Newton & Burgess, 2012; Teague & Anfara, 2012; Wells, 2008). This gap is extended through a lack of exploration on sustained change versus surface level change in the educational environment. While research often looks at how changes are made, it less often focuses on what influences during implementation lead to processes which create sustained and

continuous change in the system (Barton & Stepanek, 2012; Leclerc et. al, 2012; Lujuan & Day, 2010; Riveros, Newton & Burgess, 2012; Teague & Anfara, 2012). In order to address these gaps, this research uses facets of the learning sciences to explore not only the relational context at implementation, but the motivation to absorb sustained change within the system. Learning takes place using beliefs formed through past knowledge and experiences as well as cognition formation. The goal of PLCs is teacher learning. Therefore, I propose to explore the gaps in research through a lens that encompasses both values, and cognitions. A framework which explores educators' values and cognitions, both of which influence the motivation to change: disruption and psychological safety (Beabout, 2012, Myers, 2014).

Theoretical Framework

A two-pronged approach, the influence of school leaders and the influence of teachers, was used within a framework that utilizes two theories: Schwartz value theory and lay epistemic theory (see figure 1.1). This research was framed by a theoretical framework continuum viewed through complexity theory (a frame within a frame). This theoretical framework is briefly discussed below and a more in-depth discussion is presented in chapter two.

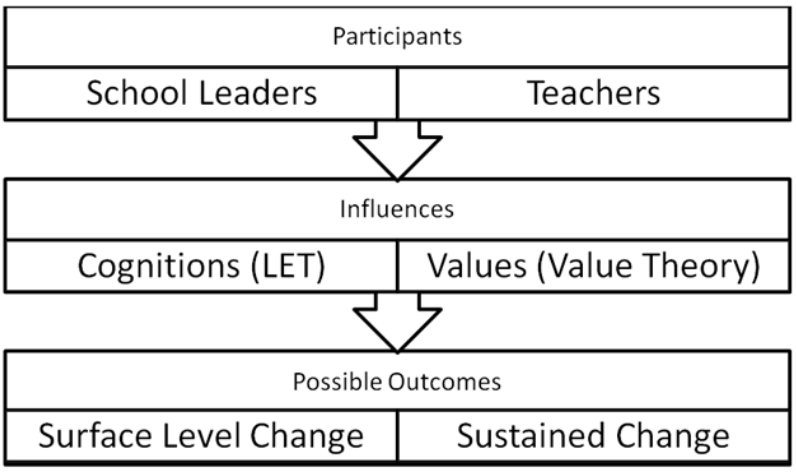

Figure 1.1. Theoretical framework two-pronged approach

The theoretical framework for this research combines two theories into a continuum to explore the influence of relationship on sustained instructional change in the classroom versus surface level change. The first theory, rarely used in education research, is Swartz value theory (Biber, Hupfeld & Meier, 2008; Borg, Groenen, Jehn, Bilsky & Schwartz, 2011; Cieciuch & Schwartz, 2012; Kaptan, Shiloh & Onkal, 2013; Kilburn, 2009; Parks & Guay, 2009; Roccas & Amit, 2011; Sagiv & Schwartz, 2000; Schwartz, 2014; Schwartz, 1999; Schwartz, Cieciuch, Vecchione, Davidov, Fischer, Beierlein, Ramos, Verkasalo, Lönnqvist, Demirutku, Dirilen-Gumus & Konty, 2012; Schwartz, Struch & Bilsky, 1990; Vecchione, Alessandri, Barbaranelli & Caprara, 2011), a prominent psychology theory which seeks to understand the values that motivate people toward action (Biber, Hupfeld & Meier, 2008; Borg et. al, 2011; Cieciuch & Schwartz, 2012; Kaptan, Shiloh & Onkal, 2013; Kilburn, 2009; Parks & Guay, 2009; Roccas & Amit, 2011; Sagiv & Schwartz, 2000; Schwartz, 2014; Schwartz, 1999; Schwartz, Cieciuch, et. al, 2012; Schwartz, Struch & Bilsky, 1990; Vecchione et. al, 2011). Value theory creates a continuum which has value dimensions, conservation and openness to change, as opposites. This theory is important for this study as it takes place in a polarized environment where educators relate more to one value dimension or the other. The second theory, Kruglanski's lay epistemic theory (LET) also seeks to understand people's motivations through the processes of hypothesis generation and validation in order to create and freeze cognitions (Amit & Sagiv, 2013; Bar-Tal, Raviv & Spitzer, 1999; Bar-Tal & Spitzer, 1999; Berenbaum, Bredemeier & Thompson, 2008; Boyle, Magnusson & Young, 1993; Carette & Anseel, 2012; Chirumbolo, Livi, Mannetti, Pierro & Kruglanski, 2004; Ford & Kruglanski, 1995; Higgins, 1990; Kossowska, Dragon & Bukowski, 2006; Kruglanski, 1990; Kruglanski, 1984; Kruglanski, 1981; Kruglanski, 2004; Kruglanski, Atash, DeGrada, Mannetti & Pierro, 2013; MacPherson, 1995; Pierro, Cicero, Bonaiuto, Van

Knippenberg & Kruglanski, 2005; Pierro, Mannetti, Kruglanski, Klein & Orehek, 2012; Scholten, Van Knippenberg, Nijstad & DeDreu, 2007; VanKleef, Homan, Beersma, Van Knippenberg, Van Knippenberg & Damen, 2009). This theory is often underrepresented in educational research, but was cited in research on workgroups in business and other areas (Homan, Hollenbeck, Humphrey, Knippenberg, Ilgen & VanKleef, 2008; Huckman & Staats, 2013; Polzer, Milton & Swann, 2002; Teague & Anfara, 2012; Riveros, Newton & Burgess, 2012). It is important to note that both theories have rarely been used together in educational research or any other area. In exploring the interworking of PLCs, both formation and freezing cognitions from LET and values formed from peoples' histories and life experiences allow for a deeper understanding of the impact of both on sustained change for student achievement.

Value Theory

Value theory presents a circular continuum in which values are either congruent or conflicting. Values that conflict are farther apart on the continuum while values that are congruent are closer together around the circle (see figure 1.2 below; Biber, Hupfeld & Meier, 2008; Borg, et. al, 2011; Cieciuch & Schwartz, 2012; Kaptan, Shiloh & Onkal, 2013; Kilburn, 2009; Parks & Guay, 2009; Sagiv & Schwartz, 2000; Schwartz, 2014; Schwartz, 1999; Schwartz, et. al, 2012; Schwartz, Struch & Bilsky, 1990; Vecchione, et. al, 2011).

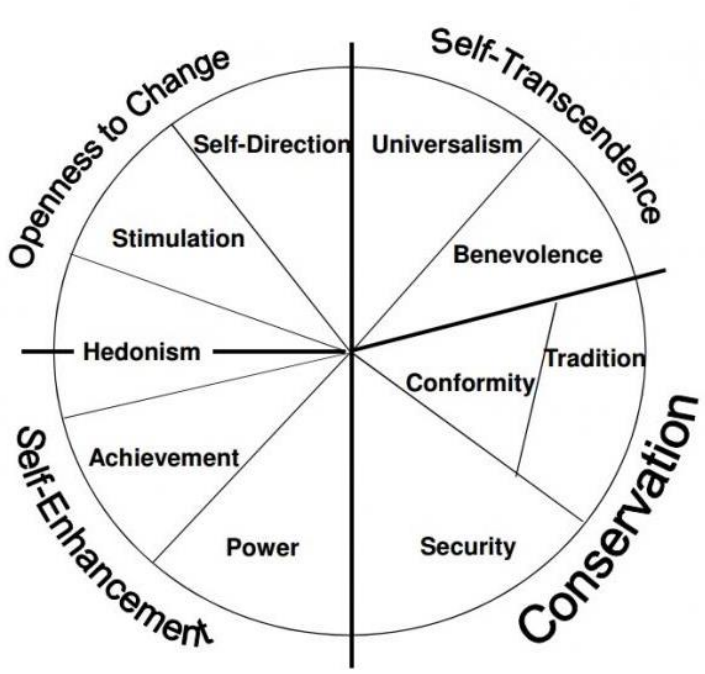

Figure 1.2. Schwartz's value framework

These ten values are separated into value dimensions that conflict, including openness to change vs. conservation. Openness to change includes three values: self-direction, stimulation, and hedonism. Conservation includes conformity, tradition, and security (Biber, Hupfeld & Meier, 2008; Borg, et. al, 2011; Cieciuch & Schwartz, 2012; Kaptan, Shiloh & Onkal, 2013; Kilburn, 2009; Parks & Guay, 2009; Roccas & Amit, 2011; Sagiv & Schwartz, 2000; Schwartz, 2014; Schwartz, 1999; Schwartz, et. al, 2012; Schwartz, Struch & Bilsky, 1990; Vecchione, et. al, 2011). Conflicting value dimensions require one set of values to outweigh the others, creating motivation toward one value dimension over another (Biber, Hupfeld & Meier, 2008; Borg, et. al, 2011; Cieciuch & Schwartz, 2012; Kaptan, Shiloh & Onkal, 2013; Kilburn, 2009; Parks & Guay, 2009; Roccas & Amit, 2011; Sagiv & Schwartz, 2000; Schwartz, 2014; Schwartz, 1999; Schwartz, et. al, 2012; Schwartz, Struch & Bilsky, 1990; Vecchione, et. al, 2011). People motivated by the openness to change value dimension value exploration and adventure while those motivated by conservation values want to maintain the status quo (Cieciuch & Schwartz,

2012; Kaptan, Shiloh & Onkal, 2013; Kilburn, 2009; Parks & Guay, 2009; Sagiv & Schwartz, 2000; Schwartz, 2014; Schwartz, 1999; Schwartz, et. al, 2012; Schwartz, Struch & Bilsky, 1990; Vecchione, et. al, 2011). Through value theory, a definitive conflict occurs between value dimensions, including openness to change vs. conservation.

Lay Epistemic Theory

Lay Epistemic Theory presents the process of cognitive closure to explain motivation (Amit & Sagiv, 2013; Bar-Tal, Raviv & Spitzer, 1999; Bar-Tal & Spitzer, 1999; Berenbaum, Bredemeier & Thompson, 2008; Boyle, Magnusson & Young, 1993; Carette & Anseel, 2012; Chirumbolo, et. al, 2004; Ford & Kruglanski, 1995; Higgins, 1990; Kossowska, Dragon & Bukowski, 2006; Kruglanski, 1990; Kruglanski, 1984; Kruglanski, 1981; Kruglanski, 2004; Kruglanski, et. al, 2013; MacPherson, 1995; Pierro, Cicerro, et. al, 2005; Pierro, Manetti, et. al, 2012; Scholten, et. al, 2007; VanKleef, et. al, 2009). Individuals either have a low or high need for cognitive closure (NFC) as they process new information and include it as a new cognition or assimilate it into already formed cognitions (Amit & Sagiv, 2013; Bar-Tal, Raviv & Spitzer, 1999; Bar-Tal & Spitzer, 1999; Boyle, Magnusson & Young, 1993; Carette & Anseel, 2012; Ford & Kruglanski, 1995; Higgins, 1990; Kossowska, Dragon & Bukowski, 2006; Kruglanski, 1990; Kruglanski, 1984; Kruglanski, 1981; Kruglanski, 2004; MacPherson, 1995; Pierro, Mannetti, et. al, 2012). The process stops when the cognition is frozen and becomes informational in future thoughts (Amit & Sagiv, 2013; Bar-Tal, Raviv & Spitzer, 1999; Bar-Tal & Spitzer, 1999; Boyle, Magnusson & Young, 1993; Carette & Anseel, 2012; Chirumbolo, et. al, 2004; Ford & Kruglanski, 1995; Higgins, 1990;; Kruglanski, 1990; Kruglanski, 1984; Kruglanski, 1981; Kruglanski, 2004; Kruglanski, et. al, 2013; Pierro, Cicero, et. al, 2005; VanKleef, et. al, 2009). LET proposes that people that favor low NFC spend more time

hypothesis generating, display more creativity, and demonstrate better decision making (Bar-Tal, Raviv & Spitzer, 1999; Boyle, Magnusson & Young, 1993; Ford & Kruglanski, 1995; Higgins, 1990; Kruglanski, 2004; Kruglanski, 1990; Kruglanski, 1981; Kruglanski, 2004; Kruglanski, et. al, 2013; MacPherson, 1995; Pierro, Cicerro, et. al, 2005; Scholten, et. al, 2007). Those motivated to action with a high NFC create less hypothesis and make quicker and less informed decisions (Bar-Tal, Raviv & Spitzer, 1999; Boyle, Magnusson & Young, 1993; Ford & Kruglanski, 1995; Higgins, 1990; Kruglanski, 2004; Kruglanski, 1990; Kruglanski, 1981; Kruglanski, 2004; Kruglanski, et. al, 2013; MacPherson, 1995; Pierro, Cicerro, et. al, 2005; Scholten, et. al, 2007). This theory creates conflicting motivations as workgroups often incorporate people with both low and high NFC, creating different motivations toward cognition processes (Amit & Sagiv, 2013; Carette & Anseel, 2012; Chirumbolo, et. al, 2004; Kruglanski, 2004; MacPherson, 1995; Pierro, Mannetti, et. al, 2012; VanKleef, et. al, 2009).

Theoretical Framework Continuum

While both of these theories present a clear difference in motivation, combining these theories has not been readily seen within the research, nor has the continuum created by their combination been commonly utilized. Using value theory, which explores the guiding principles of life, and LET, which incorporates a more thought-based process, the continuum allows for a deeper understanding of both values and cognitions in the relational context of sustained change. As sustained change includes both disruption and a sense of security, the two theories represent both functions. Value theory, focused more on principles, or how life should be, influences the sense of security in decision making actions. The process of disrupting the complex system links to LET, as new stimuli is processed with human thought and acted upon or not. For the purposes

of this study, both value theory and LET are combined on a continuum framework, which is presented in figure 1.3.

Figure 1.3. Theoretical framework continuum

At one end of the continuum, low NFC and openness to change are included, while the other end includes high NFC and conservation. The High NFC/ Conservation end of the continuum includes motivations that include less hypothesis generation, rely more on past schemes and experience, and values the status quo. This end of the continuum incorporates surface level change, incorporating small changes into the system to maintain balance. At the other end of the continuum, low NFC/ Openness to Change includes motivations to explore, take risks, display more creativity, and create more hypothesis, or options (Bar-Tal, Raviv & Spitzer, 1999; Boyle, Magnusson & Young, 1993; Ford & Kruglanski, 1995; Higgins, 1990; Kruglanski, 2004; Kruglanski, 1990; Kruglanski, 1981; Kruglanski, 2004; Kruglanski, et. al, 2013; MacPherson, 1995; Pierro, Cicerro, et. al, 2005; Scholten, et. al, 2007). These motivations lend themselves more towards sustained change as imbalance is used as a way to try new things and think outside of the box; Low NFC is also linked to better decision making (Amit & Sagiv, 2013; Carette & Anseel, 2012; Chirumbolo, et. al, 2004; Kruglanski, 2004; MacPherson, 1995; Pierro, Mannetti, et. al, 2012; VanKleef, et. al, 2009; Cieciuch & Schwartz, 2012; Kaptan, Shiloh & Onkal, 2013; Kilburn, 2009; Parks & Guay, 2009; Roccas & Amit, 2011; Sagiv & Schwartz, 2000; Schwartz, 2014; Schwartz, 1999; Schwartz, et. al, 2012; Schwartz, Struch & Bilsky, 1990; Vecchione, et. al, 2011).

Polarization of the Continuum

To complete the continuum are two factors which create polarization within the continuum. Both time constraints and cognitive load have been shown to cause an increased level of either low or high NFC (Bar-Tal, Raviv & Spitzer, 1999; Carette & Anseel, 2012; Mausethagen, 2013). Additionally, as change is required, individuals with openness to change are more likely to embrace this change as conservation values motivate maintenance of the status quo, creating conflict and added stress (Barton & Stepanek, 2012; Hubbard, Mehan & Stein, 2006; Linn, 2000; Northouse, 2013; Resnick, 2009; Shoup & Studer, 2010). In education, cognitive load is seen as multiple mandates have been implemented in order to increase student achievement, but these mandates also increase pressure for teachers to motivate students to perform (Cuban, 1990; Linn, 2000; Truiet, 2013; Tyack, 1990). For example, in Virginia, the new evaluation system has incorporated smart goals, designed for teachers to show proof of student learning. At the same time, a federal waiver has changed how student benchmarks are assessed and teachers have been given information regarding the new system (VDOE, 2015). To further add to cognitive load, the statewide curriculum was revised in both English and math recently; teachers have been required to incorporate this revised curriculum into the classroom instruction (VDOE, 2015). As multiple mandates continue to come from the state and districts also mandate new initiatives, cognitive load continues to grow for educators.

Additionally, this list of mandates is coupled with time constraints through the school calendar. Within 180 to 190 school days, required mandates must be completed, and statewide testing, which occurs up to three weeks before the end of the school year, further decreases the amount of time to complete mandates. I propose that these two factors create an environment where values and NFC are seen as more important in the context of increasingly more pressure

and stress to prove accountability benchmarks, causing polarization within the PLC processes that influence surface level vs. sustained change. In this way, members of each PLC within a school are polarized toward one end of the continuum or the other, increasing the need for the correct amount of disruption and security influenced by school leaders.

Research Focus

As complex systems, schools emerge organically over time. Any initial condition, or stimuli, can have tremendous influence over the system, often causing an unbalanced state, and each system responds differently (Byrne & Callaghan, 2014; Chillers, 2010; Orzen & Karatas, 2013; Pollock, Adler & Sankaron, 2014; Ross, 2014; Smitherman, 2005; Trueit, 2013). Sustained changes occur when a system is disrupted and changes to incorporate a new, balanced environment, often looking different than the same stimuli incorporation in other systems (Byrne & Callahan, 2014; Orzen & Karatas, 2013; Smitherman, 2005; Trueit, 2013). The school, as complex system, has many subsystems, including PLCs. By exploring a relational context, in both PLCs and the actions of school leaders, elements that encourage sustained change, through both disruption and security, create a climate which can be studied (Barton & Stepanek, 2012; Beabout, 2012; Leclerc et. al, 2012; Lujuan & Day, 2010; Myers, 2014; Riveros, Newron & Burgess, 2012; Teague & Anfara, 2012). The purpose of this research was to explore the influence of school leaders and teachers on surface level vs. sustained change through the implementation of professional learning communities, furthering the understanding of why some schools increase student achievement and others do not. This research is viewed through the implementation of PLCs within three middle schools in one Southeastern Virginia school district. This research was developed and analyzed through the lens of the continuum developed

by two psychology-based theories, value theory and lay epistemic theory, and framed by complexity theory. Specific research focuses are:

Focus 1: to what extent has the implementation of PLCs influenced teachers to make sustained change in instructional classroom practice?

a. Influence of relational processes within the PLC
b. Influence of sustained change in teacher practice

Focus 2: To what extent has school leadership influenced the PLC implementation for sustained change in teacher instructional practice?

a. Leadership perceptions about the PLC implementation process
b. Influence of leadership placement on the continuum to sustained change

Case study methodologies were utilized in this research. A bounded multiple case study included three middle schools in a southeastern Virginia suburban school district in the second year of PLC implementation. This study included interviews with school leaders, both principals and assistant principals. Follow up interviews with principals were conducted after initial data were collected and analyzed. These follow up interviews were used as member checking. Sociograms (defined in chapter three) of PLCs in each school and the school leadership team were developed. Data collection to develop sociograms included the need for cognitive closure scale, portrait value questionnaire 5X survey, and a demographic and information questionnaire. Additional artifacts include school, district, and state report cards, photographs, and a website review. Multiple data sources provided for thick description through analysis. Analysis was conducted throughout the research, developing initial and then final codes, which became major and minor themes of the study. A bounded case study design was appropriate as it allowed the opportunity to "illuminate meaning" (Patton. 2010) of the PLC implementation process. In addition, it allowed for analysis of multiple data sources to understand the participants holistically, developing more meaning than the linear relationships

studied in quantitative research (Creswell, 2007; Glaser & Strauss, 1967; Hays & Singh, 2012; Merriam, 2009; Patton, 2015; Rubin & Rubin, 2012; Yin, 2009).

This study, while designed to provide thick description of the phenomenon, does have limitations. As a qualitative study, it cannot be generalized to other middle schools with PLCs. However, it adds to the limited research available in regards to the relational processes which create sustained instructional change within schools and other organizations. It also explores the implementation of new initiatives within schools, research that can be added to in the midst of a polarized, accountability based environment.

CHAPTER 2

Literature Review

Adding procedures to adjust outcomes is conducive to linear models; the educational system is complex so a linear model approach will not yield expected outcomes (Byrne & Callaghan, 2014; Chillers, 2010; Orzen & Karatas, 2013; Pollock, Adler & Sankaron, 2014; Ross, 2014; Smitherman, 2005; Trueit, 2013). As lawmakers expect accountability benchmarks to be met with success throughout the country, reform has been hard pressed to demonstrate positive outcomes (Barton & Stepanek, 2012; Leclerc et. al, 2012; Lujuan & Day, 2010; Teague & Anfara, 2012; Wells, 2008). The complex system that is education requires nuance and understanding of the emergent nature held within each school as each system reacts and incorporates new stimuli organically (Linn, 2000; Cuban, 1990; Alhedeff-Jones, 2008; Byrne & Callahan, 2014; Chillers, 2010; Levy, 1994; Smitherman, 2005; Trueit, 2013; Tyack, 1990). School leaders understand that improvement in teacher practice in the classroom is linked to student achievement and the inroad to accomplishing current accountability goals, but leaders still find reform difficult to sustain (Barton & Stepanek, 2012; Leclerc et. al, 2012; Lujuan & Day, 2010; Teague & Anfara, 2012; Wells, 2008). While much research shows effectiveness of professional learning communities and links student achievement through teacher improvement, much less research works to understand the relational processes which create sustained change in a polarized, complex system striving to maintain the status quo (Barton & Stepanek, 2012; Byrne & Callaghan, 2014; Chillers, 2010; Leclerc et. al, 2012; Lujuan & Day, 2010; Wells, 2008; Orzen & Karatas, 2013; Pollock, Adler & Sankaron, 2014; Ross, 2014; Smitherman, 2005; Teague & Anfara, 2012; Trueit, 2013). The result is success in some schools, but not others. The influence of leadership, values, and cognitions within a relational context will assist in

understanding this delineation of success or failure of sustained change toward school reform. In this chapter, research findings regarding school workgroups and professional learning communities, as well as the influence of school leadership in these endeavors, will be presented. A discussion of surface level and sustained change will be viewed through the lens of leadership. Additionally, an in depth discussion of the theory behind the polarized framework continuum will conclude the chapter, including a brief description of the research study and focus.

Organizational Workgroups

Many industries and organizations, including business, technology, defense, sports and medicine, have understood for decades that groups working together share more resources and make more effective and efficient decisions for the organization (Homan, Hollenbeck, Humphrey, Knippenberg, Ilgen & VanKleef, 2008; Huckman & Staats, 2013; Polzer, Milton & Swann, 2002; Teague & Anfara, 2012; Riveros, Newton & Burgess, 2012). Established workgroups increase productivity and make fewer mistakes, lending research backing to two heads are better than one (Homan et. al, 2008; Huckman & Staats, 2013; Polzer, Milton & Swann, 2002; Teague & Anfara, 2012; Riveros, Newton & Burgess, 2012; Barton & Stepanek, 2012). However, although seen as an important component to the success of other industries, workgroups are not without their difficulties (Homan et. al, 2008; McGrath & Tichan, 2007; Ellemers, Sleebos, Stam & de Gilder, 2013; Schopler, 1987; Huckman & Staats, 2013; Lujuan & Day, 2010; Riveros, Newton & Burgess, 2012; Barton & Stepanek, 2012; Leclerc, Moreau, Dumonchel & Sallafranque-St-Louis, 2012). Researchers have found that diversity within workgroups leads to in-group formation, a concept presented within the research of Schwartz and others (McGrath & Tichan, 2007; Lujuan & Day, 2010; Teague & Anfara, 2012; Barton & Stepanek, 2012; Schwartz, 2004; Schwartz, 1999). These in-groups can alienate members of the

group and decrease productivity as the resources of each member are not incorporated into the decision making processes (McGrath & Tichan, 2007; Lujuan & Day, 2010; Teague & Anfara, 2012; Barton & Stepanek, 2012; Schwartz, 2004; Schwartz, 1999). Also, workgroups develop and emerge over time, as context dictates (Schopler, 1987; Huckman & Staats, 2013; Barton & Stepanek, 2012). Poole and Roth (1989) said that groups are interpersonal, recycling operational processes dependent upon two factors: level of conflict and power structure (as cited in McGrath & Tichan, 2007). A review of the research shows that the relationships of group members are one of the most important factors in group productivity (McGrath & Tichan, 2007; Schopler, 1987; Huckman & Staats, 2013; Lujuan & Day, 2010; Riveros, Newton & Burgess, 2012; Kruglanski, et. al, 2013; Kruglanski, 2004; Scribner & Donaldson, 2001; Kruglanski, 1990; Kruglanski, 1984; Kruglanski, 1981; Spillane, 2005; Spillane, Halverson, & Diamond, 2004). High interpersonal congruence moderates the negative aspects incurred through in-groups, including social integration, group identification, and intergroup conflict (Polzer, Milton & Swann, 2002). Resolving conflicts within workgroups and relationships built upon trust and respect suggested increased productivity and improved results. While workgroups have been used for far longer in other industries, schools have seen a surge in professional learning communities since the 1980s, when accountability for student achievement became the primary focus of education (Barton & Stepanek, 2012; Homan et. al, 2008; Leclerc et. al, 2012; Riveros, Newton & Burgess, 2012).

History of School Work Groups

While PLCs are viewed as a newer phenomenon in schools, workgroups in schools that focus on student learning have been in existence much longer. For example, in 1916 Dewey said teacher reflection improved the whole school, intimating the sharing of information about

teacher practice with others (Riveros, Newton & Burgess, 2012). Teacher teaming is structured to incorporate a multidisciplinary curriculum for increased student learning (Riveros, Newton & Burgess, 2012). Action research and peer coaching also allow teachers to share and improve teacher practice through collaboration (Riveros, Newton & Burgess, 2012). Many common school structures present workgroups, including content departments, school leadership teams, administrative teams, and literacy teams. What distinguishes PLCs from other types of school workgroups is the primary focus on student learning through teacher development and practice (Barton & Stepanek, 2012; Leclerc et. al, 2012; Lujuan & Day, 2010; Teague & Anfara, 2012; Wells, 2008).

Professional Learning Communities

PLCs are different than other school workgroups because they function under the assumption that teacher learning is directly linked to student learning (Barton & Stepanek, 2012; Leclerc et. al, 2012; Lujuan & Day, 2010; Teague & Anfara, 2012; Wells, 2008). PLCs are defined in many ways, but most research agrees that PLCs are a group of professionals working together to improve student learning through continuous analysis and improvement of teacher instructional practice by data analysis, collaboration, meaningful discourse through conflict, and shared vision and practices (Barton & Stepanek, 2012; Leclerc et. al, 2012; Lujuan & Day, 2010; Teague & Anfara, 2012; Wells, 2008). However, just implementing PLCs in a school does not guarantee sustained change in the classroom (Barton & Stepanek, 2012; Hubbard, Mehan & Stein, 2006; Linn, 2000; Northouse, 2013; Resnick, 2009; Shoup & Studer, 2010; Scribner et. al, 1999). Bandura's research uses motivation as the bridge between learning and acting (Ahnert, Milatz, Kappler, Schneiderwind, & Fischer, 2012; Bandura, 2006; Bandura, 1993; Bandura, 1982; Bandura, 1977; Bruton, Mellalieu, & Shearer, 2014; Roos, Potgeiter, & Temane, 2013;

Zhang, Solomon & Gu, 2012). In the same way, Teague and Anfara (2012) said that teacher learning and application are separated, so teacher development does not equal application in the classroom. Scribner, Cockrell, Cockrell, and Valentine (1999) cited the difficulty of teachers to move from isolation to community in implementing school change. Considering this dichotomy of learning and practice as well as a paradigm shift from isolation to community, the question becomes: To what extent has the implementation of PLCs influenced teachers to make sustained change in instructional classroom practice?

A review of the literature presents six main characteristics of PLCs: collaboration, group norms, interpersonal relationships, shared purpose and vision, time, and supportive leadership. While collaboration is often used in research, a clear definition is not. A metanalysis of the PLC research literature by Jones and Thessin (2015) showed definitions that ranged from descriptive (i.e. number of group members) to more in-depth definitions that included purpose or collegial need. More agreement is seen in the other characteristics. Since PLC collaboration is meant for sustained change, group norms must be established and include group rules, procedures, and conflict management. Without these structures, collaboration which yields change in instructional practice is less effective (Vangrieken et. al, 2015; Jones & Thessin, 2015; Barton & Stepanek, 2012; Leclerc et. al, 2012; Lujuan & Day, 2010; Riveros, Newron & Burgess, 2012; Teague & Anfara, 2012; Scribner & Donaldson, 2001). Finally, the research shares more agreement on the impact of culture, including shared vision and purpose, on effective PLC collaboration that leads to sustained change in instructional practice.

Time is another critical characteristic throughout the literature. PLCs need established times to meet when all participants are available. Time should be protected so that meetings are consistent and planned. In addition, time that is incorporated during the school day increases

teachers' willingness to commit to the process (Barton & Stepanek, 2012; Leclerc et. al, 2012; Lujuan & Day, 2010; Riveros, Newron & Burgess, 2012; Teague & Anfara, 2012). Time within the meeting itself is also important. Teachers must commit to the appropriate work. Without this committment, the meetings may become a way in which to vent negatively and complain about other school issues, preventing productivity and improvement (Barton & Stepanek, 2012).

Finally, the research agrees that school leaders have a strong influence on PLC implementation. Supportive, involved leadership assists in developing group norms, working through conflict, and providing a sense of importance in PLC processes (Jones & Thessin, 2015; Barton & Stepanek, 2012; Leclerc et. al, 2012; Lujuan & Day, 2010; Riveros, Newron & Burgess, 2012; Teague & Anfara, 2012; Scribner et. al, 1999). Additionally, school leaders assist in fidelity of the shared vision and purpose of the instructional work. Within the context of complexity, PLC characteristics work together to develop each PLC within a school, as each will emerge differently. Within PLC implementation, relationship influences the PLC teacher members' level of sustained change. In the next sections, a discussion of collaboration, teacher commitment, and supportive leadership is explored through the lens of relationship within PLC implementation.

Collaboration in PLCs

Historically, teachers have worked in isolation, within the walls of their classroom, emerging for staff meetings and lunch in the faculty workroom. Collaboration about practice creates a paradigm shift for teachers, moving away from teaching in isolation towards more community based instructional work (Barton & Stepanek, 2012; Leclerc et. al, 2012; Lujuan & Day, 2010; Riveros, Newron & Burgess, 2012; Teague & Anfara, 2012; Wells, 2008). Also, collaboration that is focused on research based, data driven instruction presents the opportunity

for sustained change in practice. This type of collaboration has been shown to improve schools (Barton & Stepanek, 2012; Leclerc et. al, 2012; Lujuan & Day, 2010; Riveros, Newron & Burgess, 2012; Teague & Anfara, 2012; Wells, 2008).

Strict structures, including group norms, member roles, and conflict mediation strategies are important to create an environment in which sustained change can occur. All of these aspects are important to structure in what Lujuan and Day (2010) call the "deeper conversations." These conversations question the status quo and create conflicts that lead to the breakthroughs needed to improve teacher practice and action (Leclerc et. al, 2012; Lujuan & Day, 2010; Teague & Anfara, 2012). These deeper conversations are unproductive without good interpersonal relationships with group members, another important characteristic of PLCs. Building strong professional relationships which focus on trust and respect allow members to identify with the group, feel secure in presenting personal practices, and view conflict as a positive means to improve (Lujuan & Day, 2010; Teague & Anfara, 2012; Riveros, Newton & Burgess, 2012; Scribner & Donaldson, 2001; Scribner et. al, 1999).

Teacher Commitment

While the PLC promotes focus on student improvement, a clearly defined vision and purpose within the school community maintains focus, increases productivity and positively influences teacher commitment to the work (Barton & Stepanek, 2012; Leclerc et. al, 2012; Lujuan & Day, 2010; Riveros, Newron & Burgess, 2012; Teague & Anfara, 2012). Brown and Anfara (2003) created an eleven step process for change in schools through a qualitative study including 44 principal participants. These steps were separated into three phases according to Fullan (1991): initiation, implementation, and institutionalization. During the implementation phase, important steps included acknowledgement that change is difficult and will be met with

resistance and the need for teacher commitment (Brown & Anfara, 2003). Sustained change comes through institutionalization, defined by Fullan (2007) as when an initiative becomes common practice through both consistency and resolution of issues to implementation and structures. Institutionalization suggesteds commitment by all members of the school community.

Rosenholtz (1989) separated schools into two types: high consensus schools and low consensus schools (as cited in Teague & Anfara, 2012). In low consensus schools, more hierarchical systems were found, including less collaboration among teachers. In high consensus schools, collaboration was seen throughout the school, including problem solving and decision making in policies, procedures, instruction and other school structures (Teague & Anfara, 2012). High consensus schools also included shared vision, purpose, and goals. He said these schools had a "common technical culture" in which all members understood the school environment (Teague & Anfara, 2012). Since school climate is directed by the school leader, the implementation process of PLCs is linked to school leadership when viewing sustained versus surface level change. A supportive, involved leader must foster PLCs through their time, actions, and vision. The last characteristic of the PLC is supportive leadership.

Supportive Leadership in the Implementation Process

Supportive leadership is required to sustain positive PLCs (Barton & Stepanek, 2012; Leclerc et. al, 2012; Lujuan & Day, 2010; Riveros, Newron & Burgess, 2012; Teague & Anfara, 2012). Fullan (2006) said that sustained change comes from support by both district and school leaders. In a review of 11 studies of PLCs, Vescio, Ross, and Adams (2008) found that PLC implementation changes the culture of the school. Principals create the climate of the school and influence the culture through their actions (Glickman, 2002; Spillane, 2005; Spillane, Halverson, & Diamond, 2004). Principals that provide protected time, model appropriate behavior and

facilitate conversations about shared vision and purpose, school norms, and clearly defined expectations increase the sustainability of the PLC while influencing the changing culture of the school (Barton & Stepanek, 2012; Leclerc et. al, 2012; Lujuan & Day, 2010; Riveros, Newron & Burgess, 2012; Teague & Anfara, 2012; Wells, 2008). Schools, as complex systems, are organic and emerge over time (Alhedeff-Jones, 2008; Byrne, & Callahan, 2014; Carette, & Anseel, 2012; Chillers, 2010; Laing, 2013; Levy, 1994; Pollack, Adler, & Sankaran, 2014). For this reason, school leaders must foster and grow PLCs in their schools for sustained change, understanding that all parts of a complex system are emergent and organic.

Surface Level vs. Sustained Change through Relationship

While much research literature focuses on PLCs as working groups, with characteristics and roadblocks to implementation, little research focuses on the complex processes which shift teacher learning to teacher practice within the PLC community (Riveros, Newton & Burgess, 2012). Joyce (2004) said that initiatives fail because there is a lack of teacher reflection on practice, successes and failures were not studied to make improvement throughout the process, and clearly defined characteristics for collaboration were not taught (as cited in Riveros, Newton & Burgess, 2012). While Joyce had presented important research on PLC failure, these findings do not provide an exploration of the deeper processes of the PLC that created the environment for failure or success. Bandura (1993) said that change occurs when the one is motivated to demonstrate learning, delineating between learning and performance (Ahnert, Milatz, Kappler, Schneiderwind, & Fischer, 2012; Bandura, 2006; Bandura, 1982; Bandura, 1977; Bruton, Mellalieu, & Shearer, 2014; Roos, Potgeiter, & Temane, 2013; Zhang, Solomon & Gu, 2012). He goes on to say efficacy, or a sense of being able to accomplish a task with success, influences positive performance. Within schools, collective efficacy is influenced directly by the leader.

School reform that creates sustained change in an environment trying to maintain the status quo is difficult. Both disruption of the current functioning and a sense of security to try new things must be balanced for sustained change. For leaders, an understanding of complex systems and the amount of disruption needed to create sustained over surface level change is key (Barton & Stepanek, 2012; Beabout, 2012; Leclerc et. al, 2012; Lujuan & Day, 2010; Myers, 2014; Riveros, Newron & Burgess, 2012; Teague & Anfara, 2012; Wells, 2008).

While individuals create their own realities, including efficacy, through belief, experience, and action, PLCs, as a group of individuals, do the same thing (Riveros, Newton & Burgess, 2012). Leclerc et. al (2012) said of workgroups, "in the context of education, these processes are illustrated by a set of social relations that create a culture of shared responsibility for student learning, improve teachers understanding of key pedagogical elements, and promote the implementation of effective practices" (p. 2). While little research on the relational context of workgroups is seen, and even less about the relational context of PLCs, it becomes clear that little is known regarding how PLCs create an environment for teachers to become motivated from learning about practice to changing practice toward student improvement. I propose that the relational context within schools is the key to motivating learning to practice. I also propose school leadership directly influences these processes through a balance of disruption and safety, allowing PLCs to emerge toward sustained change over time. To understand this phenomenon, a theoretical framework continuum was developed with theory used predominantly in the fields of psychology and motivation. This framework is discussed in-depth in the next section of this chapter.

Theoretical Framework Continuum

The theoretical framework, including theory and the polarized continuum, will be discussed in this section. As a frame within a frame model, the outside frame, complexity sciences, is presented first, followed by Schwartz' value theory and Kruglanski's LET. Please reference Figure 2.1 for the theoretical framework. Lastly, the polarized theoretical framework continuum is discussed. The chapter concludes with a discussion on the research focus for this study.

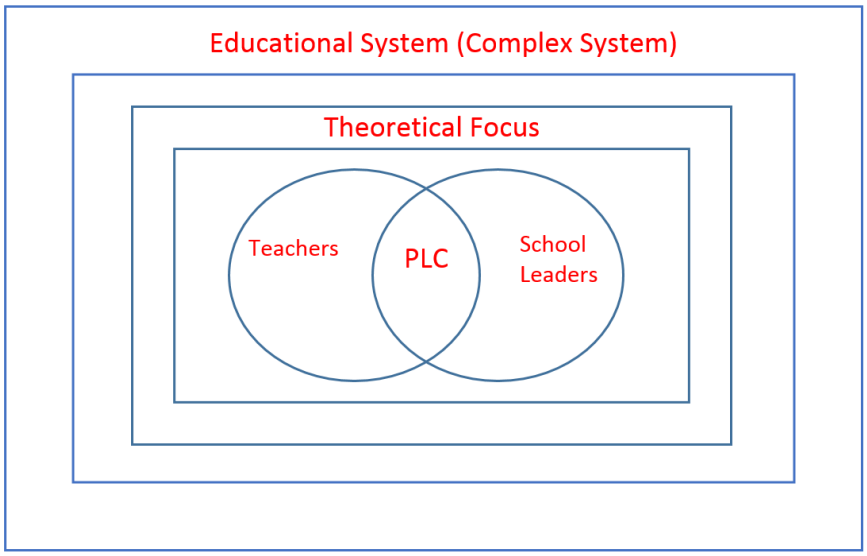

Figure 2.1. Theoretical framework

Complex Systems

Complexity sciences, a new interdisciplinary science, reject the Newtonian premise of linear patterns (Alhedeff-Jones, 2008; Byrne & Callaghan, 2014; Chillers, 2010; Curlee & Gordon, 2010; He, 2014; Julien, 2009; Krstacic & Krstacic, 2014; Levy, 1994; Orzen & Karatas, 2013; Pollock, Adler & Sankaron, 2014; Ross, 2014; Shoup & Studer, 2010; Smitherman, 2005; Trueit, 2013). These linear patterns are predictable and more importantly, fixed, meaning that as

the outcome is predicted by the effect, the effect can be predicted by the outcome (Alhedeff-Jones, 2008; Byrne & Callaghan, 2014; Chillers, 2010; Julien, 2009; Krstacic & Krstacic, 2014; Levy, 1994; Orzen & Karatas, 2013; Shoup & Studer, 2010; Smitherman, 2005; Trueit, 2013). The complexity sciences, including complexity theory and chaos theory, focus on non-linear relations and transformations, explaining organizations as organic, transformative entities (Byrne & Callaghan, 2014; Chillers, 2010; Julien, 2009; Krstacic & Krstacic, 2014; Levy, 1994; Orzen & Karatas, 2013; Shoup & Studer, 2010; Smitherman, 2005; Trueit, 2013). These nonlinear dynamics utilize connections which influence the whole system as each action and interaction changes parts and the whole of the system (Byrne & Callaghan, 2014; Chillers, 2010; Julien, 2009; Krstacic & Krstacic, 2014; Levy, 1994; Orzen & Karatas, 2013; Ross, 2014; Shoup & Studer, 2010; Smitherman, 2005).

Chaos theory is based on order from chaos. Three important concept of chaos theory include sensitive dependence of initial conditions, fractals and bounded infinity. In complexity theory, a small initial condition, or minute change to the system, can have drastic effects to the system, like the movement of butterflies creating hurricanes half a world away (Lorenz, 1993). This concept is called sensitive dependence on initial conditions (Alhedeff-Jones, 2008; Chillers, 2010; Krstacic & Krstacic, 2014; Levy, 1994; Orzen & Karatas, 2013; Shoup & Studer, 2010; Smitherman, 2005; Trueit, 2013). As initial conditions change the system, fractals form (Byrne & Callaghan, 2014; Krstacic & Krstacic, 2014; Orzen & Karatas, 2013; Ross, 2014; Shoup & Studer, 2010; Smitherman, 2005; Trueit, 2013). Fractals are patterns within the system that can be seen throughout. Whether a subsystem, multiple systems, or the whole system are studied, the same patterns are evident in each separate part as well as within the whole (Alfedeff-Jones, 2008; Byrne & Callaghan, 2014; Chillers, 2010; Curlee & Gordon, 2010; Krstacic & Krstacic, 2014;

Laing, 2013; Levy, 1994; Orzen & Karatas, 2013; Shoup & Studer, 2010; Smitherman, 2005; Trueit, 2013). For example, the public school system as a whole is focused on proving accountability through national requirements; in many states (part of the system), state mandates to prove accountability are also in practice and mirror the federal standards, going so far as to use the same grade level assessment. The last concept of chaos theory is bounded infinity. Bounded infinity is best explained through a number line; while an infinite amount of numbers are possible between zero and one, the number set is bound by its parameters (zero and one; Smitherman, 2005). For instance, teachers are bound to an accountability based curriculum, but within the parameters of such have infinite possibilities in instructional practice and differentiated instruction. Through these three concepts, we can see that chaos theory mirrors the complexity sciences.

While chaos theory is based in mathematics, complexity theory is based in the sciences, including physics, engineering, computer science, and economics (Pollock, Adler & Sankaran, 2014; Smitherman, 2005). Chaos theory and complexity theory are different in one main way: chaos theory focuses on order resulting from chaos as complexity focuses on chaos creating order and structure (Smitherman, 2005). As chaos theory is focused on the initial condition creating big changes within the system, complexity theory focuses more on the ways in which systems function and continue to emerge, developing and changing through time (Byrne & Callaghan, 2014; Chillers, 2010; Curlee & Gordon, 2010; He, 2014; Julien, 2009; Krstacic & Krstacic, 2014; Laing, 2013; Levy, 1994; Orzen & Karatas, 2013; Pollock, Adler & Sankaron, 2014; Ross, 2014; Shoup & Studer, 2010; Smitherman, 2005; Trueit, 2013). The system structures are seen as fluid, ever changing with each condition put upon the system. These changes are minute, just as in string theory, the string is theoretically considered so small it

cannot be seen, but causes extreme changes through its vibrations (Krstacic & Krstacic, 2014). Systems function through patterns of emergence, and as each pattern develops it influences the system as a whole, creating fractals. In complex systems, the outcome is the whole system is more than the sum of its parts (Byrne & Callaghan, 2014; Chillers, 2010; Curlee & Gordon, 2010; He, 2014; Julien, 2009; Krstacic & Krstacic, 2014; Levy, 1994; Orzen & Karatas, 2013; Pollock, Adler & Sankaran, 2014; Ross, 2014; Shoup & Studer, 2010; Smitherman, 2005; Trueit, 2013).

Dissipative structures explain the process of change within a complex system, allowing continuous development of the system at different rates (Byrne & Callaghan, 2014; Krstacic & Krstacic, 2014; Smitherman, 2005). Systems are either at-, near-, or far-from-equilibrium (Byrne & Callaghan, 2014; Trueit, 2013). Using the second law of thermodynamics, Prigogine and Stenger (1984) explained that systems at- or near-equilibrium will mostly stay the same or make small changes to maintain balance. Systems at far-from-equilibrium will transform through processes to find a new at-equilibrium state. Through dissipative structures, some schools make sustained changes while others incorporate change into established patterns.

Complex systems are continuously emerging to form new patterns through strange attractors, or feedback (Ross, 2014; Shoup & Studer, 2010; Smitherman, 2005). Feedback in complexity is what information is attended to and motivates the system to change; potential feedback that is not attended to is considered noise (Krstacic & Krstacic, 2014; Ross, 2014; Shoup & Studer, 2010; Smitherman, 2005; Trueit, 2013). When strange attractors create imbalance, the system becomes far-from-equilibrium and emerges at a faster rate to calibrate and find balance (Byrne & Callaghan, 2014; Julien, 2009; Ross, 2014; Trueit, 2013). In this way,

complex systems cannot create new structures without a far-from-equilibrium condition (Byrne & Callaghan, 2014; Trueit, 2013).

In the last twenty years, complexity sciences have been utilized in the social sciences, more specifically to explore organizations (Pollock, Adler & Sankaron, 2014). Organizations can be viewed as the whole system or a subsystem (Byrne & Callaghan, 2014; Ross, 2014; Shoup & Studer, 2010; Smitherman, 2005; Trueit, 2013). For instance, schools can be viewed as subsystems of the school district; the school district can be viewed as a subsystem of the state educational system, and the federal system includes all states as subsystems. Within organizations, an open, nonlinear system can be seen with both chaos and order working conjointly to bring about emergence in the system (Byrne & Callaghan, 2014; Pollock, Adler & Sankaron, 2014; Ross, 2014; Smitherman, 2005; Trueit, 2013). The concepts of both chaos theory and complexity theory are demonstrated in organizations, including schools. In the next section, the lens of complexity will be used to view the educational system; this context will be explored in terms of the implication for the educational environment and the relationship within professional learning communities.

Education as a Complex System

The current educational landscape in the United States has developed, progressed and changed since the first one-room schoolhouse (Linn, 2000; Cuban, 1990b; Tyack, 1990). This progression started with education for some and lead to inclusion for all, individualized instruction and changing focuses throughout the years (Northouse, 2013). As we explore the educational system as a complex system, we see the natural progression toward systems thinking. Where instruction was seen as a linear equation (I directly instruct you and you learn),

it is now seen as a more collaborative process, including differentiated instruction, special programs, and professional learning communities.

However, with all the changes and new focuses of the current educational system, remnants of the past system are present (Byrne & Callaghan, 2014; Pollock, Adler & Sankaron, 2014; Ross, 2014; Shoup & Studer, 2010; Smitherman, 2005; Trueit, 2013). The concept of time as irreversible is presented in the Carnegie unit. Using Carnegie units to collect credits towards high school completion is still common practice, but students now receive verified credits that include achievement within the accountability system, scheduling has increased the number of credits earned within a school year, and classes include more than the basic core instruction, like the addition of a fine arts credit and technology certification. This reflects the past system because Carnegie units are common, but the enhancement of the concept shows emergence of the system. As in complexity theory, the system has changed and is no longer able to return to the past in a linear fashion (Byrne & Callaghan, 2014; Chillers, 2010; Orzen & Karatas, 2013; Pollock, Adler & Sankaran, 2014; Ross, 2014; Smitherman, 2005; Trueit, 2013).

Another basic concept of complexity, chaos and order working conjointly, is seen within the educational system (Krstacic & Krstacic, 2014; Orzen & Karatas, 2013; Smitherman, 2005; Trueit, 2013). As strange attractors have caused a paradigm shift from trust of the teaching profession to proving accountability for the 21st century learner, political and societal feedback continues to influence the system on a national level (Shoup & Studer, 2013). While this system created parameters in which students are able to receive better instruction (order), it has also created an environment of teacher strikes, political agendas, and reliability and validity concerns of the accountability measurement (chaos; Byrne & Callaghan, 2014; Chillers, 2010; Linn, 2000; Cuban, 1990b; Smitherman, 2005; Trueit, 2013; Tyack, 1990). Accountability systems are also a

good example of bounded infinity, as curriculum is more bound to federal standards but instruction is more sophisticated and personal. Both chaos and order working conjointly and bounded infinity demonstrate the emerging complexity of the educational system.

To further support the educational system as complex, it is important to relate phase space to the system. In phase space, multiple systems are present within the space. Each system is pulled toward part of the phase space by strange attractors (Byrne & Callahan, 2014). The systems within the phase space are in one of three conditions: at-, near-, or far-from- equilibrium. Systems at or near equilibrium are considered in a stable state, making small changes to balance the pull from strange attractors (Byrne & Callahan, 2014; Krstacic & Krstacic, 2014, Smitherman, 2005, Ross, 2014). Systems far-from-equilibrium are in an unbalanced state and must make big changes to find a new balanced state; this calibration in the system usually results in movement to another part of the phase space and the pull from new strange attractors and/or adjustment in the pull from strange attractors already influencing the system (Orzen & Karatas, 2013; Smitherman, 2005; Trueit, 2013). All of the systems, those making small changes to maintain equilibrium and those making big changes to find a new balance in another part of the phase space, are emerging and evolving within the same phase space (Byrne & Callahan, 2014). For example, in some school systems, like Chicago and San Diego, the systems have experienced disequilibrium, including strikes, major reformations, and leadership changes (Hubbard, Mehan & Stein, 2006; Sawchuk, 2012; Glinton, 2012). As the systems have reacted in chaotic fashion, the resulting emerging system has been changed in grand ways, with different or additional strange attractors, with different feedback attended to and previous feedback fading into noise.

Viewing the educational system as a phase space, we see that systems can be at different states of emergence while still included in the whole system (Byrne & Callahan, 2014; Smitherman, 2005; Orzen & Karatas, 2013). It is important to remember that complex systems are in continuous change, either small or big. Complex systems are emergent and any initial condition can cause disequilibrium at a later time (Chillers, 2010; Curlee & Gordon, 2010; He, 2014; Julien, 2009; Krstacic & Krstacic, 2014; Pollock, Adler & Sankaran, 2014; Ross, 2014; Shoup & Studer, 2010; Smitherman, 2005; Trueit, 2013). And once that condition is presented into the environment, the effect of it cannot be reversed as in linear system models (Byrne & Callaghan, 2014; Chillers, 2010; Curlee & Gordon, 2010; He, 2014; Julien, 2009; Krstacic & Krstacic, 2014; Levy, 1994; Ross, 2014; Smitherman, 2005; Trueit, 2013). For example, a machine can be taken apart, put back together, and function the same way; the machine is complicated, not complex. Complex systems cannot be taken apart and when put back together, function the same way; complexity is more like an organic entity that continuously evolves (Orzen & Karatas, 2013; Trueit, 2014). For the purpose of this research, the lens of complexity will be use to further understand the current educational environment.

Schwartz' Value Theory

Just as complex systems are motivated to maintain a balanced state, Schwartz' value theory is a comprehensive framework that seeks to explain values as the motivation for the decisions and actions in people's lives (Biber, Hupfeld & Meier, 2008; Borg, Groenen, Jehn, Bilsky & Schwartz, 2011; Cieciuch & Schwartz, 2012; Kaptan, Shiloh & Onkal, 2013; Kilburn, 2009; Parks & Guay, 2009; Roccas & Amit, 2011; Sagiv & Schwartz, 2000; Schwartz, 2014; Schwartz, 1999; Schwartz, Cieciuch, Vecchione, Davidov, Fischer, Beierlein, Ramos, Verkasalo, Lönnqvist, Demirutku, Dirilen-Gumus & Konty, 2012; Schwartz, Struch & Bilsky, 1990;

Vecchione, Alessandri, Barbaranelli & Caprara, 2011). Schwartz (1999) defined a value as the "conceptions of the desirable that guide the way social actors (e.g. organizational leaders, policy-makers, individual persons) select actions, evaluate people and events, and explain their actions and evaluations" (p. 24-25). He went on to say that "in this way, values are trans-situational criteria or goals (e.g. security, hedonism), ordered by importance as guiding principles in life" (Schwartz, 1999, p. 26; Cieciuch & Schwartz, 2012; Sagiv & Schwartz, 2000; Schwartz, Struch & Bilsky, 1990; Vecchione et. al, 2011). Schwartz based his research on three universal requirements of the human condition: biological needs, social interaction needs, and group survival and welfare needs (Schwartz, 1999; Schwartz & Bilsky, 1987; Vecchione, 2011). The framework is a circular continuum in which the values are placed in order; the values adjacent to one another are compatible and the values that are across the continuum conflict (see Figure 2.2; Biber, Hupfeld & Meier, 2008; Borg et. al, 2011; Cieciuch & Schwartz, 2012; Kaptan, Shiloh & Onkal, 2013; Kilburn, 2009; Roccas & Amit, 2011; Sagiv & Schwartz, 2000; Schwartz, 1999; Vecchione et. al, 2011). For example, security is defined as feeling safe and the opposite value, stimulation, includes risk-taking and adventure. The ten basic values are listed in order and defined in Table 2.1 (Biber, Hupfeld & Meier, 2008; Cieciuch & Schwartz, 2012; Sagiv & Schwartz, 2000). These values are separated into four value dimensions to create a two-dimensional structure: self-transcendence vs. self-enhancement and conservation vs. openness to change (Biber, Hupfeld & Meier, 2008; Borg et. al, 2011; Cieciuch & Schwartz, 2012; Kaptan, Shiloh & Onkal, 2013; Kilburn, 2009; Parks & Guay, 2009; Roccas & Amit, 2011; Sagiv & Schwartz, 2000; Schwartz, 1999; Schwartz, Struch & Bilsky, 1990; Vecchione et. al, 2011). Each value is included into one value dimension, except hedonism, which is included in both openness to change and self-enhancement (Biber, Hupfeld & Meier, 2008; Borg et. al, 2011;

Kaptan, Shiloh & Onkal, 2013; Kilburn, 2009; Vecchione et. al, 2011). Through his research, Schwartz developed a continuum of values consistent worldwide across culture, country, and individual (Biber, Hupfeld & Meier, 2008; Borg et. al, 2011; Cieciuch & Schwartz, 2012; Kaptan, Shiloh & Onkal, 2013; Kilburn, 2009; Parks & Guay, 2009; Roccas & Amit, 2011; Sagiv & Schwartz, 2000; Schwartz, 2014; Schwartz, 1999; Schwartz et. al, 2012; Schwartz, Struch & Bilsky, 1990; Vecchione et. al, 2011).

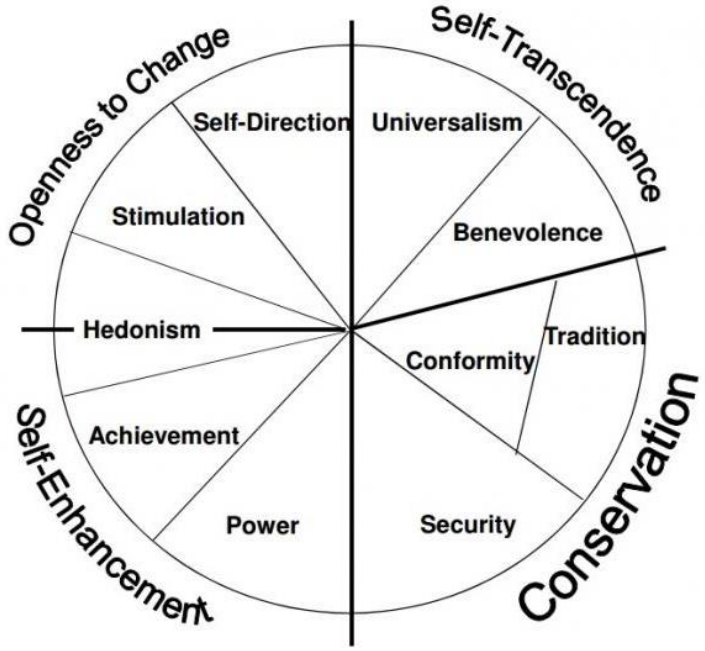

Figure 2.2. Schwartz's value framework

Schwartz (2014, 1999) makes the point that every individual encompasses all values, but motivation comes from which of the values are more influential through experience, societal and cultural norms. For the individual, conflicting values exist but actions and interactions play out when one value is more motivating than the conflicting value on the continuum (Biber, Hupfeld & Meier, 2008; Borg et. al, 2011; Parks & Guay, 2009; Roccas & Amit, 2011; Sagiv & Schwartz, 2000; Schwartz, 1999). He goes further to say that prominent values are both societal norms and experiences of the person. In this way, it can be proposed that the values of society

are more influential than individual values in motivating a person towards thought, feeling, or action (Biber, Hupfeld & Meier, 2008; Borg et. al, 2011; Cieciuch & Schwartz, 2012; Roccas & Amit, 2011; Schwartz, 1999).

In a study by Schwartz (1999), he focused on samples by culture to explore value relationships by country or world region and the motivations towards work. Participants were urban school teachers from different geographic regions of the world. His belief was that teachers encompass many parts of society and influence society through their work. Comparative analysis with college students determined the data represented a number of cultural differences (Schwartz, 1999). What he found was that in the United States, power and achievement are more motivating than other values. His analysis demonstrated the influence of achievement and power in work, and he also discovered that work was viewed as an obligation or duty over an entitlement or meaningful experience, but work was also viewed as central to life (Schwartz, 1999). Within a rewards value system for work, Schwartz (1999) listed four components: intrinsic rewards, extrinsic rewards, social rewards, and power rewards. In the United States, power rewards were valued most and therefore, were more effective in motivating employees (Schwartz, 1999). Extrinsic rewards were also shown to be an effective motivator in the Unites States (Schwartz, 1999). Looking further into this study, one can conclude within the United States, self-enhancement values (achievement and power) are more important than self-transcendence values (universalism and benevolence) in the workplace (Schwartz, 1999).

Table 2.1. Schwartz ten universal values and definitions

Value	Definition
Power	Social status and prestige, control or dominance over people and resources
Achievement	Personal success through demonstrating competence according to social standards
Hedonism	Pleasure and sensuous gratification for oneself
Stimulation	Excitement, novelty, and challenge in life
Self-direction	Independent thought and action-choosing, creating, exploring
Universalism	Understanding, appreciation, tolerance and protection for the welfare of all people and for nature
Benevolence	Preservation and enhancement of the welfare of people with whom one is in frequent personal contact
Tradition	Respect, commitment and acceptance of the customs and ideas that traditional culture or religion provide the self
Conformity	Restraint of actions, inclinations, and impulses likely to upset or harm others and violate social expectations or norms
Security	Safety, harmony, and stability of society, of relationships, and of self.

For the purposes of this research, the focus of Schwartz' value theory is the dimension of conservation vs. openness to change. Openness to change values (hedonism, stimulation, and self-direction) are in direct conflict with conservation values (security, conformity, and tradition); this conflict creates tensions in the value structure of culture, society, and individuals (Biber, Hupfeld & Meier, 2008; Borg et. al, 2011; Kilburn, 2009; Parks & Guay, 2009; Roccas & Amit, 2011; Sagiv & Schwartz, 2000). To ease the disequilibrium in workgroups, one value dimension gains prevalence in the value structure over others dependent upon group membership (Schwartz, 1999; Schwartz, Struch & Bilsky, 1990). In terms of each individual's value structure, within organizational structures and workgroups, both openness to change and conservation are present and often in conflict during the decision making process (Biber, Hupfeld & Meier, 2008; Borg et. al, 2011; Roccas & Amit, 2011). Additionally, research has shown that cognitive load and time constraints cause polarization of value dimensions (Glickman, 2002; Roccas & Amit, 2011; Sagiv & Schwartz, 2000; Schwartz, 1999; Schwartz,

Struch & Bilsky, 1990). In groups working with these additional factors, members that favor one dimension over another are more likely to form in-groups that add dimension to the decision making process. (Glickman, 2002; Roccas & Amit, 2011; Sagiv & Schwartz, 2000; Schwartz, 1999; Schwartz, Struch & Bilsky, 1990).

Schwartz' value theory is considered to be a prominent social psychology and motivational theory. Research in the areas of economics, consumer choice, relational studies, and industrial-organizational psychology have used Schwartz' value theory to explain specific phenomenon of interest (Biber, Hupfeld & Meier, 2008; Borg et. al, 2011; Cieciuch & Schwartz, 2012). Schwartz framework was developed through inclusion of 660,000 people in multiple countries around the world (Borg et. al, 2011; Gouveia, Milfont & Guerra, 2014; Schwartz, 2014; Schwartz et. al, 2012). The PVQ-21 and PVQ-40 are used to test value preference (Cieciuch & Schwartz, 2012). Through both multidimensional scaling and confirmatory factor analysis, the number of values has ranged from five to nineteen, and this remains the biggest criticism of Schwartz' value theory (Biber, Hupfeld & Meier, 2008; Borg et. al, 2011; Cieciuch & Schwartz, 2012). Schwartz explained that the theory is a continuum, like a color wheel, in which the number of values can be dissected in as little or as many values needed for the particular research at hand (Schwartz, 2014). Schwartz demonstrated different numbers of values through analysis by both MDA and CFA in a recent analysis of the framework (Schwartz, 2014). Although the amount of values has come under fire in academia (Gouveia, Milfont & Guerra, 2014, Schwartz, 2014), Schwartz' value theory is still considered a prominent motivation theory that explains the values that influence people's thoughts, attitudes, prejudices, and actions (Biber, Hupfeld & Meier, 2008; Borg et. al, 2011; Cieciuch & Schwartz, 2012; Kaptan, Shiloh & Onkal, 2013; Kilburn, 2009; Parks & Guay, 2009; Roccas & Amit, 2011; Sagiv & Schwartz,

2000; Schwartz, 1999; Schwartz et. al, 2012; Schwartz, Struch & Bilsky, 1990; Vecchione et. al, 2011).

Kruglanski's Lay Epistemic Theory

Schwartz focused on the motivation of values; Kruglanski's lay epistemic theory (LET) focuses on the ways in which people process new information and assimilate new content into already formed cognitions. The theory is based on the motivations in which these processes occur (Amit & Sagiv, 2013; Bar-Tal, Raviv & Spitzer, 1999; Bar-Tal & Spitzer, 1999; Berenbaum, Bredemeier & Thompson, 2008; Boyle, Magnusson & Young, 1993; Carette & Anseel, 2012; Chirumbolo, Livi, Mannetti, Pierro & Kruglanski, 2004; Ford & Kruglanski, 1995; Higgins, 1990; Kossowska, Dragon & Bukowski, 2006; Kruglanski, 1990; Kruglanski, 1984; Kruglanski, 1981; Kruglanski, 2004; Kruglanski, Atash, DeGrada, Mannetti & Pierro, 2013; MacPherson, 1995; Pierro, Cicero, Bonaiuto, Van Knippenberg & Kruglanski, 2005; Pierro, Mannetti, Kruglanski, Klein & Orehek, 2012; Scholten, Van Knippenberg, Nijstad & DeDreu, 2007; VanKleef, Homan, Beersma, Van Knippenberg, Van Knippenberg & Damen, 2009). The process of LET imposes two fundamental requirements: hypothesis generation and hypothesis validation (Boyle, Magnusson & Young, 1993; Carette & Anseel, 2012; Chirumbolo, Livi, Mannetti, Pierro & Kruglanski, 2004; Ford & Kruglanski, 1995; Higgins, 1990; Kruglanski, 1990; Kruglanski, 2004; Pierro, Mannetti, Kruglanski, Klein & Orehek, 2012). Through this process, decisions as to how and why to assimilate or reject the content are formed and the end result is a definitive decision and closure of the content (Boyle, Magnusson & Young, 1993; Carette & Anseel, 2012; Chirumbolo et. al, 2004; Ford & Kruglanski, 1995; Higgins, 1990; Pierro, Manetti, et. al, 2012).

In hypothesis generation, past experiences and current cognitive schemas are utilized through cognitive capability and epistemic motivation (Bar-Tal & Spitzer, 1999; Boyle, Magnusson & Young, 1993; Carette & Anseel, 2012; Chirumbolo et. al, 2004; Kossowska, Dragon & Bukowski, 2006; Pierro, Mannetti et. al, 2012). Cognitive capability includes the availability (long-term memory) and accessibility (short-term memory) of cognitive constructs (Boyle, Magnusson & Young, 1993; Carette & Anseel, 2012; Ford & Kruglanski, 1995; Higgins, 1990; Kruglanski, 1990; VanKleef et. al, 2009) For example, if you encounter traffic on the way to work, hypothesis formation will include your knowledge of other routes (availability) and influences or priming from the article you read in the newspaper about road construction in the area (accessibility).

Another influence on hypothesis formation is epistemic motivation, or the need to engage in deep thinking; the level of need for closure of the cognition will influence the process of information formation and validation (Amit & Sagiv, 2013; Bar-Tal & Spitzer, 1999; Carette & Anseel, 2012; Higgins, 1990; Pierro, Cicero, Bonaiuto, Van Knippenberg & Kruglanski, 2005; Pierro, Mannetti et. al, 2012). When new information is received, LET proposes that infinite possibilities exist for hypothesis formation (Bar-Tal & Spitzer, 1999; Kruglanski, 1984). Therefore, cognitions must be frozen at some point or the process continues forever (Boyle, Magnusson & Young, 1993; Ford & Kruglanski, 1995; Higgins, 1990; Kruglanski, 1990; VanKleef et. al, 2009). New content that is added or assimilated into prior cognitions creates an unfreezing of past cognition in order to include the new content and then freezing ends the process again (Boyle, Magnusson & Young, 1993; Ford & Kruglanski, 1995; Higgins, 1990; Kruglanski, 1990; Pierro, Mannetti et. al, 2012; VanKleef et. al, 2009).

LET focuses on how cognitions are frozen and the motivational implications of these decisions (Amit & Sagiv, 2013; Bar-Tal, Raviv & Spitzer, 1999; Bar-Tal & Spitzer, 1999; Berenbaum, Bredemeier & Thompson, 2008; Boyle, Magnusson & Young, 1993; Carette & Anseel, 2012; Chirumbolo et. al, 2004; Ford & Kruglanski, 1995; Higgins, 1990; Kossowska, Dragon & Bukowski, 2006; Kruglanski, 2004; Kruglanski, 1990; Kruglanski, 1984; Kruglanski, 1981; Kruglanski et. al, 2013; MacPherson, 1995; Pierro, Cicero et. al, 2005; Pierro, Mannetti et. al, 2012; Scholten, Van Knippenberg, Nijstad & De Dreu, 2007; VanKleef et. al, 2009). While some decisions do not include competing hypothesis (I use this brand of toothpaste and bought it at the store), some cognitions create conflicting hypothesis (Amit & Sagiv, 2013; Boyle, Magnusson & Young, 1993; Carette & Anseel, 2012; Chirumbolo et. al, 2004; Ford & Kruglanski, 1995; Higgins, 1990; Kruglanski, 1990; Kruglanski, 1981; Pierro, Cicero et. al, 2005). In the case of cognitive inconsistencies, lessened confidence in hypothesis validation occurs (Kruglanski, 2004). Kruglanski (2004, 1990, 1984, 1981) proposed an LET continuum with high and low need for cognitive closure to explain motivational influences over hypothesis validation including cognitive inconsistencies during hypothesis formation (see figure 2.3; Boyle, Magnusson & Young, 1993; Carette & Anseel, 2012; Chirumbolo et. al, 2004; Ford & Kruglanski, 1995; Higgins, 1990; Kruglanski, 2004; Kruglanski, 1990; Kruglanski, 1984; VanKleef et. al, 2009).

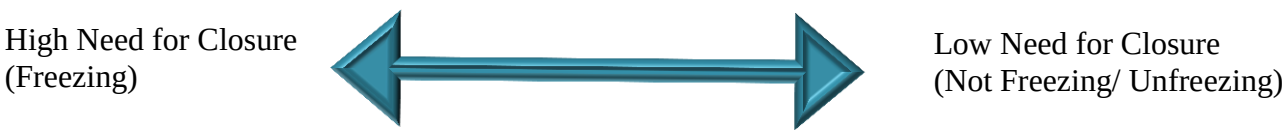

Figure 2.3. Continuum of epistemic motivation

The LET continuum explains the ways in which freezing of cognitions occur. Need for cognitive closure (NFC) is how much a person desires a definite answer to the cognition in order to freeze it (Bar-Tal & Spitzer, 1999; Boyle, Magnusson & Young, 1993; Ford & Kruglanski, 1995; Higgins, 1990; Kruglanski, 1981). The NFC is a two-dimensional classification of motivations toward cognition closure, including specific vs. nonspecific and seeking vs. avoidance (see Table 2.2; Boyle, Magnusson & Young, 1993; Chirumbolo et. al, 2004; Ford & Kruglanski, 1995; Higgins, 1990; Pierro, Mannetti et. al, 2012).

The type of motivation used depends on the cost and benefits of cognition closure, or a cost-benefits analysis of freezing the cognition (Chirumbolo et. al, 2004; Kruglanski, 1981). Nonspecific closures include the avoidance or seeking of an answer, any answer, so a decision can be made (Higgins, 1990; Kruglanski, 2004; Kruglanski, 1990; Kruglanski, 1981; Scholten, Van Knippenberg, Nijstad & De Dreu, 2007; VanKleef et. al, 2009). Using the example of Schrödinger's cat (if one does not care about the cat), seeking an answer to resolve the situation would cause one person to open the box just to have an answer to the status of said cat, while avoiding cognitive closure is to not open the box in order to further explore the option of a living or dead cat. Nonspecific closure avoidance is motivated by a desire to explore more options, the freedom of no resolution, or fear of invalidity (making the wrong choice; Ford & Kruglanski, 1995; Kossowska, Dragon & Bukowski, 2006; Kruglanski, 2004; Kruglanski, 1984; Pierro, Cicero et. al, 2005; Scholten, Van Knippenberg, Nijstad & De Dreu, 2007).

Likewise, epistemic motivations in specific closures consist of avoiding or seeking a specific answer (Bar-Tal & Spitzer, 1999; Boyle, Magnusson & Young, 1993; Carette & Anseel, 2012; Chirumbolo et. al, 2004; Ford & Kruglanski, 1995; Kruglanski, 2004; Kruglanski, 1981; Pierro, Mannetti et. al, 2012; Scholten, Van Knippenberg, Nijstad & De Dreu, 2007). In our

example of Schrödinger's cat, seeking a specific answer (i.e. the cat is alive in the box) will cause a person to open the box to seek a living cat, while the person that believes the cat is dead will not open the box to avoid the sight of a deceased feline. Through all four epistemic motivation processes, the result is integration or rejection of new content to validate their hypothesis or avoid cognitive closure and not validate the hypothesis (Chirumbolo et. al, 2004; Ford & Kruglanski, 1995; Higgins, 1990; Kruglanski, 2004; Kruglanski, 1990; Kruglanski, 1981; VanKleef et. al, 2009).

Table 2.2. Classifications of epistemic motivation

	Disposition Toward Closure	
Type of Motivating Closure	**Avoidance**	**Seeking**
Nonspecific	*Need to avoid nonspecific closure*	*Need for nonspecific closure*
Specific	*Need to avoid specific closure*	*Need for specific closure*

Multiple influences increase or decrease epistemic motivation along the continuum. For example, those high in NFC tend to spend less time generating and validating hypothesis by opting to close the cognition (Bar-Tal, Raviv & Spitzer, 1999; Boyle, Magnusson & Young, 1993; Ford & Kruglanski, 1995; Higgins, 1990; Kruglanski, 2004; Kruglanski, 1990; Pierro, Cicero et. al, 2005; Scholten, Van Knippenberg, Nijstad & De Dreu, 2007). Those low in NFC spend more time generating hypothesis, exploring and adding additional cognitions to the process, and then validating or refusing multiple hypothesis. Those with low NFC tend to look at more options, make more informed and correct choices, and demonstrate more creativity (Bar-Tal, Raviv & Spitzer, 1999; Boyle, Magnusson & Young, 1993; Ford & Kruglanski, 1995; Higgins, 1990; Kruglanski, 2004; Kruglanski, 1990; Pierro, Cicero et. al, 2005; Scholten, Van

Knippenberg, Nijstad & De Dreu, 2007). However, epistemic motivation moves up and down the continuum within the personal context in which the information is acquired. This is influenced by cognitive load, time constraints, environmental noise, alcohol, the source viewed as expert, past experiences and cognitive schemas (Amit & Sagiv, 2013; Carette & Anseel, 2012; Chirumbolo et. al, 2004; Kruglanski, 2004; MacPherson, 1995; Pierro, Mannetti et. al, 2012; Scholten, Van Knippenberg, Nijstad & De Dreu, 2007). Therefore, epistemic motivation is contextual in nature and changes with each situation, content, or stimuli (Bar-Tal, Raviv & Spitzer, 1999; Bar-Tal & Spitzer, 1999; Berenbaum, Bredemeier & Thompson, 2008; Kossowska, Dragon & Bukowski, 2006; Pierro, Cicero et. al, 2005).

Bar-Tal et. al (1999) has expanded Kruglanski's LET to include the ability to achieve cognitive structures (AACS). AACS is defined in two ways, as either the ability to avoid information that is incongruent or cannot be categorized within present cognitive structures, or organizing new information into an existing cognitive structure (Bar-Tal, Raviv & Spitzer, 1999; Bar-Tal & Spitzer, 1999; Berenbaum, Bredemeier & Thompson, 2008). In short, individuals must have the ability to create cognitive structures so cognitions can be assimilated or discarded through the hypothesis generation and validation process (Bar-Tal, Raviv & Spitzer, 1999; Bar-Tal & Spitzer, 1999; Carette & Anseel, 2012; Ford & Kruglanski, 1995; Kruglanski, 1990; Pierro, Mannetti et. al, 2012; Scholten, Van Knippenberg, Nijstad & De Dreu, 2007). Without the ability to take uncertain information (hypothesis generation) and validate it with confidence and certainty (hypothesis validation), freezing of the cognition cannot take place adequately (Bar-Tal, Raviv & Spitzer, 1999; Bar-Tal & Spitzer, 1999). AACS is influenced by cognitive load; high AACS increases the ability to simplistically, effortlessly, and automatically assimilate new information into existing structures and low AACS creates cognitive overload and creates

assimilation of new information into a more labor intensive task (Bar-Tal, Raviv & Spitzer, 1999; Bar-Tal & Spitzer, 1999). According to Bar-Tal, Raviv, and Spitzer (1999), NFC is the epistemic motivation to freeze cognitions while AASC is the ability to adjust the timing of when cognitive closure occurs (Bar-Tal & Spitzer, 1999).

Polarization Demonstrated through Epistemic Motivation and Values Theory

Using Schwartz's value theory and Kruglaski's LET, a clearer picture of the relational context of schools within a complex system begins to emerge. Education as a complex system is in a state of continuous emergence, or at the edge of chaos. As discussed previously, multiple factors influence the system in the form of people in organizations, including cognitive load and time constraints (Glickman, 2002; Roccas & Amit, 2011; Sagiv & Schwartz, 2000; Schwartz, 1999; Schwartz, Struch & Bilsky, 1990; Bar-Tal, Raviv & Spitzer, 1999; Carette & Anseel, 2012; Mausethagen, 2013). These two factors influence the whole system as it impacts the school community and specifically, the people within it. As groups work together, individuals bring their own values and motivations to the process. Through both value theory and lay epistemic motivation, the influence of cognitive load and time constraints was shown to influence both values and epistemic motivation by polarization (Glickman, 2002; Glickman, 1987; Roccas & Amit, 2011; Mausethagan, 2013; Sagiv & Schwartz, 2000; Schwartz, 1999; Schwartz, Struch & Bilsky, 1990; Bar-Tal, Raviv & Spitzer, 1999; Carette & Anseel, 2012). This process of polarization moves individuals farther away from each other on the continuum of both LET and value theory (see figure 2.4). In the complex system of education, both time constraints and cognitive load influence the system. Multiple accountability systems (state and federal), sanctions for failing accountability benchmarks, more stringent and faster pacing guides, and larger curriculum guides all increase the cognitive load of groups within the school.

Additionally, multiple big scale initiatives to improve accountability measures create competing focus and influence cognitive load. Adding to the influence of cognitive load is the time constraints presented through the school calendar, which includes 180 to 190 days of instruction and accountability testing up to thirty days before the end of the school year. This impacts workgroups within the building as teachers are polarized by both cognitive load and timing constraints.

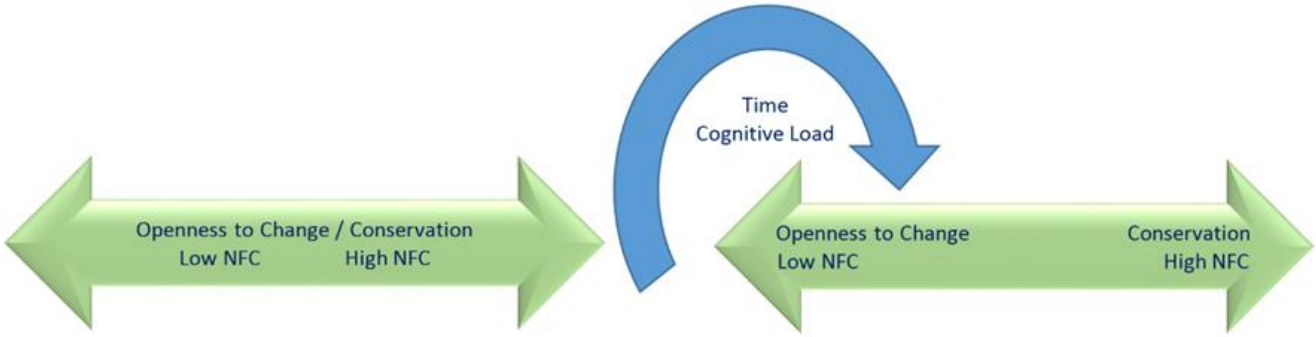

Figure 2.4. Influence of time constraints and cognitive load on LET and value theory

As individuals become polarized towards one end of the continuum, their motivations strengthen toward one end of the continuum. The need for cognitive closure motivates individuals towards two extremes, either low of high (Amit & Sagiv, 2013; Bar-Tal, Raviv & Spitzer, 1999; Bar-Tal & Spitzer, 1999; Berenbaum, Bredemeier & Thompson, 2008; Boyle, Magnusson & Young, 1993; Carette & Anseel, 2012; Chirumbolo et. al, 2004; Ford & Kruglanski, 1995; Glickman, 1987; Higgins, 1990; Kossowska, Dragon & Bukowski, 2006; Kruglanski, 1990; Kruglanski, 1984; Kruglanski, 1981; Kruglanski, 2004; Kruglanski et. al, 2013; MacPherson, 1995; Mausethagen, 2013; Pierro, Cicero et. al, 2005; Pierro, Mannetti et al, 2012; Scholten, Van Knippenberg, Nijstad & De Dreu, 2007; VanKleef et. al, 2009). Table 2.3 illustrates the characteristics of both LET and value theory in relation to information processing within workgroups.

Table 2.3. Information processing in workgroups framework.

		Information Processing: Low	Information Processing: High
Epistemic Motivation	Low	High need for cognitive closure (NFC) Conservation Heuristic choice/ shallow thinking Closure seeking/ nonspecific	High need for cognitive closure (NFC) Conservation Heuristic choice/ shallow thinking Closure seeking/ specific
	High	Low need for closure (NFC) Openness to change Systematic choice/ deep thinking Closure avoidance/ specific	Low need for closure (NFC) Openness to change Systematic choice/ deep thinking Closure avoidance/ nonspecific

High NFC causes decisions to be made faster, with less exploration, creativity, and hypothesis generation (Amit & Sagiv, 2013; Berenbaum, Bredemeier & Thompson, 2008; Carette & Anseel, 2012; Ford & Kruglanski, 1995; Higgins, 1990; Kossowska, Dragon & Bukowski, 2006; Kruglanski, 1990; Kruglanski, 1984; Kruglanski, 1981; Kruglanski, 2004; Kruglanski et. al, 2013; Scholten, Van Knippenberg, Nijstad & DeDreu, 2007; VanKleef et. al, 2009). This may lead to error in the decision making process (Amit & Sagiv, 2013; Berenbaum, Bredemeier & Thompson, 2008; Kossowska, Dragon & Bukowski, 2006; Kruglanski, 1990; Kruglanski, 1981). On the other hand, low NFC increases exploration, time used for hypothesis generation, and creativity in decision making processes (Amit & Sagiv, 2013; Berenbaum, Bredemeier & Thompson, 2008; Kossowska, Dragon & Bukowski, 2006; Kruglanski, 1990; Kruglanski, 1981). As cognitive load and timing strengthen motivations towards NFC, it also influences the value dimensions of conservation and openness to change (Amit & Sagiv, 2013; Berenbaum, Bredemeier & Thompson, 2008; Kossowska, Dragon & Bukowski, 2006; Kruglanski, 1990; Kruglanski, 1981). High NFC and conservation are grouped together at one

end of the continuum as both preserve the status quo. Low NFC and openness to change are grouped at the opposite end of the continuum as both reject the status quo in pursuit of new, unexplored cognitions and experiences. Figure 2.4 illustrates this point. Through both LET and value dimensions, we see the effects of cognitive load and timing on workgroup polarization.

Impact on Professional Learning Communities

As PLCs work together through the processes explained above, they become their own system and emerge over time (Byrne & Callaghan, 2014; Julien, 2009; Krstacic & Krstacic, 2014; Orzen & Karatas, 2013; Ross, 2014; Shoup & Studer, 2010; Smitherman, 2005; Trueit, 2013). This emergence reacts to strange attractors, including a workgroup's propensity to function based upon prevalent LET and values. If the most influential individuals are high NFC/conservation, the whole group will function with less hypothesis generation and if the most influential members are low NFC/openness to change, more creativity, choices, and respectful conflict takes place (Pierro, Cicero et. al, 2005; Scholten, Van Knippenberg, Nijstad & De Dreu, 2007). Group members at the low NFC/ openness to change end of the continuum are more willing to move learning about teacher practice into changing teacher practice in the classroom. In PLCs, each member has a hidden profile; a hidden profile condition includes cognitions that are in common with all group members and cognitions that are unique to the individual (Scholten, Van Knippenberg, Nijstad & De Dreu, 2007). In polarized workgroups, information held in common of all members is discussed more frequently than information uniquely held by one or a few group members (Scholten, Van Knippenberg, Nijstad & De Dreu, 2007). I propose the process of polarization intensifies the effect of where groups are on the NFC/value theory continuum. PLCs on the low NFC/ openness to change end of the continuum will show more information sharing that is uniquely held to individuals, allowing more hypothesis formation,

creativity, and options for improved instructional practice. PLCs that function at the opposite end of the continuum will share less unique information held by individual group members, keeping the hidden profile hidden. Groups working under these conditions experience less sharing, creativity, and options; this stunted process allows for more action toward surface level change. In short, PLCs are a complex system that is influenced by each individual's preference of low or high NFC and conservation or openness to change value dimension. Additionally, polarization of time and cognitive load intensifies this effect, preventing some PLCs to move from surface level change to sustained change, once again demonstrating small changes in order to maintain balance and the status quo.

Research Focus

Through a review of the research and literature, I have discovered that while school workgroups, including PLCs, have been studied, the relational context of these groups have not been studied as often (Homan, Hollenbeck, Humphrey, Knippenberg, Ilgen & VanKleef, 2008; Huckman & Staats, 2013; Polzer, Milton & Swann, 2002; Teague & Anfara, 2012; Riveros, Newton & Burgess, 2012). Additionally, the complexity of schools creates multiple reactions to the same stimuli, creating the opportunity to study these relational processes through PLC implementation in three Southeastern Virginia middle school within a suburban school district and learn what influences some schools to achieve through PLC implementation while others do not. This focus includes the influence of both school leaders and PLC teacher members. The following questions will assist in adding to the literature of understanding the interworking of PLCs and what factors move teachers from surface level change to sustained change with the goal of student achievement.

Focus 1: to what extent has the implementation of PLCs influenced teachers to make sustained change in instructional classroom practice?

c. Influence of relational processes within the PLC
d. Influence of sustained change in teacher practice

Focus 2: To what extent has school leadership influenced the PL implementation or sustained change in teacher instructional practice?

c. Leadership perceptions about the PLC implementation process
d. Influence of Leadership placement on the continuum to sustained change

CHAPTER 3

Research Methodology

This chapter includes the elements of this bounded case study methodology. This methodology includes research design, population and sample, procedures, and measures.

Research Methodology

Quantitative research is important in analyzing many types of information, including differences among different criteria- age, race, geographical location, and employment history- just to name a few (Rubin & Rubin, 2012). While this analysis presents cause and effect relationships, it does not tell the story of why or how in relation to a particular moment in time or the feelings and opinions of participants in a particular situation (Creswell, 2007; Glaser & Strauss, 1967; Hays & Singh, 2012; Merriam, 2009; Patton, 2015; Rubin & Rubin, 2012; Yin, 2009). Patton (2010) said this of qualitative research, "The first contribution of qualitative inquiry, then, is illuminating meanings, and how humans engage in meaning making- in essence, making sense of the world" (p. 13). Qualitative research, and phenomenology in particular, is making meaning of people's lived experiences through rigorous analysis (Creswell, 2007; Glaser & Strauss, 1967; Hays & Singh, 2012; Merriam, 2009; Patton, 2015; Rubin & Rubin, 2012; Yin, 2009). In qualitative research, an emphasis on context and humanness allow the researcher to study participants holistically and not just as "a sum of their parts" (Hays and Singh, 2012, p. 7). It is in this gathering and analysis of multiple data sources that thick description is created, allowing the researcher to understand more deeply the phenomenon of interest- the why (Creswell, 2007; Glaser & Strauss, 1967; Hays & Singh, 2012; Merriam, 2009; Patton, 2015; Rubin & Rubin, 2012; Yin, 2009).

Case study research is one vehicle of qualitative design (Creswell, 2007; Glaser & Strauss, 1967; Hays & Singh, 2012; Merriam, 2009; Patton, 2015; Rubin & Rubin, 2012; Yin, 2009). Yin (2009) said that "the case study's unique strength is its ability to deal with a full variety of evidence-documents, artifacts, interviews, and observations" (p.11). This bounded multiple case study analyzed multiple forms of data, including surveys, interviews of both school leaders and teachers, and sociograms of professional learning communities in each school. This research was conducted during the third year of implementation of PLCs (professional learning communities) at three middle schools; multiple data were utilized to make deep meaning of the experience through the lens of the framework discussed in chapter two. Following the criteria for the universal tradition, including boundaries of time, this qualitative approach is the most appropriate because it presented the themes associated with participants' lived experiences (Creswell, 2007; Glaser & Strauss, 1967; Hays & Singh, 2012; Merriam, 2009; Patton, 2015; Rubin & Rubin, 2012; Yin, 2009). Additionally, as a multiple case study, phenomenological research allowed for thick description within each case as well as across cases (Merriam, 2009; Patton, 2015; Rubin & Rubin, 2012; Yin, 2009).

While positivists believe in one universal truth across conditions, naturalists believe that meaning is more contextual, and reality is different for all participants (Rubin & Rubin, 2012). Using a social constructivist view, people create meaning through their perceptions of the world and their interpretations of each lived experience. Therefore, universal truths cannot be found as each person has a different truth (Merriam, 2009; Patton, 2015; Rubin & Rubin, 2012; Yin, 2009). Using a social constructivist's view of research, context, perceptions, and interpretations are explored more deeply and themes across the shared lived experiences are discovered. In this bounded multiple case study, the context, perceptions, and interpretations of members of each

school were explored, as well as analysis across schools, to more deeply understand the themes individual to the school and across schools. This multiple case study will add layering to the study and trustworthiness to the findings (Creswell, 2007; Glaser & Strauss, 1967; Hays & Singh, 2012; Merriam, 2009; Patton, 2015; Rubin & Rubin, 2012; Yin, 2009).

In summary, the qualitative approach is appropriate for this research study because it will allow for a deeper understanding of the phenomenon. The bounded multiple case study allowed for individual school analysis as well as analysis across cases, adding trustworthiness to the findings (Creswell, 2007; Glaser & Strauss, 1967; Hays & Singh, 2012; Merriam, 2009; Patton, 2015; Rubin & Rubin, 2012; Yin, 2009). Multiple data collections aided in developing thick description of the context, perceptions, and interpretations of school leadership and school workgroups in each case (Glaser & Strauss, 1967; Hays & Singh, 2012; Merriam, 2009; Yin, 2009).

Design

The design of the study must address the research questions, make meaning out of the data, and eventually conclude in broad themes within the phenomenon: implementation of PLCs and school leader's influence over school workgroups (Hays & Singh, 2012; Merriam, 2009; Yin, 2009). The design of this study incorporated Glaser and Strauss' (2012) constant comparative method within the design of a bounded multiple case study (Yin, 2009). This case study incorporated a flexible case design which is best fit to constant comparative analysis; both processes allowed for the emergence of meaning making through data collection and analysis taking place concurrently (Glaser & Strauss, 2012; Yin, 2009). The multiple case design allowed for layering of data collection within each case individually and across cases, from individual to group to school and all three school cases together; this was accomplished through

a replication design in each case, which lends credibility to the findings (Yin, 2009). The design of this study allowed for the emergence of new coding through the layering of the multiple case study and the constant comparative analysis; both processes provided deeper understanding and thick description of the phenomenon (Glaser & Strauss, 1967; Merriam, 2009; Yin, 2009)

As an assistant principal in this school district, I have witnessed firsthand the interworking of professional learning communities at the middle school level. Through this research, I took a social constructivist view, exploring how the school leaders and teachers have made meaning out of the implementation of PLCs (professional learning communities) and the extent they feel this implementation has been met with fidelity and led to instructional change. Using the first research tradition, a multiple case study created opportunity to collect many types of evidence to find meaning of PLC implementation. The design of this study focused on making meaning from the lived realities of principals, assistant principals, and teachers as well as compare the workgroups developed through the framework of PLCs. Taking a social constructivist view and using multiple data collections sources, this bounded multiple case study provided thick description of the phenomenon of school initiative implementation.

As a middle school assistant principal involved in the PLC initiative, my relationship with this topic hits close to home. I have observed the high stress climate within the walls of my school and heard from other middle school educators of the same climate in other schools. I have watched the need to implement mandated initiatives with little training and seen the number and speed of these initiatives. The time constraints and extensive cognitive load have caused focus and resolve to be difficult to maintain. I have heard for many years that "working in a school is different" and "teaching is the most stressful job." But is this true? As humans, we derive meaning from our lived experiences each day. This information process is informal. "At

times, we need more accuracy, depth, and reach than informal learning provides" (Rubin & Rubin, 2012, p. 2). For this reason, I felt it important to explore this topic further through a framework rooted in social and organizational psychology, outside the traditional educational research. In this study, I studied three middle schools within my school system that are similar in demographics and accountability achievement. I have worked in the same district for twenty-four years, and worked with staff and students in every middle school within my district. I will use two schools that I have previously worked, Green Middle and Yellow Middle, as an administrative assistant and guidance director, respectively. I have not worked at either school for over five years and the entire administration at both schools have changed since I was a staff member. The third middle school, Blue Middle, was selected based on its similarity with both Green Middle and Yellow Middle. During my data collection, I was transferred to Blue Middle. While this increased my self-awareness in my analysis, I feel I was able to maintain objectivity, both through fidelity of research procedures and analysis of multiple data sources.

Sample and Population

Ten middle schools educate students in grades six through eight in one Eastern Virginia suburban school district. The enrollment of the middle schools, 9326 students, vary from 484 to 933 housed within a middle school. Of these ten middle schools, three have been selected for this research. All three were selected based on similarities, including size, accountability system factors, and student demographics. All three middle schools have enrollment which is close to the average enrollment when viewing all middle schools together. Virginia SOL achievement scores place all schools in the accredited category without using the three year average, indicating a consistent achievement result. And all three middle schools house students from all

socioeconomic levels, special education, gifted, and honors students. All three middle schools were assigned a pseudonym, each a different color.

Green Middle School is located on a main street close to the city government and school district offices. In 1963, the city was formed and at least one school has borne the Green name since the city came into existence. During the vote to select the city name, the Green name was one option and the runner up for the city name. The slogan "tradition and pride" describe the long heritage of schools in this area. The competitive sports program yields champion football and softball teams as well as wrestlers. The faculty and staff of this school are often alumni from the school and hold great pride in working at Green Middle. Fall membership (2014-2015 school year) was 1311 students and current SOL state testing percentages are: English, 84; Math, 82; History, 93; and Science, 90. Green Middle school is currently fully accredited and met all FAMO indicators for federal flexibility waiver.

Yellow Middle is located about fifteen minutes away from Green Middle. This school was built in 1997 and was the first new middle school in many years. When built, a political battle wielded an agreement between the school district and the civic organization of Castle (pseudonym), a predominantly lower middle class SES and minority housing development that includes single family dwellings and townhouses. The agreement allows students living in Castle to ride past the other middle school in the area and attend Yellow Middle. While Castle makes up a large portion of the students, other neighborhoods with middle class families make up the rest. Students split into two high schools when they leave Yellow Middle; Castle goes to an older high school and students across the bridge go to the newest and most technologically advanced high school in the city. The Family Fest is held every June and is open to the entire community; this event has activities for children, discounted food, face painting, and Karaoke.

Most of the staff attends or volunteers for the event, often bringing their families with them. The student enrollment during fall 2014 was 1136 and current SOL state testing scores are English, 75; Math, 84; Science, 89; and History, 78. This middle school is also fully accredited and met all federal flexibility waiver indicators.

Blue Middle School is located in a borough of the city that includes the town center, a major mall, and the city park. Also a newer school, it opened in 2001. Fall 2017 membership was 927 students, smaller than the other two middle schools in this study, but similar in demographics. The faculty is older and most teachers came from two other middle schools in this borough when Blue Middle opened. Many teachers have taught at Blue Middle since the school opened. The current SOL state testing percentages are English, 81; Math, 76; Science, 86; and History, 85. Blue Middle School is fully accredited and met all federal flexibility waiver guidelines.

Entry into the field was obtained through a process of approval. The completed forms were presented to the internal review board at Old Dominion University after the proposal defense was completed and approved through my dissertation committee. The school district approval process included completion of forms and approval from members of the superintendent's staff. Additionally, I asked each principal if I could complete this research for my dissertation in his or her building, explained the methodology and offered my research prospectus, and gained their approval. All data were secured on a password protected personal laptop, as well as a backup of data on a flash drive which is locked in a file cabinet within my home and on a password protected drop box data storage system. All schools were assigned a pseudonym and participants were asked to voluntarily submit their name, which some selected to include in the online survey process and others did not. Participants were told that their

participation was voluntary. Measures were given to staff members and administrators during the spring 2017. Interviews were held during the summer 2016 (school leaders) and fall 2017 (teachers). Additional information regarding procedures for measure collection and interviews is included in the procedures section of this chapter.

Measures

Qualitative inquiry uses multiple forms of evidence to explore a phenomenon (Creswell, 2007; Glaser & Strauss, 1967; Hays & Singh, 2012; Merriam, 2009; Patton, 2015; Rubin & Rubin, 2012; Yin, 2009). Multiple data collections were utilized in this study, but the primary forms of data will be interviews, surveys, and sociograms of school workgroups. Thick description is developed through the collection of multiple data and artifacts. This study, through its data collection, allows for layers of data within each school as well as across schools. Table 3.1 illustrates the administration of measures by group, school leaders and teachers

Table 3.1. Administration of measures to participant groups

School Leaders	Teachers
Interview (Principal and two assistant principals)	Interview (Three teachers from each middle school case)
Need for Cognitive Closure Scale	Need for Cognitive Closure Scale
Portrait Value Questionnaire 5X Value Survey	Portrait Value Questionnaire 5X Value Survey
Demographic and Information Questionnaire	Demographic and Information Questionnaire
Sociogram Survey	Sociogram Survey

Interviews

Interviews with the principal and two assistant principals at each school case was conducted using an interview protocol developed from the research and used open-ended questions. Interviews with teachers participating in the implementation of PLCs were conducted through an interview protocol developed through continuous analysis from school leader

interviews and survey measure analysis of three components: open-ended questions, value questionnaire, and need for closure scale. The interview protocols included an emphasis on voluntary participation, the ability to stop participation at any time, and the nature and reason for the research. Six school leader interviews took from eighteen minutes to one hour. Additionally, nine teacher interviews were collected, ranging from six minutes to nineteen minutes. Interview protocol was formed using initial analysis of school leader interviews and had one prompt with additional areas of interest. Interviews were recorded through a device that incorporates flash drive technology. Once completed, interview transcription was completed using an online transcription service, rev.com. The data from these interviews were analyzed through open coding and clustering to develop initial codes.

Survey Measures

An online survey was developed and administered to all teachers and school leaders that participate in PLC implementation. This online format included: (1) demographic and information gathering questionnaire, (2) Need for Cognitive Closure Scale, (3) Portrait Value Questionnaire 5X Value Survey, and (4) sociogram questionnaire. This data were used to explore the research continuum and to add thick description to the analysis.

Need for Cognitive Closure Scale

One measure which was administered to teachers and school leaders in each school case was the need for cognitive closure scale. This 47 item survey presents statements which are judged by participants using a six-point Likert scale. The scale rates the NFCC, lie score, and can measure subcategories: order, predictability, decisiveness, ambiguity, and close mindedness. This survey measures the participants need for cognitive closure which influences their actions within the PLC.

Value Questionnaire 5X Value Survey

The PVQ5X measures the participants' value portrait, which then can be divided into the two dimension scale of interest in this study: openness to change vs. conservation. This measure was assigned a six-point Likert scale and includes 46 items. The items are separated by ten values from Schwartz value theory (Bar-Tal, Raviv & Spitzer, 1999a; Bar-Tal & Spitzer, 1999b; Sagiv & Schwartz, 2000; Schwartz, 2014; Schwartz, 1999; Schwartz et. al, 2012; Schwartz, Struch, & Bilsky, 1990). This measure was administered to all teachers and school leaders in all school cases. Both measures within the theoretical framework continuum (openness to change/ low NFCC vs. conservation/ high NFCC) were compared to determine criterion validity.

Demographic and Information Questionnaire

A demographic sheet was administered to all participants through an online measure. This is included in the appendix. This information sheet includes information that was utilized to determine sociograms in school workgroups and the school. Open-ended questions about the implementation of PLCs were also included for teacher input.

Sociograms

Sociograms or sociometrics are not commonly used in educational leadership research, and in this instance, require some explanation. Sociograms are one measure used in sociology and psychology to diagram relationships among groups (Scott, 2017; Garcia-Mararino et. al, 2016; Baiardi, Gultelsin, & Brush, 2015; Derks, Oetsch, & Walker, 2014; Rapoport & Horrath, 1961; Moreno, 1953; Moreno, 1941). The first used sociograms were used by Jacob Moreno during World War One to determine relationships that caused the war to spread worldwide (Scott, 2017; Moreno, 1953; Moreno, 1941). He said that every individual is a social atom, reacting through attraction and repulsion from other social actors; this phenomenon could only

be understood through study of the whole group of people influencing each social atom (Moreno, 1953; Moreno, 1941). For Moreno (1941), the study of social relationships during the course of said relationships was new to the field of psychology, "allowing study of the patterns of relationships of all the individuals within the structure" (p. 17). The first well-known study which included sociograms was the Hawthorne study, which studied Chicago factory workers to determine better efficiency, and created the Hawthorne Effect (Scott, 2017). Sociograms have been used in multiple disciplines; some, but not all, areas of study include sociology, organizational psychology, business, and health care fields (Scott, 2017; Garcia-Mararino et. al, 2016; Baiardi, Gultelsin, & Brush, 2015; Derks, Oetsch, & Walker, 2014; Rapoport & Horrath, 1961; Moreno, 1953; Moreno, 1941). According to Baiardi et. al (2015), a sociogram is a picture which "allows this researcher to see, as well as hear, who is shaping and dominating group discourse" (p. 585).

Using three to many questions which identify members of the group and their influence, sociograms can be one vehicle to determine relational context. For example, one question asked on this measure was, Name a person from your PLC that you would like to complete a project. From this example, we can determine who the participant feels has the most knowledge, works hard, and gets along with others. In essence, who the participant is willing to allow influences them within the group. Sociograms for each workgroup were constructed through information provided on the demographics page. Additionally, this information determined the relational context of PLCs through the framework continuum. The sociogram measure used pilot testing to determine its reliability.

Other Artifacts

Information from each school, including SOL testing scores, school community information, and artifacts collected during my visits to the school were included in data collection. Also, the audit trail included all information, researcher and analysis notations. These items added thick description to the essence of the study.

Procedures

In this bounded multiple case study that focuses on the implementation of PLCs in three middle schools within one Southeastern Virginia school district, five main data collections were used: (1) interviews, (2) the Need for Closure Scale, (3) the Portrait Value Questionnaire 5X,(4) open-ended survey questions and (5) sociograms of selected PLCs and the administrative team of each school. These data collection processes, along with other collected artifacts, were analyzed to develop codes and determine main themes.

Permission to conduct this research was presented to the internal review board of Old Dominion University. The proposal to conduct research included required information about the study along with all procedures and a draft informed consent form for IRB review (Creswell, 2007; Hays & Singh, 2012; Merriam, 2009). After approval from the IRB, approval from the school district and the three principals of the middle schools selected as the sample was obtained through school district procedures and phone calls to all three principals.

First, interviews with the principal of each school and two assistant principals were conducted. Participants in these interviews were contacted by phone to set up an interview date and time. Interviews took place at the participant's school to add comfort and ease for the participant (Hays & Singh, 2012). For example, on August 22, 2016, I arrived at Green Middle at 9:00 a.m. to interview the principal. The interview began as I started two recording devices

and read the interview protocol, which included information about confidentiality, the ways data analysis would be utilized, and obtainment of his voluntary participation. This participant was asked if he had any questions on any of the information given before the interview questions were asked. All other school leader interviews were conducted in the same manner. Once these interviews were completed and transcribed, the data were analyzed through open coding and clustering. The following procedure for school leaders was used to analyze these interviews: (1) listen to the school leader interviews three times, (2) listen to each group of interviews and take notes on possible codes, (3) label interview transcriptions into possible codes, (4) list codes and continue analysis to cluster codes into themes. The order in which the school leader group of interviews were listened to was changed each time: (1) in order of date conducted, (2) by school, and (3) by job position (principals then assistant principals). This procedure allowed for varied analysis and a higher level of integrity in axial coding.

Second, school leaders and teacher members of PLCs were asked to voluntarily complete a survey measure in an online format. This survey included the following data collections: demographic and open ended questionnaire, sociogram questionnaire, the Need for Cognitive Closure Scale and the PVQ5X. In each middle school case, I obtained entry through grade level meetings, which are held once a month during the planning time for grade level teachers. In each case, a school leader introduced me. Voluntary participation and the ability to halt their participation at any time was explained to participants. Information about the study was also explained, including the reason, a brief description of the openness to change/ low NFCC vs conservation/ high NFCC continuum, and each participant was offered a final summation of results when the research concluded (Creswell, 2007). I explained that analysis of schoolwide results would be shared with the principal, but analysis from individual PLCs or individuals

would not be shared with the principal and names would not be used in reported results. Participants were asked if they had any questions on any of the information given before the data were collected. My presentation took approximately five minutes in each grade level meeting. Meetings were held in the same room (media center classroom) in both Yellow Middle and Blue Middle. On April 26, 2017, I attended grade level meeting at Green Middle. These meetings were held at the following times: 9:45 a.m. for eighth grade, 11:45 for seventh grade, and 1:35 for sixth grade. Meetings were attended by approximately 15-18 teachers and included my presentation, information from the technology integration specialist about the google classroom, and other information unique to each grade level. In the other two cases, times and number of teachers attending grade level meetings were similar. The online measure was administered voluntarily through an email the following day to both school leaders and teachers that participate in PLCs. I sent this email in each case except Green Middle, in which the principal asked to send the email on my behalf.

Next, SPSS was utilized to analyze the two psychology measures included on the online survey, the Need for Cognitive Closure Scale and the PVQ5X value questionnaire. Procedures for analyzing these measures are included in Table 3.2 below.

Table 3.2. SPSS procedure for need for cognitive closure scale and PX5VQ value questionnaire.

Need for Cognitive Closure Scale	PX5VQ Value Questionnaire
Reverse score for items (list items)	Tally average for individual subcategories
Sum lie score for all participants	Tally average for ten value scores
Delete four cases that exceed lie score	For focused PLCs (8), compute value profiles
Add all scores	
Determine quadrant placement on bell curve	
Complete subscores for order, predictability, decisiveness, ambiguity, and close-mindedness.	

Third, the interview protocol for teacher interviews was developed through the initial analysis of the school leader interviews and the open-ended questionnaire online survey information. Once again, the interview protocol included information about voluntary participation and how data would be used. Teachers were asked if they had any questions about information included in the interview protocol as well as if they consented to participate voluntarily. Once informed consent was met, the interviews began with one main prompt: please tell me about the implementation of professional learning communities in your school. Areas of interest were included to guide the interviewee, like *leadership within the PLC* and *change in classroom instruction*. These interviews proved invaluable to the research, adding thick description and depth to the phenomenon. Concurrent to teacher interview collection and analysis, analysis of the administrative teams for all cases was conducted. The analysis of administrators followed the SPSS analysis procedure listed in Table 5. Data from this analysis were used to review possible codes and emerging themes.

Finally, sociogram questions were analyzed and sociograms were created for all PLCs that included a teacher interview and all members of the PLC participating in the online survey after teacher interviews were concluded. Eight sociograms from current PLCs were documented, as well as sociograms for all three administrative teams. One interview with the reading resource teacher at Blue Middle included information about seventh grade English PLC; this PLC sociogram was unavailable to be charted in a sociogram, however, since not all members of the PLC participated in the online survey. PLC sociograms are included in chapter 4.

The process of open, axial, and selective coding was included in the audit trail so that an outsider will understand the reasoning for the findings. Also, the audit trail was kept in a locked

file cabinet and an expert in the field acted as auditor of the audit trail. Constant comparative analysis, findings, codes, and major themes are presented in chapters four and five.

Data Analysis

In qualitative research, data collection and data analysis often occur simultaneous throughout the research (Glaser & Strauss, 1967). During the initial research, I read and coded the data to discover emerging commonalities. Preliminary codes were created and included in the audit trail. Through a process of constant comparative analysis, open, axial, and selective coding procedures were utilized to group similar texts and other data (Glaser & Strauss, 2012). Through clustering, subthemes and major themes were determined. Once the data collection and analysis were completed, selective coding was used to determine the major themes presented in chapter 4.

To begin this analysis process, school leader interviews were transcribed using an online transcription service, rev.com. Transcriptions included additional audible sounds, like laughter, affirmative prompts, sighing, and word repeats or stutters. After the transcription of the initial interviews were in print form, transcriptions were placed in a binder by school. Providing an accurate and informative transcription ensured the qualitative analysis provided thick description of the phenomenon.

Analysis of interviews was a process of discovery for this researcher. Initial analysis of school leader interviews included placing information in one paragraph sections on index cards. These codes were color coded by school (blue, yellow, and green index cards). Answers from the open-ended questions from the online measure were placed on purple index cards as this measure was completed for teachers when initial data analysis began. Once analysis using the index cards began, I soon realized this was not a workable analysis system for me. The

procedures for analysis were changed to include reading the printed answers for open-ended questions from the online survey and analyzing towards initial codes. Analysis methods for school leader interviews were changed to include the following procedure: (1) listen to the school leader interviews three times, (2) listen to each group of interviews and take notes on possible codes, (3) label interview transcriptions into possible codes, (4) list codes and continue analysis to cluster codes into themes. Each time school leader interviews were listened to, it followed a different pattern: (1) by order of date interviewed, (2) by school, and (3) by level (principal and assistant principal). This initial continuous data analysis and coding was used to define initial codes, start to develop themes, and develop the teacher interview protocol.

The interview protocol for teacher interviews was developed through the initial analysis of the school leader interviews and the open-ended online questionnaire survey information. The same procedure for school leaders was used to analyze teacher interviews: (1) listen to the school leader interviews three times, (2) listen to each group of interviews and take notes on possible codes, (3) label interview transcriptions into possible codes, (4) list codes and continue analysis to cluster codes into themes. One change in procedure must be noted. The auditory analysis by which interviews were listened to before notes and possible codes were labelled was as follows: (1) order by date interviewed, (2) by school, and (3) by core subject. Core subjects were listened to in this order: two math teachers, four English teachers, one civics teacher, one science teacher, and one reading resource teacher. This process allowed analysis of the data in different ways and ensured the auditory analysis process did not become rote, reducing the likelihood of missing data for possible coding.

Voluntary participation was recorded in interviews and included within transcriptions. Teacher interviews were based on the convenience of the teacher; five interviews were held in

person at the location of the teacher's choice and four interviews were held over the phone at the time and date selected by the teacher. For example, the special education teacher from Blue Middle math 8 PLC was interviewed on August 22, 2017 at 7:30 p.m. This interview was held in her home while her family was not present. On September 14, 2017, the teacher from Green Middle English 6 PLC participated in a phone interview at 2:45 p.m., her planning time, during the regular school day. Interviews lasted an average of eleven minutes each. I asked teachers for interviews through phone calls and school emails. Contact information was gathered through school and district human resources. Transcription was completed using an online transcription service, rev.com. Teacher interviews yielded a different perspective on leadership and relationships within PLC implementation, adding complexity to the thick description of the phenomenon. The data from these interviews were analyzed with other data sources through open coding and clustering to develop initial codes and main themes.

Analysis of teacher interviews and the two measures, NFC scale and PVQ5X, were analyzed concurrently. Teachers and administrators from each school case voluntarily completed the online survey using a google survey document and answers were collected using an excel file. Before analysis of each measure began, two important factors were completed to ensure the file was ready for analysis. First, the NFC measure included reverse scores for 16 items (see appendix C). This was completed in the SPSS file. Secondly, the NFC measure included a lie score using five items. The sum of these items was found for each participant. The lie score showed that four cases exceeded the lie score, two cases at Green Middle and two cases at Yellow Middle. These cases were deleted from the file, as well as the lie score items. Participation rates were calculated prior to deleting cases based on the lie score. Total participation was 68.75%. Individual case participation was as follows: Green Middle (40

participants/ 61 possible participants) was 65.57%, Blue Middle (34 participants/ 51 possible participants) was 66.67%, and Yellow Middle (47 participants/ 64 possible participants) was 73.44%. Two weeks after the initial email with the survey link was sent to staff, a follow-up email was sent again asking for voluntary participation. A third email was sent in August 2017 to three administrators who did not initially complete the online survey; all three completed the survey after the third email was sent.

The order in which each measure was manipulated in SPSS in included in Table 5 above. Analysis for the NFC scale began with the additional of all questions to yield a score between 42-252. This score was determined from 42 items on a six-point Likert scale. Four quadrants were created from the score range and cases were analyzed to determine quadrant on a traditional bell curve. All scores except two fell in the third and fourth quadrants. The two included in the second quadrant were one point shy of the third quadrant. Next, I analyzed five subgroups: order, predictability, decisiveness, ambiguity, and close-mindedness. These scores were analyzed through descriptive statistics to determine patterns.

The PX5VQ value questionnaire was analyzed to determine placement on the theoretical continuum discussed in chapter two. Two to three questions were used to create subcategories, some of the ten values included multiple subcategories. For example, the value of conformity was determined by finding the average of the conformity-rules (two questions) and conformity-interpersonal (three questions). The averages of both subcategories were then averaged to determine the score for conformity. Once all ten values were determined, the averages for each value within the dimension of conservatism (tradition, conformity, and security) were averaged to find its value. The same procedure was used for openness to change dimension using the values of self-direction and stimulation. The initial analysis of these measures yielded a flat

result when compared to the theoretical continuum scale presented in chapter two, but did yield other important findings during analysis that provided thick description of the phenomenon when PLC members' individual value profile was charted. These charts with value portraits and the results from both measures are included in chapter 4.

Using information from the demographics sheet (grade and subject), PLC group members for each school were identified and grouped. For PLCs that corresponded with the teacher interviews, sociograms were created and analyzed using the sociogram questions. Sociograms were labeled by school, subject and grade; for example, the sixth grade English PLC from Green Middle was labeled as English 6 Green. Circles were utilized to create sociograms; members with more power were given larger circles and members with less power were given smaller circles. Arrows were used to show relationships, either one-way or reciprocal. Sociograms of each administrative team were also created from the sociogram questionnaire. Following the procedure for sociograms with teachers, each administrative sociogram was labelled and created for further discussion in chapter four.

In qualitative data analysis, issues of validity and reliability are resolved through trustworthiness and triangulation (Creswell, 2007; Glaser & Strauss, 1967; Hays & Singh, 2012; Merriam, 2009; Patton, 2015; Rubin & Rubin, 2012; Yin, 2009). Trustworthiness is achieved through multiple data collections and rigorous analysis (Creswell, 2007; Glaser & Strauss, 1967; Hays & Singh, 2012; Merriam, 2009; Patton, 2015; Rubin & Rubin, 2012; Yin, 2009). In particular, the use of researcher field notes and the codebook allow an outsider to understand the reasoning I used in the data analysis for themes. Researcher field notes were kept in order to ensure that my viewpoints on the educational system, school district, or schools did not bias the analysis in such a way that trustworthiness was compromised, adding strength to the

trustworthiness of the findings. Triangulation was achieved through the design, a bounded multiple case study, and the multiple sources of data, including interviews, surveys, and sociograms. Additionally, the layering of data from multiple cases and multiple participants in different positions within each case adds strength to triangulation. Interrater reliability will also be used as another expert in the field will used the data collection to verify themes and serve as auditor of the audit trail, once again verifying the trail of data and understanding of the findings.

Limitations

The fact that this research is a bounded case study creates the issue of generalizability. However, a bounded multiple case study is warranted as the PLCs were implemented mid-year by the district in all middle schools and the data collection timeline was conducive to the implementation of the new initiative, reflection by participants, and time for changes to become imbedded in the school environment. While this research cannot be generalized to all middle schools, it can be generalized to the other seven middle schools in the district. Additionally, , broad themes show the influence of new initiatives in middle schools outside the district, which can then be utilized to determine the best way to secure fidelity of new initiatives. Additionally, my initial proposal included sociogram analysis the incorporated both the NFC scale and the PX5VQ value questionnaire to determine where participants fell on the theoretical framework of high NFC/conservation vs. low NFC/openness to change continuum. The data analysis did not suggest differences in data to a degree to ethically determine participant placement. More research is needed to determine if this proposed continuum is a determining factor of workgroups within the context of schools. Further research into workgroups in the educational environment which are required to implement new initiatives within a complex, polarized environment is

warranted to increase the understanding of the complex environment of school workgroups and the relationships within that influence instructional change.

Chapter Four

Data Analysis

This chapter presents four main themes that emerged from the data analysis using a bounded case study design. The four main themes are vertical vs. horizontal structures, school leader involvement, school culture structures, and sustained change. A conclusion provides further discussion of the themes presented, noting effective conflict mediation as a possible gateway factor to sustained change in practice and student achievement.

Vertical vs. Horizontal Power Structure

Schools are created within a vertical organizational structure. However, this research noted a different structure within PLC implementation. While school leaders used a vertical and horizontal power structure, PLC member teachers only used a horizontal power structure within PLCs. Therefore, the first major theme is vertical vs. horizontal power dynamic. Figure 4.1 shows this power relationship. School leaders often see power through a vertical relationship, with district leaders assigning tasks and initiatives to school principals, who then assign tasks to assistant principal to accomplish these tasks and initiatives, and who then assign tasks to teachers and other staff. In this data analysis, some teachers reported all members of the PLC have equal power, which in the organizational structure of the PLC, they should (Barton & Stepanek, 2012; Dufour, Dufour, Eaker & Many, 2013; Glickman, 2002; Leclerc et. al, 2012). This power points to a vertical vs. horizontal dynamic. While teachers work within a horizontal power relationship almost indefinitely, school leaders work within both power dynamics dependent on their role as PLC member or school leader. When school leaders are acting as PLC member, they view their power as the same as the other members in almost all cases. In this way, school leaders follow a

different power dynamic inside and outside the PLC while teachers follow a horizontal power dynamic.

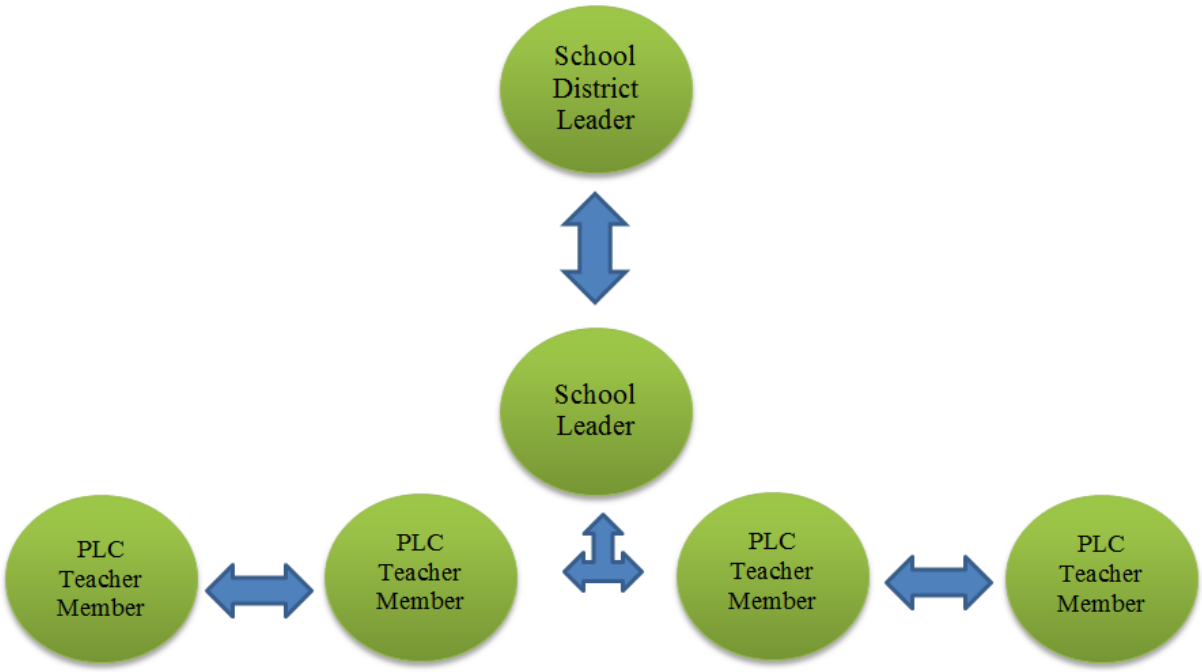

Figure 4.1 Vertical vs. horizontal power dynamic.

School Leaders: Vertical and Horizontal Power

To illustrate this power dynamic, an analysis of the verbiage used by school leaders is warranted. The Yellow Middle assistant principal discussed her role as an instructional leader by using "my" and "I"; she switches to "we" when discussing PLCs. "So my role in that as an instructional leader in the building, as I said, is being an active participant and making time in my day to make sure that I get to those meetings, that we look at our benchmark data, that we celebrate our successes and look at our weaknesses," she reported. Green Middle Principal reported, "The principal has to demonstrate that they're the instructional leader for PLC's. That you know, I have to get to talk the language and know what's going on. Then empower other people to help me, because I can't do it all." In this quote, the principal works within both power dynamics; he reported about his authority as the instructional leader, but quickly reverted to a

horizontal power dynamic, willing to share his instructional authority with others. Another interesting example for the Green Middle principal came from a training he conducted with his staff. One of the English PLCs turned to each other and starting discussing how they would incorporate the new strategies into their instruction, no longer paying attention to the principal presenting:

> "And to me that was wonderful. It didn't bother me so much that what I was saying wasn't important, but that they were taking ownership of instruction and that they were open to a concept from me that led them to take off and to grow. To me that's what Professional Learning Communities are about because it's a collaborative piece. And I think many times for a principal or other administrator speaking, the thought is that it's top-down."

Teachers: Horizontal Power

Teachers mostly work on a horizontal power dynamic. All teachers reported collaboration and often, shared leadership. At Green Middle, PLC roles are switched each nine weeks, so everyone has the opportunity to have the role of leader. Wendy, a sixth grade English teacher, said, "Everybody knows what they're responsible for and each week you know what your task is. And then we rotate those every nine weeks, so that everybody gets a chance to participate in every one of those tasks." Wendy previously came from a school where roles were not predominant. She reported that her current PLC, with definitive roles, was more focused and "runs smoother." All members of the Green Middle English 6 PLC reported equal relationships with all other members, indicating shared leadership and horizontal power dynamic. The NFC Scale did not indicate an influence on PLC implementation. NFC scale scores ranged from 126-175, with a possible range from 42-252. Values for both openness to change and conservation

did not seem to influence member interactions and decision making. However, the data suggested the power value did have an influence on the relational context of the PLC. The value portrait revealed that all members rated the value of power as the lowest or next to lowest rated value, indicating a possible influence on collaboration through a horizontal power dynamic. The English 6 PLC sociogram (Figure 4.2) and value profile (Table 4.1) are included below.

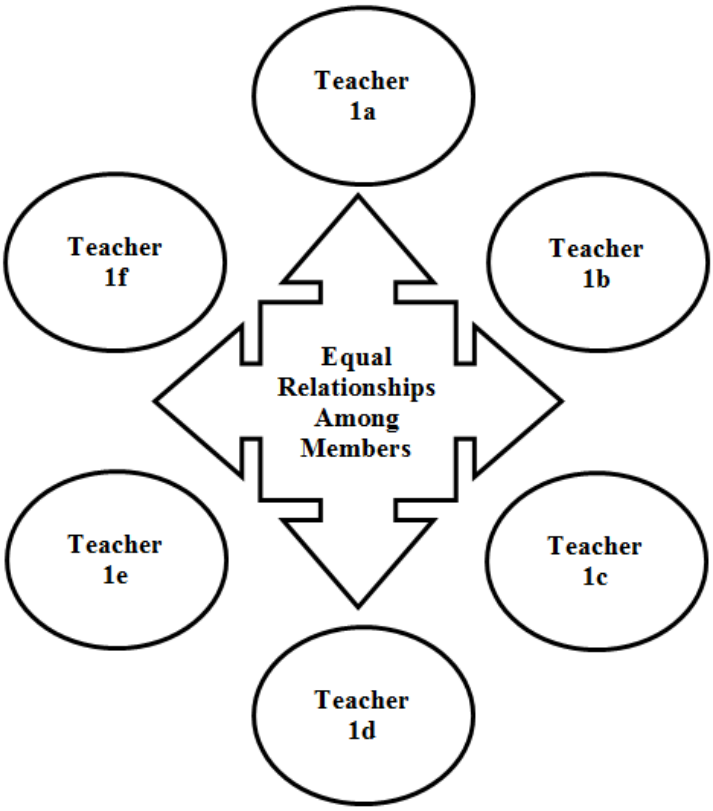

Figure 4.2. Green Middle English 6 PLC sociogram

Table 4.1. Green Middle English 6 PLC members' portrait value profiles

1a	1b	1c	1d	1e	1f
Achievement	Hedonism	Benevolence	Benevolence	Benevolence	Benevolence
Hedonism	Security	Conformity	Hedonism	Hedonism	Security
Self-direction	Tradition	Security	Stimulation	Conformity	Achievement
Stimulation	Benevolence	Hedonism	Security	Stimulation	Hedonism
Security	Conformity	Stimulation	Tradition	Self-direction	Conformity
Universalism	Stimulation	Self-direction	Universalism	Universalism	Universalism
Benevolence	Self-direction	Universalism	Self-direction	Tradition	Tradition
Conformity	Universalism	Achievement	Conformity	Security	Stimulation
Power	Achievement	Tradition	Achievement	Power	Self-direction
Tradition	Power	Power	Power	Achievement	Power

Pink= openness to change value dimension; blue= conservation value dimension; yellow= power value

Multiple PLC leaders. The science 7 teacher, Andrea, reported that as the leadership changes each nine weeks, the PLC meets in the new leader's classroom. She also reported that the leadership, while being shared, was distributed evenly with all three members of the PLC. The sociogram for this PLC (Figure 4.3) shows a horizontal power dynamic and additionally, the value of power was a lesser rated value in all three members' value portrait. Both the sociogram and member's value portrait (Table 4.2) are included below. In this PLC, while the sociogram and value portraits showed the same trend, a leader was identified, but did not demonstrate more power than other members. An identified leader with no more power lends support to the horizontal power dynamic. Once again, the values for openness to change and conservation values did not seem to influence the functionality of the PLC, but the power value from Schwartz's value theory did indicate an influence. PLC members' NFC scores ranged from 155-163, which suggested NFC did not have an influence within this PLC.

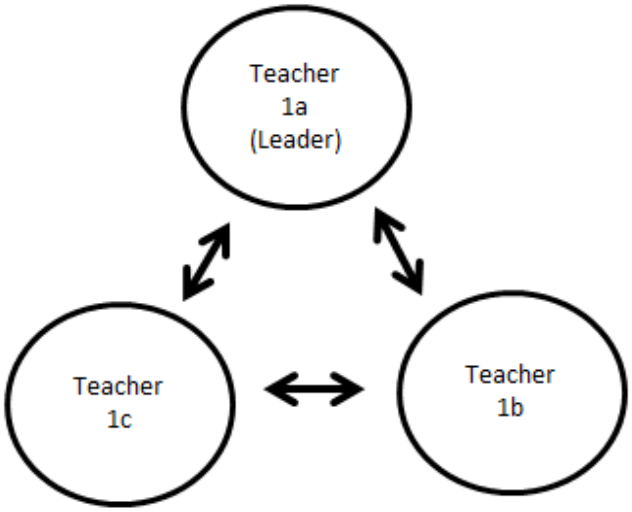

Figure 4.3. Green Middle science 7 PLC sociogram

Table 4.2. Green Middle science 7 PLC members' portrait value profiles

1a	1b	1c
Achievement	Benevolence	Benevolence
Hedonism	Conformity	Hedonism
Self-direction	Security	Stimulation
Stimulation	Hedonism	Security
Security	Stimulation	Tradition
Universalism	Self-direction	Universalism
Benevolence	Universalism	Self-direction
Conformity	Achievement	Conformity
Power	Tradition	Achievement
Tradition	Power	Power

Pink= openness to change value dimension; blue= conservation value dimension; yellow= power value

One PLC leader. In the Yellow Middle History 6 PLC, the identified leader was Jenny. She has led the PLC since the initial phase. She was also the department chair. She said:

> "I've been teaching the subject long enough and, and longer than anybody else that's in our PLC. I think... I was the original leader. This year I've kinda taken a step back, I wanted to be the recorder. I wanted someone else to kinda take control and go with it.

That way… we can modify, we can change some things up. Not like I've always done it, but maybe even, you know, look at it from a fresh advantage point."

While the PLC still identified Jenny as the leader, the horizontal power dynamic was seen through both the sociogram and members' portrait value profiles. This sociogram is similar to the Green Middle science 7 PLC, with horizontal leadership shown through the relationships in the sociogram. The difference between this PLC and Andrea's above is that leadership was constant for a long time, showing that horizontal power may not be influenced by a structure designed for shared leadership, but by the members value system themselves. Again, the NFC Scale did not indicate an influence on the PLC implementation; members' NFC scores ranged between 143-169. The sociogram (Figure 4.5) and member's portrait value profiles (Table 4.3) are included below.

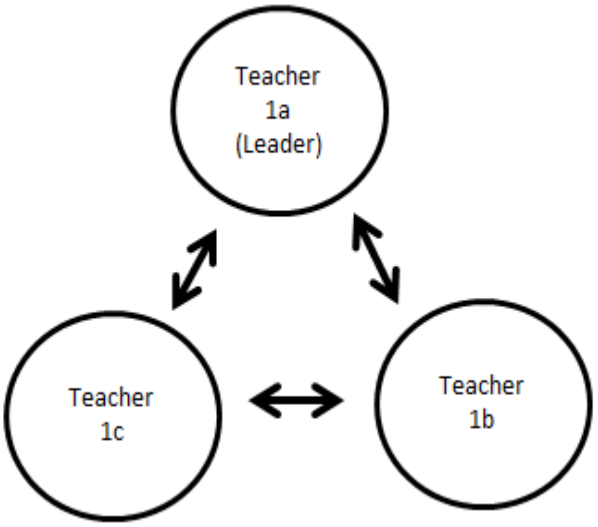

Figure 4.5. Yellow Middle history 6 PLC sociogram

Table 4.3. Yellow Middle history 6 PLC members' portrait value profiles

1a	1b	1c
Benevolence	Security	Benevolence
Tradition	Benevolence	Conformity
Security	Hedonism	Security
Conformity	Conformity	Self-direction
Hedonism	Stimulation	Stimulation
Achievement	Self-direction	Hedonism
Self-direction	Universalism	Universalism
Stimulation	Tradition	Achievement
Power	Achievement	Tradition
Universalism	Power	Power

Pink= openness to change value dimension; blue= conservation value dimension; yellow= power value

Unbalanced Power Indicates Lessened Implementation. Horizontal power dynamic was not indicated in the Blue Middle Math 8 PLC. The special education teacher from this PLC reported that the PLC was "not productive." She reported:

> "There is one person who is our department head, who basically takes over the leadership, and she's the one that fills out the form for our PLC that day. Um, the rest of us kind of sit around her and we have a time keeper as well as someone (laughs) who, um, keeps everybody on track. And I'm not going to lie, there are people there that grade papers, but it kinda just happens."

Important to note was that the interviewed teacher reported while the PLC was not productive, and this breeds conflict within the group, "no one does anything about it." In viewing the sociogram and portrait value questionnaire for this PLC, everyone in the group identified the leader as the math department head. In the portrait value profile, two members of the group (1b and 1c) rated power as the eighth value, which is much higher than the special education teacher (1d) and the leader (1a), who rated the value of power as the least rated value (Table 4.4). The sociogram (Figure 4.6) indicated that the leader has a relationship with one member of the group

that values power more than herself. Additionally, all members looked to the leader, but did not indicate a relationship with any other member. This suggested that the group may be dysfunctional, because it has not built trust by dealing with conflict and building relationships. Therefore, an environment conducive for productive instructional conversations has never been developed, which is essential for sustained instructional change. The NFC scores for this PLC members ranged from 152-196, indicating no relationship with the findings.

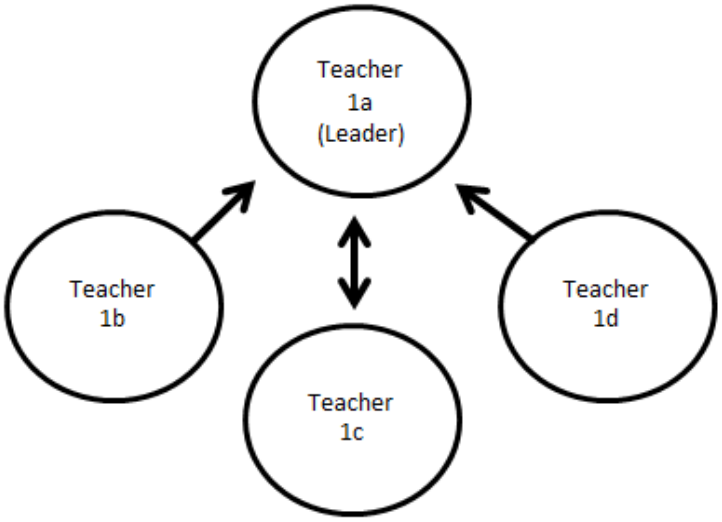

Figure 4.6. Blue Middle mathematics 8 PLC sociogram

Table 4.4. Blue Middle mathematics 8 PLC members' portrait value profiles

1a	1b	1c	1d
Benevolence	Universalism	Hedonism	Benevolence
Security	Benevolence	Self-direction	Tradition
Self-direction	Tradition	Stimulation	Conformity
Conformity	Conformity	Benevolence	Security
Universalism	Self-direction	Security	Hedonism
Tradition	Security	Achievement	Stimulation
Stimulation	Stimulation	Universalism	Universalism
Achievement	Power	Power	Achievement
Hedonism	Hedonism	Conformity	Self-direction
Power	Achievement	Tradition	Power

Pink= openness to change value dimension; blue= conservation value dimension; yellow= power value

School Leaders: Organizational Structure Influence

In the case of school leadership teams, the power dynamic was not defined clearly by the sociograms or the portrait value profiles. This brings into question the power dynamics within school leadership teams. This difference between subject and grade specific PLCs and school leadership teams could be due to multiple factors, including the definitive organizational structure differences. In PLCs, teachers are on the same organizational level. In school leadership teams, a structure of principal as vertically higher than assistant principals within the organizational structure exists. While PLCs have the opportunity of shared power, the school leadership team has authoritative power built in. The school leadership team, functioning on an established vertical power structure, may not have as much opportunity for shared power because the principal makes the final decisions on instructional issues and assigns instructional tasks to the team. Below are the sociograms and portrait value profiles for the school leadership teams at each school case.

In both the Green Middle and Yellow Middle school cases, the principal was reported as the leader of the school leader PLC. Each case also reported one assistant principal that did not have a reciprocal relationship with other members of the team, suggesting that this member of the team has less influence over the other members. It cannot be determined the possible reasons for this similarity in school leader cases, as value profiles, NFC score, and the openness to change vs. conservation values did not indicate a pattern or trend across cases. However, the power value did suggest some influence in each school case. Power structure in the Green Middle case suggested the principal has more power than the rest of the team; the assistant principals follow the same pattern seen in PLCs with successful implementation above. This could be due to years of experience, as all three assistant principals have been in school

leadership for less than five years while the principal has over twenty years of school leadership experience.

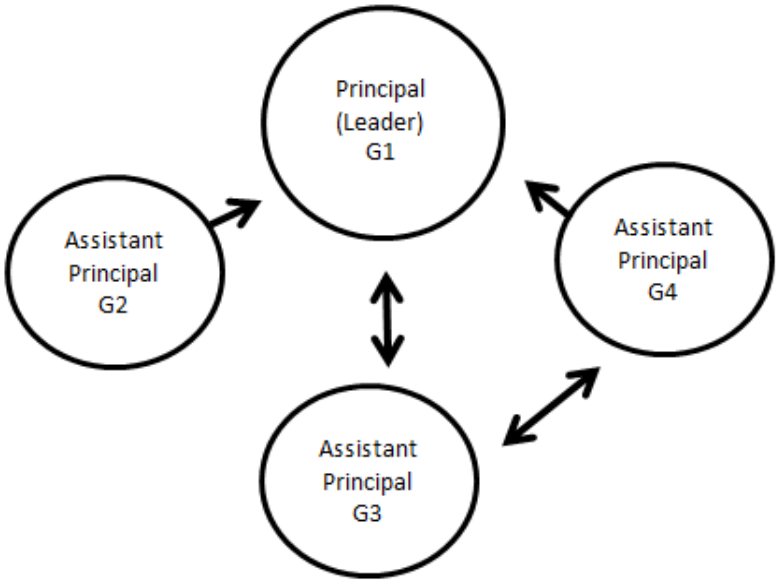

Figure 4.7. Green Middle school leadership team sociogram

Table 4.5. Green Middle school leadership team members' portrait value profiles

G1	G2	G3	G4
Benevolence	Hedonism	Benevolence	Benevolence
Self-direction	Security	Security	Security
Security	Benevolence	Hedonism	Conformity
Universalism	Conformity	Self-direction	Tradition
Conformity	Achievement	Conformity	Hedonism
Hedonism	Stimulation	Stimulation	Stimulation
Achievement	Self-direction	Achievement	Universalism
Power	Tradition	Tradition	Self-direction
Stimulation	Universalism	Universalism	Power
Tradition	Power	Power	Achievement

Pink= openness to change value dimension; blue= conservation value dimension; yellow= power value

In the case of Yellow Middle, the power value was rated as the least valued among all members. It cannot be determined what influence this has on PLC implementation, but this

finding suggested that the school leader PLC functions on a horizontal power structure more often than the other school cases.

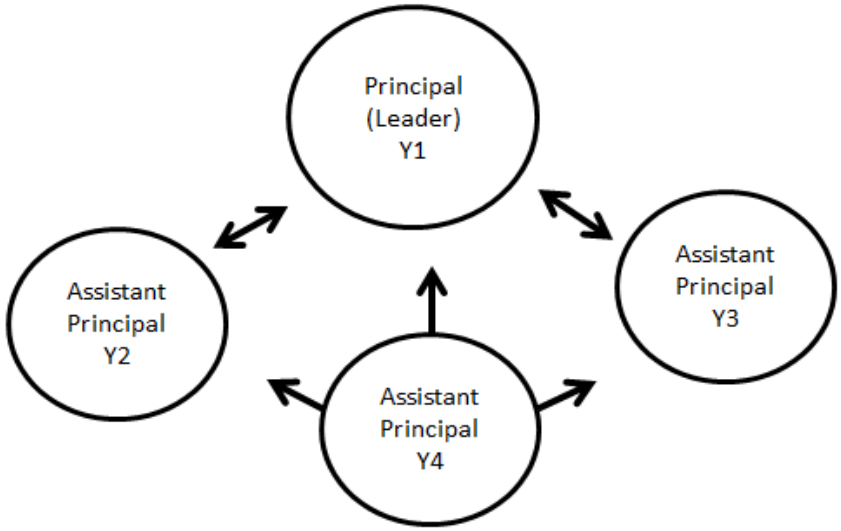

Figure 4.8. Yellow Middle school leadership team sociogram

Table 4.6. Yellow Middle school leadership team members' portrait value profiles

Y1	Y2	Y3	Y4
Benevolence	Benevolence	Security	Hedonism
Conformity	Hedonism	Benevolence	Benevolence
Security	Security	Tradition	Security
Self-direction	Stimulation	Hedonism	Stimulation
Hedonism	Self-direction	Stimulation	Achievement
Tradition	Achievement	Universalism	Self-direction
Stimulation	Tradition	Self-direction	Tradition
Achievement	Conformity	Conformity	Conformity
Universalism	Universalism	Achievement	Universalism
Power	Power	Power	Power

Pink= openness to change value dimension; blue= conservation value dimension; yellow= power value

Unbalanced Power Indicates Lessened Implementation. The Blue Middle school case was different from the other two school cases' school leader PLCs. In this case, the leader was identified as an assistant principal by all members. The sociogram (Figure 4.9) suggested a

reciprocal relationship among the principal and two assistant principals, but not with the assistant principal identified as the leader. The power structure of this school leader PLC was similar to the Green Middle power structure. The differences between the sociogram and the power value structure could possibly suggest a school leader PLC with less PLC implementation as the other two school cases.

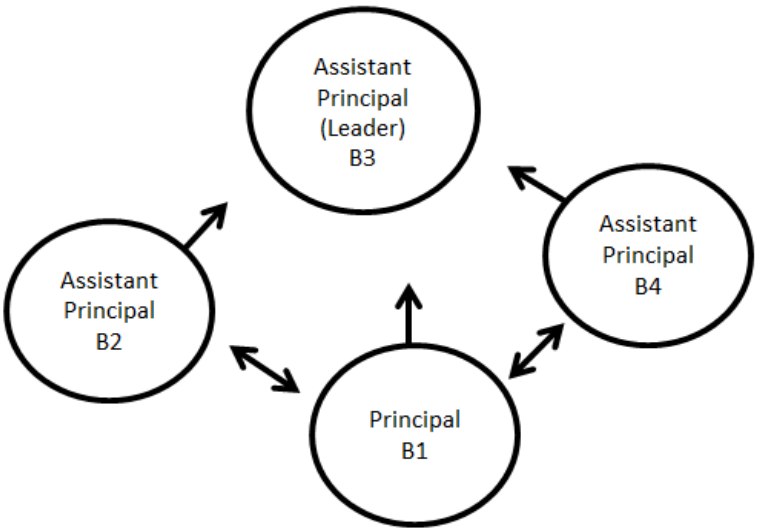

Figure 4.9. Blue Middle school leadership team sociogram

Table 4.7. Blue Middle school leadership team members' portrait value profiles

B1	B2	B3	B4
Benevolence	Tradition	Hedonism	Hedonism
Hedonism	Hedonism	Self-direction	Self-direction
Power	Security	Benevolence	Security
Security	Benevolence	Security	Conformity
Self-direction	Conformity	Universalism	Tradition
Achievement	Self-direction	Conformity	Benevolence
Stimulation	Achievement	Tradition	Stimulation
Conformity	Universalism	Stimulation	Achievement
Universalism	Power	Achievement	Universalism
Tradition	Stimulation	Power	Power

Pink= openness to change value dimension; blue= conservation value dimension; yellow= power value

Power value ratings influence on implementation

While the Need for Closure scale did not suggest an influence over the findings, the value profiles of the PLC members did show an influence of the power value with the reported implementation of the PLC. The power value did not correspond with any values in either the openness to change value dynamic or the conservation value dynamic, suggesting that in the continuum discussed in chapter two, these value dynamics and the Need for Closure scale did not influence PLC implementation. In each example of a reported productive PLC, the power value was rated as the lowest or next to lowest value. In the PLC that was reported as unproductive, the power value was lowest for the leader and rated higher for two of the other three members. Additionally, in the PLC sociograms reported, more relationships among members were shown, suggesting more productive collaboration toward instruction change. School leader sociograms and value profiles did not indicate any trends or patterns. This may be due to the established power structure that already exists through the vertical power structure and the organizational structure of the school district.

School Leader Involvement

The second theme was school leader involvement. This theme includes monitoring, both through attendance in PLC meetings and structures, and consistent PLC training for improvement. Previous research has indicated the need for school leaders' commitment and attention to the PLC implementation process (Barton & Stepanek, 2012; Dufour, Dufour, Eaker & Many, 2013; Glickman, 2002; Leclerc et. al, 2012; Lujuan & Day, 2010; Riveros, Newron & Burgess, 2012; Spillane, 2005; Spillane, Halverson, & Diamond, 2004; Teague & Anfara, 2012)

PLC Attendance Monitoring

Data analysis suggested PLC monitoring is influenced by the needs of the PLC and school community as a whole. Findings suggested that each PLC is unique and each PLC receives monitoring based upon its need for attendance by the school leader. For example, the principal at Yellow Middle said, "You have to come in, see what are the needs… and then you as the leader have to alter the way you're going to approach that team." She goes on to add, "It's not a one size fits all approach." The assistant principal at Green Middle agreed. "We're still at varying degrees depending on the grade level and subject," he said. "We have to continue to decide when something needs work or more monitoring," said the principal of Blue Middle. In each school case, each PLC was unique.

Attendance monitoring was defined as the attendance and participation of the school leadership during PLC meetings. At Green Middle attendance monitoring was reported more often during the initial implementation phase of PLCs. Over time, monitoring decreased. The Green Middle Principal said:

> "We went through that first year pretty well. With checking on the Subject by Grade Level teams and seeing that they were following what was going on. The aha moment came the next year which happened to coincide when everybody's English and Math skills scores plummeted. And when we knew we had to do something, the structure was plugged in through PLC's to bring scores up. And I'm saying that we became more serious and particularly in English and Math. Prior to that we had stopped in on PLC's and to be honest, some PLC's were going much better than others."

With changes to the SOL curriculum and requirements, the SOL scores fell, so monitoring again became more of a focus. "But when the scores plummeted, we came up with a plan to bring the

scores up and that point, an administrator was in every PLC meeting. So not only were we making sure our plan was in place, but also the fidelity of PLC's," reported the Green Middle Principal. He also reported that last year the school leaders went to PLC meetings less because they had other responsibilities, "but then you know you pick up little signs like less is in the minutes, and then you decide, well I need to touch base again." He also added, "last year we backed off a little bit and then I've already told my administrators this year we've got to get back on them more often."

The assistant principal at Green Middle also reported his role in monitoring PLCs through attendance. "We administrators sit in the PLCs as best we can. You can't always do that obviously, but we do go to PLCs, more strictly in observation if we need to answer any questions." He felt monitoring in PLCs was more efficient. He reports, "We can monitor it in one room as to having to monitor 12 different teachers. I've got a group of four here, group of four here, group of four here." He goes on to say, "The expression that we're all familiar with 'what's monitored gets done,' absolutely. I do believe in that."

Teachers at Green Middle also reported school leader involvement through attendance monitoring. Seventh grade special education English teacher, Susan, reported that her assistant principal, "come(s) to our PLC, and she sits, and she interjects. But she does a lot of listening." Another Green Middle teacher in seventh grade science reported about the school leadership that "they're very supportive." She said they "do pop in and participate in our PLCs on occasion." The sixth grade gifted English teacher said the her assistant principal "always comes in, I would say 90% of the time; she is able to be there for our meetings, um, but she usually kind of sits in the background and lets us, you know, do our thing." In this way, school leaders at Green Middle are attending PLC meetings in order to monitor their progress.

At Blue Middle school, attendance monitoring was also reported. "I attend PLC meetings. When I cannot go because we get double and triple booked, I have my reading specialist who will go," said the assistant principal. She reported that she participated in PLC meetings by teaching teachers the importance of alignment between what is written, taught, and tested; she gave each member of the English PLCs a checklist and graphic on this alignment. The principal of Blue Middle also reported on attendance monitoring. He said that he feels what the school leaders do is "pretty standard practice." He also said "it's unrealistic to think we're going to be in all the meetings. But I think that if you can, like anything else, if you monitor things they usually get done better or more efficiently." The reading specialist at Blue Middle recognized the time constraints for school leaders. "In the real world, that can't attend every meeting… it's not feasible in a school with 1000 students." The math 8 teacher reported that the school leader attended meetings and "takes part… but she is also pulled all over the place as well, half the time." In each school, time was a roadblock to full attendance monitoring.

This time constraint was no different for Yellow Middle. The previous structure for attendance monitoring in this school case included the grade level administrator attending PLC meetings by grade level, monitoring four PLCs which met twice a week at the same time. This structure was changed to content subject, increasing the attendance monitoring opportunities to three PLCs which met at different times twice a week. The assistant principal said, "I really prefer the actual ability to just sit in English because I'm able to, in one day, see the progression of what's happening in a sixth grade, a seventh grade, and an eighth grade… and I'm able to communicate and dialogue with them more in-depth." One seventh grade special education English teacher agreed, stating that the assistant principal " comes to our PLC frequently, um, and she goes to the other grade levels, too, so she can tell us what's working in those grade

levels." The sixth grade history teacher said that "math and the English, they get really a lot more attention," but her administrator did come to PLC meetings once or twice a month, monitoring and providing input. In this way, Yellow Middle has made more opportunities to attendance monitor PLCs, following the structure already established in the other two school cases.

Structures

Monitoring structures have been put into place for school leadership teams. The most frequent vehicle to monitor outside the PLC was through written communication, like PLC minutes. "We have fine-tuned the minutes," said Blue Middle assistant principal, stating that "they're supposed to document what they did each meeting." The principal at Green Middle went further. "The PLC minutes came out with a format that we all took a little bit to meet our needs, but it was a structure format so that everybody kind of knew what was expected," he said. PLC minutes were not only used to monitor, but to communicate back and forth between school leaders and PLC members. "If they had a question about something, you can't just ignore it," said the Green Middle assistant principal, "you type right back in… your response" and "send it back to them. (A) that gives them the response, and (B) they know you're reading it, so they know it's being monitored." While PLC minutes were used as a monitoring device and additional communication to PLCs by school leaders, Yellow Middle rid themselves of PLC minutes and created a learning map.

The learning map that was used at Yellow Middle replaced the PLC minutes, lesson plans, and data analysis form. The principal described the reasoning behind this change:

> "When I first came in last summer, one of the key things that I kept hearing from the staff members was the redundancy in the paperwork with the planning and that the lessons

> plans that they were doing were just very long and extensive. I guess my philosophy is more so that I want you to focus on the collaboration and PLC and to be able to leave with a product. Not for people to have to go back, take whatever was done at PLC and go back to their classrooms and write these long, extensive lesson plans."

Yellow Middle PLCs used the curriculum guide and pacing guide to create one unit at a time. Each day is a different line on the learning map. If the pacing guide says this unit has ten days, then ten lines will be present on the learning map. The learning map includes a "basic Madeline Hunter kind of lesson plan format of anticipatory set, I do, we do, you do, and then some sort of assessment and closing," said the principal. Data analysis was included at the end of the learning map. The assistant principal reported, "We had put something into place that we really in the end didn't find to be as beneficial as we had hoped for the teachers because it was more of a let's-just-fill-in-the-box type of thing than readily utilizing it for any purpose. So we kind of pulled back on that because we didn't want them doing something just to do something if they weren't getting anything out of it." The learning map was a way to have monitoring outside of the PLC while being a useful document for teachers, as well. "They really get to see it big picture as opposed to writing individual, long, extensive lesson plans. [It's] worked a lot," said the principal.

While the learning map is a structure in place for monitoring PLCs by school leaders, it is also an instructional structure. Green Middle school has incorporated an instructional structure within PLCs, as well. Instructional binders in English and math were created the summer after the SOL scores dropped, and ushered in a new initiative, probes. Probes are pre-tests which are used in the lowest reporting categories for the prior year by subject and grade level. The principal at Green Middle explained:

> "Now in the way we do pre-test and post-test, we decide what areas need to have pre-test based on the prior year's data and so, at the grade level of about sixth grade, their pre-tests are probably going to stay the most the same because we have limited control with what's going on in fifth grade level. What we've found in seventh and eighth grade is that we had to do fewer pre-tests because the areas that are remediating sixth grade came up."

The Green Middle assistant principal explained the purpose:

> "Now, we do pre- and post-assessments, but what we've also looked at as we have students that the prior year weren't successful and now, we're just going to move on and teach them the next-level curriculum. Where they weren't successful last year, we needed to do something. What we've done is we set up what are called probes where over the summer, we identify what skills were weak in our building the previous years. For example in sixth grade, where were they weak? Well, those connected skills in seventh grade we need to make sure everybody is up to speed so they can move on."

In this way, remediation was built in to the instructional plan. Additionally, core plus, a bell used for remediation and/or enrichment was utilized to reteach students that test low on the pre-test, or probe. Before the content is presented, students were remediated in the prior year's skill, enabling them to prepare for the new learning. This structure was planned through collaboration in PLC meetings, reports indicated. Assistant principals created binders with planning guides, last year's data, and a calendar for probes which was given to each member of the PLC. The assistant principal said of probes, "I think it helped our PLCs because they had something specific to do. They had an agenda. They had to analyze this data. They had to look at areas of weaknesses."

Both learning maps and probes are additional structures which were utilized through PLCs to improve instruction. While the assistant principal reported that she created binders for the English teachers, no additional schoolwide structures were reported. "I take the time every summer to create a binder full of information for our teachers. I put together co-teaching methods last summer and I put in the trending, low-reporting categories and SRI scores," said the Blue Middle assistant principal. All three schools used attendance monitoring, both in and out of designated PLC meeting times, to maintain an understanding of the implementation of PLC fidelity through the structures implemented in each school case. The Green Middle Principal summed up monitoring and structures by saying, "and so, it's that monitoring piece. That's what it comes down to. If they know that you're going to keep going back to what it's supposed to be, that keeps it from going off course."

From the work of Dufour et. al (2013) and others, structures have been cited as important for PLC implementation (Vangrieken et. al, 2015; Jones & Thessin, 2015; Barton & Stepanek, 2012; Leclerc et. al, 2012; Lujuan & Day, 2010; Riveros, Newron & Burgess, 2012; Teague & Anfara, 2012; Scribner & Donaldson, 2001). Structures, including built in time within the work day and group norms and roles, have been noted as providing an environment where deep conversations about instructional practice can take place, aiding in implementation fidelity (Barton & Stepanek, 2012; Leclerc et. al, 2012; Lujuan & Day, 2010; Riveros, Newron & Burgess, 2012; Teague & Anfara, 2012).

Time Constraints

While many school leaders reported difficulty attending PLC meetings due to time constraints during the day, teachers did not. PLC meetings were two designated days each week for one planning bell in all three school cases, which is a recommended structure from Dufour et.

al. (2013). A prior structure used before PLC implementation was content meetings that met twice a week for one bell. The principal of Blue Middle said, "Basically we're a spin off from our instructional meetings that we were doing, and the PLC if I'm not mistaken, started about four years ago. And the premise from it was using data to drive all of our instruction… But I think that the roles are more defined and I think that we had to get teachers [inaudible 00:03:08] to understand that it's more than planning." The Green Middle principal concurred, stating it was "an outgrowth of what we already had as grade level by subject meetings." He also reported that "the difference was probably the structure of the meetings, and what the purpose was." Using a new structure to replace an old structure was "one of the things that led to its success because we didn't have to add anything on their plate," said the Green Middle assistant principal.

Some teachers reported that they designated additional time to meet as needed. Green Middle English 6 teacher reported that her PLC tries to "fit everything in that we need to within the time that we're technically allotted, but none of us mind going over time." The Yellow Middle English 8 teacher reported that her PLC will meet a third time during the week if they need more time. She also said, "Sometimes we go over because we're so involved in what we're doing and it's good [be]cause we are being productive." At Blue Middle, the math 8 PLC was seen as unproductive by the special education teacher. She said that she thought "it would be nice to have, like, one day that there wasn't a PLC meeting to do stuff on your own, [be]cause I have so much paperwork to do." While time constraints were reported by almost every school leader, teachers mostly reported more frequently that additional time was readily given to PLCs by the teacher PLC members.

Training and Fidelity

While all school cases have attendance monitoring and instructional structures in place, each school leader recognized the need for training and improvement. Training for PLC implementation was initially a train the trainer model. At Yellow Middle, the entire school leadership changed since PLC implementation, so no data was reported. At Blue Middle, the principal reported that "we did an overview in a training session that was a joint effort with the office of curriculum and instruction and we did that at a faculty meeting after school." The assistant principal said of this training: "We introduced the topic. It has taken quite some time to get our teachers to adjust to the fact that it is not lesson planning time together."

Blue Middle had put into place a number of additional opportunities to ensure fidelity of PLCs. He reports:

> "We did other training, for instance, with smaller groups, grade level groups. We brought in supervisors the first couple years to actually attend their meetings. When I say supervisors, of course supervisors in the city to come in, in their particular subject area and sit in and see if they're going in the right direction. The other piece too is you're going to have them use data, you have to teach them how to use the data."

He also noted the importance of being honest with expectations. He said, "Follow up and training, training and follow-up… just try to fine-tune whatever program you're implementing."

At Green Middle, two introductory trainings were presented, the first by an assistant principal using a city script and the second by the Office of Curriculum and Instruction. The Green Middle principal reported, "one of my assistant principals did the first introduction to PLCs which pretty much followed the city script for it, defining roles, telling what the purpose was and we got started into it. The second time it happened the city-wide committee came. But

that wasn't probably until November or December." He said this occurred after "a couple principals asking" for this assistance. The Green Middle principal also said during the initial implementation phase, "I gave them the formal documents before the first meeting that they were to fill in. And put in writing and told them what to do. That being said, they didn't all do it." He reports he had to read the PLC minutes and he had to visit the meetings "to ensure they were implemented with fidelity." He also said that when the second training was held with the Office of Curriculum and Instruction it "cemented the deal and then we were off and running and they knew it wasn't just a whim." The principal recognizes that even though "we've put all the structures in place," fidelity was a continual process because as new teachers are hired "they have a learning curve."

The Green Middle assistant principal also spoke about fidelity when he said, "You need to stay committed to it. You need to make sure people, hold people accountable to what your expectations are." He said that a grant funded math coach influenced the level of fidelity in math PLCs. "She helped guide them along in the PLC process, not just with data analysis, but different strategies you can use in the classroom for teaching… She was here two years. By the time she left, they were pretty much running the PLCs on their own."

At Yellow Middle, fidelity was approached through specific structures. The principal said, "I was under the impression that they had already established norms and expectations and roles and responsibilities. I think they did, but one of the lessons I learned was that we need to revisit it every single year." The assistant principal also reported that "it wasn't really clear as who was doing what and sometimes what the purpose for why they were meeting." At the beginning of the school year, each PLC member completed a self-evaluation rubric on their PLC to determine their perception of the strengths and weaknesses of the PLC. All members then

brought their rubrics to a PLC meeting and the PLC came to consensus to complete one PLC rubric. "It's a powerful activity for them," she said. During completion of the PLC rubric, PLCs listed three goals for the year and established roles and responsibilities. This activity was completed at the beginning of the year. Team PLC rubrics were then used at a department head meeting to determine where additional training was needed, which was used in the staff development plan for the school. Additionally, mid-year instructional conferences were held with each teacher. "That really creates a safe space for them to kind of just be open and honest," said the Yellow Middle principal. She used information from these conferences to determine teacher placements for the next year. The Yellow Assistant Principal summed up fidelity within PLC implementation, "I think over the years we have refined how our PLCs operate and have kind of made a more focused approach than just getting everybody together and let's talk, but we've actually come together with a purpose."

School Culture Factors

The next theme that emerged during analysis is school culture. The environment of the school has a direct impact on the amount of sustained change in the instructional setting (Barton & Stepanek, 2012; Glickman, 2002; Leclerc et. al, 2012; Lujuan & Day, 2010; Riveros, Newron & Burgess, 2012; Spillane, 2005; Spillane, Halverson, & Diamond, 2004; Teague & Anfara, 2012). In this study, school culture influence was demonstrated through collaboration, an environment of trust, and constructively dealing with conflict. While these three factors were reported in each school case, each culture had distinctive characteristics. The culture of each school case is discussed below.

Green Middle School

At Green Middle School, the initial phase came with a new principal, PLC as a new initiative, and a culture that was teacher centered. One of the Assistant Principals asked the new principal to tell the staff what "he was about." The Green Middle Principal said:

> "Well I did that, but I found ... It backfired a little bit, even though it told me where I needed to work, because the staff, I told them I was child centered. The staff here were staff centered. And I quickly found that out. That they were not about what was the best thing for children, they were about what was the best thing for them."

He explained that "teachers were very much independent contractors." During a staff meeting his first year as principal, what he called "my darkest day," one of the staff members was called on, he "said Mr. Mills, we just need you to stay in your office [be]cause our test scores make you look good." The assistant principal agreed, "We had some more free agents, so to speak, that needed to fall in line with we needed to assess the students."

Environment of Trust. An environment of trust was built by breaking boundaries. "And my aha moment was that what we needed was breaking down barriers. Because the barriers were being able to be honest and sincere and for people to accept it," said the principal. "Some departments quicker than the others really took it and run with it. Math I think was the first one that really, I think in my perspective, really advanced in the PLC process and made it what it's supposed to be, what it's supposed to look like," said the assistant principal. He went on to say that when the SOLs changed and the scores fell, "Rather than go and figure it out, pointing a finger at a teacher, we looked at ourselves. What do we need to do?" This created an opportunity for change when the administrative team took full responsibility for the decreased scores. "I told the staff that scores were down, they needed to come up and I was going to take

responsibility for bringing them up rather than point my finger at them," said the principal. This plan from the administrative team included using data gathered from pre-test, or probes, to determine remediation of last year's skills before new learning of those skills took place. Each school leader presented a binder of the pre-testing plan and described the plan. "I'm not going to lie to you. I did not know how it was going to be received," said the assistant principal, but when the PLCs were accepting, he was "quite shocked with the reception I got."

Teachers also reported an environment of trust. Susan, an English 7 teacher, said, "I feel like we all value each other's opinions. We listen to each other. We all bring ideas to the table. So I mean, I think it's a really good dynamic, [be]cause we're all so different, but yet we come together as a group." Wendy, an English 6 teacher, reported her PLC was "lighthearted," but focused and "no one person tends to take over."

Effectively dealing with conflict. The principal has also broken barriers through building respect. "And I always believe that I learned as much or more from my students as they learn from me. And so if you take that same concept and apply it to teachers and administrators, then I think it makes for a good ebb and flow of information. It builds mutual respect. It makes a good platform for sharing where people don't feel threatened or feel like any idea is stupid." When one PLC came to see him about doing something else instead of using probes, he allowed them to explore this. They decided to use probes, but he was willing to allow them to do something else. "And the most important change here was to make people value people. Whether it be the staff members or students because it was broken. We had a pretty high performing school that was based on the clientele we got, not that the teachers were experts in what they were doing," he said.

Two of the three teachers answered how conflicts were resolved in their PLC. Susan reported that two of the teachers in her PLC kind of "butt[ed] heads." She said they "discussed things individually and worked it out, and it was fine." Wendy reported about dealing with conflict: "We usually try and come to some kind of a consensus to what would work best for the students and go that route, whether we agreed, you know, or didn't agree. If we all decide that's what's best for the students, that's what route we usually take."

Collaboration. The implementation of PLCs created a time for teachers to meet twice a week, and research points to collaboration as a requirement to instructional change in PLCs (Barton & Stepanek, 2012; Leclerc et. al, 2012; Lujuan & Day, 2010; Riveros, Newron & Burgess, 2012; Teague & Anfara, 2012; Wells, 2008). "To me it was important that in the PLC you have a support system where people can talk about common things" said the principal. Teachers positively reported about collaboration. Andrea said her PLC has been "an excellent experience because it gives teachers a chance to work with other colleagues with their same content area." She went on to report, "We've also developed our common assessments through the PLCs, which I think has helped our students with their achievement as well." Wendy, sixth grade English teacher, agreed when she said, "It's great to be able to meet with other, um, professionals who might have a different perspective." And Susan, an English special education teacher said, "I really just feel like we all learn from each other." Teachers valued their collaboration through PLC. The assistant principal said, "If we had to have a meeting that cancelled an eighth-grade PLC, I heard about it because they were very upset because they… really wanted to meet and get some things done." The principal concluded, "It's brought the whole building closer together. And I think which has benefit the students."

Data indicated a cultural change at Green Middle has occurred since the implementation of PLCs. "Since education is a people business, I had to deal with the people piece first," said the principal. Wendy, an English teacher, reported that PLCs were not as focused before she came, "I kind of got the impression that maybe that wasn't the case in the past, but that it is now." The principal agrees, but notes that "we're still on a continuum." He reported that he has one PLC that will be his focus for the upcoming year because their personalities are different, and so was their instruction. He believed that "with professional learning communities, like anything else, you have to be constantly changing and evolving." To sum up the culture of Green Middle, the principal said, "And even though PLC's are built around instruction, some other critical elements of middle school have come into it because there are other things that affect instruction. When you have effective instruction collaboration, then everything seems to blossom."

Blue Middle School

Blue Middle School had many teachers that have taught there since the school opened in 2001. The culture of this school demonstrated slower improvement than the other two schools based on the interviews and other data. The SOL scores were stagnate over the past four years, but data showed an increase after the first year of implementation that has remained the same (Table 4.8).

Table 4.8. Blue Middle SOL score percentages PLC implementation first year to third year

SOL Test Administration	2014	2015	2016
English: Reading	79	84	84
English: Writing	73	74	74
History and Social Science	91	91	89
Mathematics	80	82	82
Science	81	87	88

The principal said:

> "I can only really speak for the most part, for what's going on here… I think that most of our twelve groups, I would say that all of them have improved over the last few years. We still have a couple that maybe I guess for lack of a better way to put it, don't get it or aren't using the data to drive their meetings and then therefore drive their instruction. But I do think that the teachers are much more comfortable [with PLCs} than they were."

The assistant principal reported that before PLC meetings, teachers met by grade level and subject, but there was a lack of focus in these meetings. With the implementation of PLCs "I feel like we're in a better place now… I still think there's room for change there." She reported her concern about teachers that have "lost that drive." She said, "You definitely need people who are invested, those who truly are caring and compassionate about children and education. If that's not there, you're really going uphill against the wind. It's not pretty. You know?" She felt that the school needed to work on the inclusion model of special education teachers with regular education teachers in the classroom. "I've been taken aback by how antiquated some of our content area teachers beliefs are where special education and having another adult in the room is concerned." The sociogram for Blue Middle showed the influence of this assistant principal as the leader of the school leadership team (see Figure 4.9). The principal said of the implementation of PLCs, "So I think the challenge was to just, it was a mindset. And again, we're not where we need to be yet but we have made some sizable improvements as far as 'That's really what needs to drive what you guys are doing in that PLC meeting'." Both principal and assistant principal spoke at length about the need for data driven instruction, demonstrating a focus on data by the administrative team.

Environment of trust. The teachers at Blue Middle reported the environment of trust. Math 7 teacher, Jennifer, said, "We all have different styles that we use when we teach, but when we come together, it's just good because we're able to, like I said, just share information. And we piggy back off of each other very well." She also said of the assistant principal in charge of math (not interviewed) saying that as she gave input to the PLC, the members "in turn… try to do the same when we give our minutes." While Jennifer spoke of a trusting environment in PLC meetings, Dara, the reading specialist, reported that "As far as them working together, I mean, I think they work together. They do the best they can you know. It's just like with our students you know. We don't get to choose the grapes we get, we have to make the juice with what we got." As the reading specialist, she attended all three English PLCs at Blue Middle. She also said that PLCs should be more data driven: "The structure, it depends on the grade level. Some of them are more data d- driven, some are more of a kind of complaining and, you know, discussing what's been going on in the week and what's coming up." Additionally, she added about the English PLCs, "In some grade levels I feel like they're all on the same page, they're kind of all the leaders. And then you have other grade levels where there's one or two that are more in the leadership role. I mean it's, it's very similar to how our students are you know, there's the leaders and the followers." According to the math 8 PLC special education teacher, there was not an environment of trust. The sociogram for this PLC showed lack of relationships among members (see Figure 4.6). She described the members in this way:

> "One person that grades papers, um, she's been teaching for over 20-some years. Um, then the one that I was telling you is the leader is the leader as well as the math department head. She is a really go-getter and wants to, you know, do new things with the kids, and do what's best, and find ways to co-teach in the classroom. And then there's

> another one, he's a guy who, he's a newer teacher, but he, um, he's just really laid-back, so he just sits there and kinda, you know, goes with the flow- if that makes sense. And then, like I said, there's me, so I haven't really ruffled any feathers."

Effectively dealing with conflict. The literature on PLCs emphasizes the importance of resolving conflicts to develop an environment of trust so members are comfortable to have deep conversations regarding instruction (Leclerc et. al, 2012; Lujuan & Day, 2010; Teague & Anfara, 2012). In the math 8 PLC, Michaela reported that her PLC used the same assessments each year with small changes to wording structure. She said, "I have sat in other PLC meetings where I feel they're very effective. I think, I think it just depends on the people involved." For Dara, the reading specialist, she said of the PLCs that she attends:

> "There's other relationships where not everybody gets along. They're trying and that's just the way human nature is, you try and work it out but it's, there's just some people, no matter what you say, they're not going to conform. Um, and I, how do you fix that, you know? That's their basic personality and the only person that can change that is themselves."

Dara felt that teachers should handle conflicts professionally, but that did not happen all the time. While these two teachers felt conflicts are not being resolved, Jennifer reported her PLC did not have conflicts. "Honestly, we don't tend to have conflicts… [We] do try to, we hear each other. I mean, I, but I really cannot remember a time when we've had a disagreement about something that's gone on in class or somethings that's gone on with the plans that we have made. We-we're really in sync." The principal said:

> "And then I think just the fact that you have for the most part, in our groups, teachers work together well. It's a respectful learning community with the adults… All twelve

groups aren't the same, so there, not meaning we've never had a situation where adults weren't playing nice so to speak. But I do think the professional courtesy and the ability to learn from others and we did stress that even back when we just had instructional meetings."

Collaboration. All Blue Middle school leaders and teachers interviewed reported on collaboration. Dara, the reading specialist, said that "all the teachers participate" in PLCs. She said, "They do share that data, and then they use it to plan their instruction. Um, to try and get those weak areas stronger." She concluded, "I can honestly say they are all there for the children, and use that data… to teach their students, and get the scores at the end." Michaela shared her frustration in her PLC, "I think that's not right, because we're there to meet to discuss things (laughs) that we need to do to help these kids." She did not feel that productive collaboration happens in her PLC. But Jennifer, in the math 7 PLC, said, "My experience has been that I've been able to get some good information from the other seventh grade math teachers that I work with. We collaborate well together. We do well with sharing information, sharing activities." She continued, " We talk about the activities that we've done, how they worked, uh, what we would do to change things, if they were how do I want to say that? How we could adapt to make the necessary changes based on student achievement that we've seen." The principal said collaboration was "not just planning your lessons, it's not just, talking in general terms. It's really digging into different student groups, different assessments and how one teacher is using a lesson versus another teacher." The assistant principal agreed: "How often do we get to really talk to the people within our own building and share those, "Hey, this lesson was really great. My kids got it," with the teachers who say, "Mine bombed. What did I do wrong?" You know? A PLC really should be the time where you're sharing those things that work, you know?"

Yellow Middle School

The Yellow Middle principal had just completed her first year as principal of the school. She discovered early on that,

> "Some of my PLC's were very cohesive, operating; everybody knew what they were doing. They had great synergy among themselves. Others were just kind of, I'm going to do this. Well, I'm going to do this. Well, I'm going to do this. There wasn't a lot of continuity. Some had personality conflicts. It ran the whole gamut."

She went on to say, "I've got PLC's that are kind of all over the place in their willingness, in their, even just their instructional knowledge of what a good lesson plan looks like." Her focus was getting PLCs back to the basics of how a PLC should operate. The assistant principal was at the school for two years longer than her new principal. "I think over time teachers have realized the benefit of collaborating together versus just spending our time complaining about what's going on but using the time to their benefit. So I think I have seen a huge shift in their mind set change over the years here where they're really utilizing their time well," she said. A new learning map was initiated that combined all parts of instruction, from planning to implementation to data analysis and remediation, into one document which was completed in the PLC. Coaching on the PLC format, including roles, setting agendas, and data analysis, has happened through the administrative team. The principal reported, "I had to use situational leadership depending on what the needs of each unique PLC, where they're at in the process, what the personalities are like, to be able to determine what level of support they needed." The assistant principal said of this coaching, "So where we're at now is everybody has defined roles. They are given things that they do during meetings based on the agendas that they set as a group. We now focus our time on creating learning maps within our PLCs." She continued, "We're

moving away from the stage of, "This is mine and only mine and I want to shine and I don't want anybody else to be as good as I am so I'm not going to share." We're here for all of the kids and everybody in this building is here for all of the kids. They're not my kids, or your kids, they are our kids."

Environment of trust. An environment of trust is influenced by school leader actions (Barton & Stepanek, 2012; Glickman, 2002; Leclerc et. al, 2012; Lujuan & Day, 2010; Riveros, Newron & Burgess, 2012; Spillane, 2005; Spillane, Halverson, & Diamond, 2004; Teague & Anfara, 2012). This is described by the principal:

> "I would say creating a culture where people can make mistakes and you give grace to those mistakes. Creating an atmosphere where we can have open and honest dialog without confrontation. Where it's safe to receive the information and recognize that you're contributing to a team and they need you to be more like this. A culture of, these are our kids. All of them are our kids. Not, those are your kids and your kids and your kids."

She explained that celebrations are important, as well. "You have to create an atmosphere where there are many celebrations for growth," said the principal. The math 7 PLC has the lowest test scores in the school. This year, they improved seven percentage points. While still the lowest, "We celebrated that [success] at the end of the year. I gave them an award, the whole team."

Additionally, teacher leadership was a focus. The assistant principal said, "You have to have teachers who are willing to step up and be leaders because somebody has to take lead, you know, charge of the group." The principal actively seeked feedback from teachers, allowing them decision making power in instructional decisions. She reported, "With the learning map that we implemented last year, I was constantly asking, how's it going? What do we need to tweak? And they loved it." She talked about earning trust of your staff. "Well, they don't trust

you when you're a first year principal. They don't know you. They don't know what you're trying to do. I had to earn that trust by truly rolling up my sleeves and being in there." The principal thought an ebb and flow of information lead to trust and built leadership capacity within the school. The assistant principal summed up the current school culture with this instructional observation:

> "I have sat on many occasions and watched teachers all share different types of things for teaching the exact same skill and through doing that they realize just the different perspectives sometimes people take on things and that I can dissect the curriculum one way and you can dissect it a completely different way and it's not that one of us is necessarily right or wrong but maybe we then are open to other perspectives of seeing just maybe where we're missing the mark sometimes and how we're presenting material to kids because we've never necessarily looked at it from that angle."

All three interviewed teachers reported an environment of trust within the PLC. In the History 6 PLC, Jenny reported that the PLC members worked together for four years. She said, "It's pretty fun, it's-it's-it's relaxed, um, there's, It's not like high stakes and I think that comes from the fact that we've seen it. We know that we just need to get through the material. We know that we need to reach the children where they are." Ruth, an English 7 PLC member, said, "I'm going in to my 41st year of teaching but, you know, we're all teachers and each group of kids that you get every year has new things. So, you know, a fresh, uh, look at what we're dealing with is really, uh, I think it helps us all be better teachers." Lisa said that her PLC two years ago did not have a trusting environment. She said some members "wanted to always do the things that they had normally done or it was, I'm just going to do it my way. And that was it." She also said, "Some people just remained quiet. They didn't say anything." She reported that when she moved

grade levels to English 8, it took a year to have a trusting environment. At first the leader was "reluctant to take our ideas but as time progressed, she was, she became more open." Lisa reported that "this year it's very open, very receptive and um, and that's, that makes the atmosphere so much better."

Effectively dealing with conflict. As some research suggest, the environment of trust was developed through effectively dealing with conflict (Vangrieken et. al, 2015; Jones & Thessin, 2015; Barton & Stepanek, 2012; Leclerc et. al, 2012; Lujuan & Day, 2010; Riveros, Newron & Burgess, 2012; Teague & Anfara, 2012; Scribner & Donaldson, 2001). Administrative involvement and compromise were reported as conflict resolution strategies at Yellow Middle School. Ruth's English 7 PLC reported school leader involvement with conflict resolution: "If we can't resolve something within our PLC or we're… like, what are we supposed to do here, then we call in our administration. And they're usually really good about either seeking the answers that we need, or helping us resolve it." The principal reported that in the Math 7 PLC, "there was some butting heads initially between the new person that came and the old, the veteran teacher that's been on that team. [I was] really trying to show them that they have to respect each other. That they have to go through this process together." She said that they eventually worked through this conflict as the new teacher earned the respect of the older teacher.

Other PLCs have used compromise. Jenny reported on a recent conflict, "The closest thing would be like we've had a, kind of a disagreement on how long a certain unit should take." With varied student groups, including gifted, honors, special education, and regular, one teacher wanted to accommodate her groups with four weeks of instruction and the other two teachers wanted to teach the concept in two. They resolved the conflict by deciding to spend three weeks

on the topic and all teachers working to remediate students that required re-teaching or more practice. The remediation groups included some students they do not teach in history. Jenny said of their recent conflict resolution, “That's collaborative and it's, it really is. It's what, what's best for the kids.”

Collaboration. Collaboration was reported by all interviewees. The assistant principal said of her English PLCs, “They all plan out together how they're going to teach the written curriculum.” In using the learning map, the principal said teachers “really start to talk about what's a logical learning sequence that we should roll out this unit. From basic information, vocabulary, to really synthesizing and evaluating how do we break this up over the scope and the rigor.” Ruth reported, “We also talk about how to address the children who are not getting certain skills and how we're going to, ah, either do small group or, ah, work individually with them on other tutorial opportunities. Ah, multi-modalities, we try to explore that also.” Lisa also reported on the English 8 PLC:

> “PLCs are a great way to just bounce information off of each other, share ideas, um, and you can also talk to people, talk to your colleagues and say, "Look, I tried teaching it this way. What kind of success have you had?" Or you're looking at each other's data and you're like, "Okay, you did well with this. How can you show me?" And so you work well that way.”

The assistant principal agreed, “PLCs are definitely something that is needed in today's education society. I think teachers benefit from collaborating with each other. I think that a teacher who is truly looking at how to do things better is always going to find things from others.” She said of her teachers, “So they've definitely gotten on board the collaborative train

and are really working together versus kind of all working as independent operators, which has been the change that I've seen the most in them."

School Cases are Unique

School culture in each school case was different. Green Middle was a teacher centered environment and PLCs may have influenced the movement towards a more child centered environment where teachers now discuss different ways to teach children with more emphasis on the best way to help students learn. Blue Middle continued to focus on the initial issues that many PLCs see, developing an environment of trust where deep conversations about instruction could take place and all members focused on one goal, student learning (Leclerc et. al, 2012; Lujuan & Day, 2010; Teague & Anfara, 2012). At Yellow Middle, PLCs included a focus on reintroducing PLCs for improved instruction, building leadership capacity in teachers, and the use of a learning map to implement a continuum from planning to instruction to student learning. Each school case was different as well as each PLC in each school.

Sustained Change

Sustained change in the instructional setting is the desired outcome for implementation of PLCs (Vangrieken et. al, 2015; Jones & Thessin, 2015; Barton & Stepanek, 2012; Leclerc et. al, 2012; Lujuan & Day, 2010; Riveros, Newron & Burgess, 2012; Teague & Anfara, 2012; Scribner & Donaldson, 2001). Through this research, different types of instructional change were reported, some within the classroom itself, and some within the whole school environment.

Sustained Change in Classroom Instruction

Teachers report sustained change. Teachers reported that participating in PLCs influenced them to try different instructional strategies. Jennifer, from Blue Middle, said, "PLCs have helped me to use more strategies. I tend to be more of a lecturer and the others in the PLC

group; [they] tend to do a lot more with Smartboard, a lot more hands on kind of activities. And I can say with that in the last three years that I have been on seventh grade, I have been more willing to do different things." Jenny from Yellow Middle agreed that PLCs gave purpose to instructional planning and implementation. She thought it was better for newer teachers. She said, "If I was a brand new teacher, this would work for me because it's structured, there's input from everyone, it's organized, and there's an accountability feature." And Lisa, also from Yellow Middle, said, "This is my 23rd year and so, even for me there are some things that I'm like, okay, this is tried and true and I'm going to stick with it. But being in the PLC, it's like, hey, let's try this. And I'm like, Wow! I didn't even think of it that way." She went on to talk about using technology, which she has not done until PLC implementation. "I want to use more technology but oftentimes it's like, and sometimes it can be more intimidating at times but because we're in a small group setting and someone says, look, this is what I found. Let's use it." Wendy, a teacher member of the English 6 PLC at Green Middle, said:

> "Often I might have, you know, had a certain way I had planned to teach a certain skill or topic, and we try and plan ahead through our PLCs. So if we're discussing something, it's going to come up in a couple weeks and I think that someone else has a great different way to present it, I've often changed the way I was going to do it to, you know, take on that person's idea and see if it works well in my room and, you know, kind of run with it if it seems like something that would work better than what I had, um, planned to do for that particular lesson."

For Michaela, a member of the math 8 PLC at Blue Middle, she felt her PLC was "unproductive." She said, "I wouldn't say it's influenced my instruction at all." PLCs are more effective when they efficiently deal with conflict and build an environment of trust (Lujuan &

Day, 2010; Teague & Anfara, 2012; Riveros, Newton & Burgess, 2012). Data from this interview and the sociogram (Figure 4.9) suggested this PLC was dysfunctional, demonstrating the need for productive PLCs as a factor for sustained change in the classroom.

Fortunately, most teachers reported a positive impact. Data collected from the Information Questionnaire asked teachers how PLCs had impacted instruction. 71.30% reported the PLC implementation had impacted their instruction in a positive way. This statistic suggested that overall, school cases have had some level of sustained change toward positive instructional outcomes.

School leaders report sustained change. School leaders also reported on sustained change in the classroom. With the use of probes at Green Middle, the principal said, "What we've found in seventh and eighth grade is that we had to do fewer pre-tests because the areas that are remediating sixth grade came up." The Yellow Middle principal recognized that some teachers will take longer to change. "You would say one thing at PLC and then you'd go visit classrooms and they weren't doing it, what we had said in PLC. They reverted back to whatever they wanted to do," she said. The Yellow Middle assistant principal agreed that "nothing is going to be perfect overnight" and some teachers had still not completely bought in to PLCs. Yellow Middle was using results from the PLC rubric in department meetings to develop professional development to further assist reluctant teachers. The data suggested while some reluctant teachers are within every school, PLC implementation was creating sustained change in the classroom with some level of success. The Green Middle principal said, "And so by nudging, prodding, sharing information, they are gradually changing. And they've changed either by us being assimilated into the group or by actually having some aha moment when they see that things they didn't think would work do work."

Sustained Change in the School Community

Expanding collaboration. Collaboration pointed to an environment where more collaboration was emergent. The influence of PLC implementation on the school as an instructional setting was twofold. Both school leaders and teachers reported that the school community was more collaborative as a whole, with accountability being one factor. Additionally, in some school cases, other initiatives were implemented through PLCs which would traditionally were implemented as a separate or unrelated instructional measure. The principal at Green Middle said, "It's grown into almost the whole school becoming a PLC." He modelled this with his assistant principals, saying his administrative meetings "becomes a think tank for ideas, not just for instruction but for other things in school."

One example of a more collaborative school was the Writer's Workshop recently held on a Saturday. As an initiative by the eighth grade English teachers, the assistant principal reported, "I had nine other teachers within the building from other content areas or grade levels that came to support and help as well." PLCs have "made us even more of a building, a stronger instructional community not just within our core areas," she said. Lisa, English 8 PLC member, agreed:

> "I've seen a change since the time I've gotten there. When I first got there were PLCs, it was a yay and a nay. You know, some people, you know like, Yay, yeah and then some are like, eh, waste of time, something else we have to do. And now I'm seeing that there's a difference. At least with the people I've spoken to. You know outside of my grade level and even outside of my content level."

Vertical articulation. Additionally, vertical articulation was reported at all three schools. At Yellow Middle, Ruth, an English 7 teacher, said the assistant principal brought instructional ideas from other schools to them in PLC. At Blue Middle, vertical articulation meetings were implemented with the English supervisor between the middle school and high school English teachers to discuss weaknesses and share instructional strategies. At Green Middle, special education teachers from another school were asked to come and share their success with special education students. Green Middle was also looking to implement the flip classroom. This allowed students to access the lesson through the internet at home before they arrive to class the next day; this structure allowed for more practice and saved instructional time for project based learning and higher level thinking opportunities. Three teachers have tried the flip classroom so far. He hoped "that PLCs could lead to more of that. Where they're sharing even with the kids and introducing the concept to the kids in the background so that the classroom can become more of a PLC is where I'm heading with that," said the Green Middle principal. The principal at Green Middle suggested that PLC implementation had moved beyond the school walls to influence the entire school district:

> "Really Chesapeake schools as an entity is a Professional Learning Community. And I think we did some of that last week at the in-service. The fact that they took notes from all of our small groups, and that the people in the groups were looking at it, but I think people like the superintendent's cabinet would also look at it, which may open up some discussions."

Conclusion

Each PLC was unique. However, some factors point to an influence on the productivity of PLCs. The environment of the PLC was viewed as positive, trusting, and included a horizontal

power structure. Administrators must take time to be involved in the PLC and demonstrate this commitment (Barton & Stepanek, 2012; Glickman, 2002; Leclerc et. al, 2012; Lujuan & Day, 2010; Riveros, Newron & Burgess, 2012; Spillane, 2005) The environment of trust was only achieved by PLCs that dealt with conflicts in a respectful and meaningful way (Vangrieken et. al, 2015; Jones & Thessin, 2015; Barton & Stepanek, 2012; Leclerc et. al, 2012; Lujuan & Day, 2010; Riveros, Newron & Burgess, 2012; Teague & Anfara, 2012; Scribner & Donaldson, 2001). This conflict was often reluctant members who were not willing to share in a two-way collaboration and not only accept, but implement, new ideas from PLC discussions. If conflict is handled effectively, it was often viewed by members as either an opportunity to learn (administrator involvement) or a benefit to students (determine the best process for student learning). In the cases where PLCs did not deal with conflict effectively in the data analysis, less productivity was reported by teachers. In these cases, analysis suggested that sustained change in the classroom setting, as well as the school community as a whole, was only seen when PLCs effectively dealt with conflict, indicating this as a gateway factor to PLC implementation with fidelity.

Chapter Five

Discussion

The previous chapters presented an introduction, literature review, methodology, statement of research questions, and data analysis. This chapter will present important findings and the implications of these findings in the field of educational leadership. Limitations and implications for future research will also be discussed.

Research Purpose and Focus

Education is a complex system, continuously dealing with stimuli Barton & Stepanek, 2012; Beabout, 2012; Leclerc et. al, 2012; Lujuan & Day, 2010; Myers, 2014; Riveros, Newron & Burgess, 2012; Teague & Anfara, 2012). Small changes occur when the stimuli are easily incorporated into the system and balance remains. Sustained changes are seen when stimuli cause disequilibrium, which requires the complex system to change in order to create a new, balanced environment (Alhedeff-Jones, 2008; Byrne & Callahan, 2014; Chillers, 2010; Cuban, 1990; Levy, 1994; Smitherman, 2005; Trueit, 2013; Tyack, 1990). Within these times of sustained change, both disruption and security occur in a relational context (Barton & Stepanek, 2012; Beabout, 2012; Leclerc et. al, 2012; Lujuan & Day, 2010; Myers, 2014; Riveros, Newron & Burgess, 2012; Teague & Anfara, 2012). The purpose of this research was to study this relational context by exploring the influence of school leaders and teachers on surface level vs. sustained change through the implementation of professional learning communities, furthering the understanding of why some schools increase student achievement and others do not.

This research was viewed through PLC implementation within three middle schools in one Southeastern Virginia school district. This research was developed and analyzed through the

lens of the continuum developed by two psychology based theories, value theory and lay epistemic theory, and framed by complexity theory. Specific research focuses were:

Focus 1: to what extent has the implementation of PLCs influenced teachers to make sustained change in instructional classroom practice?

e. Influence of relational processes within the PLC
f. Influence of sustained change in teacher practice

Focus 2: To what extent has school leadership influenced the PLC implementation for sustained change in teacher instructional practice?

e. Leadership perceptions about the PLC implementation process
f. Influence of leadership placement on the continuum to sustained change

Review of Methodology

Patton (2010) said this of qualitative research, "The first contribution of qualitative inquiry, then, is illuminating meanings, and how humans engage in meaning making- in essence, making sense of the world" (p. 13). This research used bounded case study methodologies. Thick description was obtained by using multiple data sources (Creswell, 2007; Glaser & Strauss, 1967; Hays & Singh, 2012; Merriam, 2009; Patton, 2015; Rubin & Rubin, 2012; Yin, 2009). This study lended itself to qualitative methods since it sought to find meaning from the lived experiences of its participants to more deeply understand the phenomenon of interest (Creswell, 2007; Glaser & Strauss, 1967; Hays & Singh, 2012; Merriam, 2009; Patton, 2015; Rubin & Rubin, 2012; Yin, 2009). The study used multiple data sources: school leader and teacher PLC member interviews, other artifacts, and an online survey including: (1) demographic and information gathering questionnaire, (2) Need for Cognitive Closure Scale, (3) Portrait Value Questionnaire 5X Value Survey, and (4) sociogram questionnaire. Six school leader interviews were conducted: the principal and one assistant principal from each school case. The online survey was administered to all school leaders and teacher PLC members at each school the day after grade level meetings where the researcher explained the reason for the research,

confidentiality, voluntary participation, data security, and how analysis would be used. Nine teacher PLC member semi-structured interviews were conducted, three from each school case. The interview protocol for the teacher PLC member cases was created using previous analysis of study measures. All interviews were coded and these codes were then grouped together to discover themes. The data collected from the online survey measure themes were analyzed in order to make meaning of the codes and themes. All documents pertaining to analysis of data sources were included in the audit trail.

Summary of Findings

Within research tradition, the summary of findings is presented with a strict structure of 'reporting out' what has been documented in the research findings, often without the interpretation of the findings as interrelated sources (Glaser & Strauss, 1967; Patton, 2015). In this research, the educational environment was viewed through complexity theory, indicating a complex system in which multiple stimuli impact change of multiple workings of the system simultaneously. This suggested a strong need to view the findings as interrelated, presenting the opportunity to understand the phenomenon in a deeper and more meaningful way, as well as through the lens of complexity theory. Glaser and Strass (1967), in presenting an argument for relaxing rules to discover new theory, said, "new styles of analysis will bring out the richness of quantitative data that is seen only implicitly while the focus remains on verification." Likewise, Patton (2015) in describing the importance for deep understanding said, "then you can think inside and outside the box." This summary of findings was presented as an interrelated synthesis, allowing for thick description of the phenomenon which otherwise may have not been discovered.

Vertical vs. Horizontal Power Structure

The first major theme, vertical vs. horizontal power structure, suggested findings that correspond with first focus of this research, including the relational processes within the PLC. A power structure of horizontal, or authoritative, power and vertical power, or shared leadership, was indicated. For PLCs that indicate implementation with more fidelity, findings suggested the PLCs functioned within the horizontal power structure. In this structure, all members have shared power and therefore, collaboration seems to be more successful, presenting more opportunities for sustained change. School leader interview analysis suggested school leaders work within both the vertical and horizontal power structures dependent on situation. While in the role of assistant principal or principal outside the PLC, school leaders work within the vertical power structure, making decisions with the authority of their position. During PLC meetings, when acting as a PLC member, they move onto the horizontal power structure, in which every member, teachers and school leaders, has the same power.

Analysis indicated that teachers work mostly within the horizontal power structure. Under this structure, the value theory profiles and sociograms suggest that the placement of the power value in members' value profile determines the amount of balanced power within the PLC. This finding was corroborated by the sociograms which suggest, through self-report, that more shared leadership was seen in PLCs when all teacher members' power value rated last or next to last in the value profile. When this power balance was not indicated, teachers reported less implementation with fidelity and possibly a link to less sustained instructional change. Analysis of two PLCs, one with an identified leader for multiple years and the other with a structure that creates shared leadership across each school year, suggested the identified leader

did not influence the amount of shared leadership in the PLC, or the level or opportunity for sustained instructional change in the classroom setting.

In opposition to this finding, school leader sociograms created with the sociogram measure suggested no relationship between the placement of power value within the value profiles and the leadership of the PLC. This may be due to the organizational structure of principal as leader of the school leader team, which places the school leader PLCs on the horizontal power structure. While an identified leader did not appear to impact the fidelity of PLC implementation on the horizontal power structure, findings did suggest the opposite influence on the vertical power structure. However, both teacher based PLCs and school leader PLCs reported less implementation with unbalanced power. This was indicated in both the Blue Middle math 8 PLC and the Blue Middle school leader PLC. In the math 8 PLC, analysis suggested an unbalanced power structure through both sociograms and members' value profiles. In the case of Blue Middle, the identified leader went against the vertical power structure, indicating through self-report of the school leaders that the leader was an assistant principal. Data analysis of PLC implementation indicated one roadblock to fidelity was unbalanced power.

School Leader Involvement

Reviewing the second research focus, understanding the influence of school leaders on PLC implementation for sustained change in teacher instructional practice, the efforts of school leaders did suggest an influence. School leaders report the need for involvement in PLC implementation. School leaders reported attendance monitoring, structures, and training as ways in which they monitor the fidelity of PLCs. Initial training for PLC implementation included both school based leaders and personnel from the central office. School leaders reported the need to continue training, however, ensuring new teachers have training so fidelity was

maintained. School leaders have continued training through core supervisor visits, small group coaching, and whole school retraining. At Yellow Middle, the PLC rubric activity assists PLC fidelity as members assign jobs and roles at the beginning of each year. School leaders reported on training as a continual process.

Findings from school leader participants also suggested that attendance at PLC meetings by the administrative team influenced fidelity. It was reported by the Green Middle Principal that with more attendance monitoring more fidelity was seen. Additionally, Yellow Middle has changed the structure in place to attend PLC meetings to allow more opportunity for attendance monitoring by school leaders. All school leaders interviewed reported on the importance of attendance monitoring by school leaders for PLC implementation fidelity.

However, while attendance monitoring was indicated as similar across cases, findings suggested other structures varied from one school case to the other. Blue Middle has PLC minutes which are read and commented on by school leaders before being returned to PLCs. The English and math PLCs were given instructional binders for use during meetings. At Green Middle, instructional binders were also given to PLCs as part of a new initiative to raise SOL scores through probes. Probes used data to find weaknesses and teach prior level skills before new learning takes place. In addition to changing the structure of school leaders PLC assignments to present more opportunities to attend PLCS, a unit learning map was implemented. This learning map takes the PLC minutes, data assessment forms, and lesson plans to create one document. This document was used by PLCs to further focus PLCs on instruction, according to both school leaders interviewed from this school case. Monitoring by school leaders was indicated as important to PLC implementation fidelity.

Data from school leader and teacher interview analysis suggested an incongruent finding with time constraints. School leaders reported difficulty finding the time to attend PLC meetings. Other required activities during the school day were noted as roadblocks to these activities. While school leaders reported time constraints with attendance monitoring, teachers reported no time constraints, even when asked specifically. Teacher interview reports indicated that PLCs in school cases had built in additional time as needed to complete PLC activities, often by adding another meeting day or going over set meeting times to complete a task. Time constraints were viewed as a roadblock, but only to school leaders.

School Culture Factors

Findings suggested that each school case had a unique school culture. Viewing this within a lens of complexity, each PLC within each school case was unique (Alhedeff-Jones, 2008; Julien, 2009; Krstacic & Krstacic, 2014; Levy, 1994; Orzen & Karatas, 2013; Pollock, Adler & Sankaron, 2014; Ross, 2014; Shoup & Studer, 2010; Smitherman, 2005; Trueit, 2013). Within each school case, three school culture factors emerged as a potential influence on the fidelity of PLC implementation: an environment of trust, dealing with conflict effectively, and collaboration. The influences of these factors on the school culture and within each PLC were demonstrated through data collection methods and added discovery to both research focuses.

According to school leader and teacher interview reports, each school case presented different cultures. Findings suggested that Green Middle was a teacher centered culture that has shifted more toward a people centered culture. Blue Middle's culture was reported through interviews that it was more data driven, possibly suggesting the culture has influenced a slower progression toward fidelity in PLC implementation. School leader reports at Yellow Middle indicated the culture was not cohesive, so interventions to focus staff on instruction have been

initiated, showing more collaboration. However, in each school cases, both similarities and differences indicated ways in which school leaders have influenced PLCs. Findings show these influences are interrelated: developing an environment of trust where conflicts can be dealt with effectively indicated a greater opportunity for collaboration that create sustained changes. When these three factors are not well structured within school culture, data suggested PLC results were surface level changes. When these three factors are developed and deeply ingrained within the school culture, findings suggest increased opportunity for sustained change in the instructional setting.

In two school cases, Green Middle and Yellow Middle, findings suggested school culture influenced PLC implementation to create sustained changes. One similarity of both these school cases was an emphasis on mutual respect. In each case, interviewees reported a two-way flow of information between teachers and school leaders. The Yellow Middle principal indicated this built teacher leadership within the building. Also, in both cases, findings suggest that teachers were allowed to make instructional decisions. When the Green Middle administrative team took responsibility for the drop in SOL testing scores and presented probes as a new initiative to bring up SOL test scores, the principal reported he allowed one PLC to explore other options for how to produce higher scores. At Yellow Middle, reports from the principal and Ruth, the English 7 PLC teacher member reported that teachers who want to do something different than the other PLC members can revise the learning map, providing teacher autonomy in the classroom. Data analysis indicated this mutual respect and open communication provided more opportunities to create an environment of trust to effectively deal with conflicts.

Effectively dealing with conflict is critical to sustained change through collaboration (Jones & Thessin, 2015; Barton & Stepanek, 2012; Leclerc et. al, 2012; Lujuan & Day, 2010;

Riveros, Newron & Burgess, 2012; Teague & Anfara, 2012; Scribner et. al, 1999). Reports from Lisa, the English 8 PLC teacher member, and the principal, when a new teacher came into a Yellow Middle PLC, conflict occurred with another, more established, member. The principal educated PLC members that this was a normal process. According to reports, the conflict was resolved as mutual respect was earned and provided opportunities for collaboration. At Green Middle, dealing with conflict came from a focus on listening to others' perspectives, as reported by both the science 7 and English 6 PLC member. Susan, English 7 PLC member, reported that two PLC members had a conflict which they discussed with each other and resolved so it did not come into the PLC meeting. Effectively dealing with conflict was indicated as the gateway to collaboration that creates sustained change (Jones & Thessin, 2015; Barton & Stepanek, 2012; Leclerc et. al, 2012; Lujuan & Day, 2010; Riveros, Newron & Burgess, 2012; Teague & Anfara, 2012; Scribner et. al, 1999).

School leaders in both school cases also reported a need for a secure, honest environment where all opinions were accepted. The principal of Green Middle felt this was "broken" at his school in past years, but PLC implementation had provided a way to resolve this. In interview reports, the teachers at Green Middle echoed this sentiment. Andrea, Science 7 PLC member, said the members bring ideas, listen to each other, and value each other's opinion. The principal said PLCs were a "support system" for colleagues. At Yellow Middle, Ruth, English 7 PLC member, said that she learns from younger teachers because they bring a new perspective. And Lisa, English 8 PLC member, said that PLCs are a place to ask other members what they did when they show a higher level of student achievement; these discussions lead to lasting changes in her instruction. A culture in which members felt secure to share ideas was reported as vital for true collaboration to take place.

Overall, this research suggested a process in which all three elements of school culture, an environment of trust, effectively dealing with conflict, and collaboration, are interrelated and influence each other simultaneously (see Figure 5.1). For example, as conflicts are dealt with effectively, opportunities for more collaboration takes place as members build mutual respect and, therefore, value each other's perspectives. As school leaders value teacher feedback and PLC members value other's perspectives, an environment of trust was created. An environment of trust creates opportunities to feel secure in dealing with conflict among members. This relationship indicates the way in which factors influence a complex system to make sustained changes to the system.

Figure 5.1. Influence of school culture factors as interrelated

In the case of Blue Middle, data suggested PLC implementation was not met with fidelity. While the other two school cases focused on mutual respect, modeling through open communication, opportunities for teachers to make instructional decisions, and mutual respect, interview reports from Blue Middle suggest a focus on data analysis. In interviews with both school leaders, a focus on data was emphasized. Additionally, the reading specialist that attends all three English PLCs also emphasized a focus on data to improve test scores. When asked about dealing with conflict, teacher interview reports suggested PLCs have not effectively dealt

with conflict. Dara, the reading specialist, said that while some PLCs seem to have shared leadership, others do not. She did not offer any insights on how to resolve these conflicts. Micheala, the math 8 PLC member, reported no conflicts because no one will disagree, although she feels teachers within the group want to try new instructional strategies. Jennifer, the math 7 PLC member, said her teachers have not had any conflicts. Research into PLCs concludes that dealing with conflict must occur for deep conversations to take place and provide opportunities for sustained change (Barton & Stepanek, 2012; Leclerc et. al, 2012; Lujuan & Day, 2010; Riveros, Newron & Burgess, 2012; Teague & Anfara, 2012; Wells, 2008). The fact that conflicts are either not resolved or are not recognized indicates this factor is not present at Blue Middle. As indicated in the data on student achievement, without this factor, an environment of trust and collaboration for sustained change may not occur, suggesting PLC implementation with low fidelity at Blue Middle School. Findings in this research study suggested an environment of trust, effectively dealing with conflict, and collaboration are school culture factors which work in tandem, influencing one another to either create a system for surface level change or sustained change, dependent upon the strength of each factor within the school environment. However, the data analysis suggested one roadblock to PLC implementation which creates sustained change was effectively dealing with conflict.

Sustained Change

School culture factors are important to provide a safe, secure environment in which collaboration which breeds sustained change can take place. In most cases, teachers reported a change in classroom strategies toward best practice. Teachers reported a shift from lecture type strategies into strategies that included more technology and the new ideas of other PLC members. And reports from all teachers on the informational survey showed that 71.30%

reported a positive impact on classroom instruction. School leaders also reported changes in the instructional setting. However, they reported a slower progression toward sustained change. School leader involvement, coaching, and structures were cited as ways to continue PLC implementation that results in sustained change. Although data suggest school leaders view sustained change as a slower process than teachers, some level of sustained change in the instructional setting was indicated. The theme of sustained change helps to better understand both research focuses, participants' influence on sustained change in the instructional setting.

The influence of PLC implementation seems to suggest that collaboration has expanded beyond PLCs into the whole school community. This was seen through other school initiatives implemented within PLCs as well as teachers from other core subjects volunteering in school wide activities which involve one core subject. Reports from interviews suggested the school acts more like a community than before PLC implementation. An additional way in which PLC implementation impacted school cases was through vertical articulation, which directly impacts instruction. Examples reported include high school and middle school teachers discussing English weaknesses and strategies to improve them, after school department meetings changing focus from information distribution to instructional conversations between grade levels, and the opportunity to use the classroom setting as a PLC through the flip classroom program. Overall, results suggested that sustained change continues to be a gradual process.

Theoretical Framework Continuum

The theoretical framework continuum for this study included both LET and value theory. On one end of the continuum was the value dimension conservation and high NFC. In theory, this end of the continuum corresponds with surface level changes. The opposite end of the continuum included openness to change value dimension and low NFC, which creates the

environment conducive to sustained changes. In this research study, the data analysis did not suggest validity of the theoretical framework continuum. The value portraits from value theory showed no results within the values for either openness to change or conservation value dimensions (see chapter four). The results for the NFC scale did not indicate any influence on PLC implementation; NFC scale scores ranged from 126-175, with a possible range from 42-252, which indicated that all participants were within the second and third quartile. The theoretical framework continuum was unrelated to the findings of this research study.

However, I feel the implications of this null result are important. While most educational research is used to test current educational theory, this study included complexity sciences as a lens in which to view theories, LET and value theory, both from the field of psychology. In education, the use of outside theory can only strengthen our understanding of the field, and a practice not seen enough in the field. Kemp et. al (2010) described theory as " a system that specifies a set of concepts and relationships between these concepts" (p. 166). He goes on to say that it allows learners to explain existing observations as well as focus on features relevant to the phenomenon (Kemp et. al, 2010).

Theoretical concepts, used to explain the world through a constructivist view, are not seen in one field of interest, instead theoretical concepts are often studied across areas of research, which adds validity (Riveros, Newton & Burgess, 2012; Barton & Stepanek, 2012; Leclerc et. al, 2012; Kemp et. al, 2010; Glaser, 2007; Glaser, 1999; Fiedler, 2004). This process of validation was discussed by Glaser in 2007 as the second step in grounded theory. However, he also said that this process of validation was limiting theory formation through the rules of quantitative research (Glaser, 2007).

While validation remains the second step in theory formation, the first step is quite different. Fiedler (2004) discussed the loosening and tightening of emerging theory. Through his perspective, theory formation, the first step in emerging theory, is a loose process using multiple and random variations to propose theory, while the validation process is a tightening of the theory as a rigorous test to determine its worth. The loosening process allows for reserachers proposing theory to loosen the rules of qualitative research in order to discover an observable relationship across contexts. This loosening process includes constellation analysis, defined as viewing an object of study in different ways and different viewpoints to show relationships (Ohlhorst & Schon, 2015), secondary analysis of previously used data set (Glaser, 2007), and informed grounded theory where the researcher uses literature review strategies to develop and refine theory (Thornberg, 2012). Glaser made the same argument about these processes when he stated while testing theory one cannot create theory because they are in a state of rigidity, or tightening, but instead must loosen the rules to propose theory and make this process the primary reason for data analysis (Glaser, 2007; Fiedler, 2004).

While my theoretical framework did not work in practice, I feel it did "work" within the theories themselves. Value theory has been tested multiple times to demonstrate that values influence the decisions and actions of people in many different circumstances and in many different countries (Biber, Hupfeld & Meier, 2008; Borg, et. al, 2011; Cieciuch & Schwartz, 2012; Parks & Guay, 2009; Roccas & Amit, 2011; Schwartz, 2014; Schwartz, 1999; Schwartz, Struch & Bilsky, 1990; Vecchione et. al, 2011). Additionally, LET has been tested multiple times to demonstrate that cognition formation is influenced by the level of need for closure in determining the amount of hypotheses generated and explored (?Bar-Tal, Raviv & Spitzer, 1999; Boyle, Magnusson & Young, 1993; Ford & Kruglanski, 1995; Higgins, 1990; Kruglanski, 2004;

Kruglanski, 1990; Pierro, Cicero et. al, 2005; Scholten, Van Knippenberg, Nijstad & De Dreu, 2007). Through the lens of complexity, we know that multiple stimuli influence each system, therefore, both theories that demonstrate an influence on decisions and actions may also be influencing PLC implementation at the same time.

While I do not propose an emergent theory, my use of a theoretical framework continuum with two psychological theories does raise an interesting question: could the framework create new theory? The answer in regards to this research study was a very strong no. This study was conducted in the tightening step of theory formation, which is the wrong process in which to develop theory. In order to discover if this theoretical framework continuum could add to theory formation in either the educational field or the field of psychology would need analysis of the data with a loosening process to develop theory, not a tightening process to validate it.

Synthesis

The theoretical framework of two value dimensions from Schwartz' value theory, openness to change and conservation, and Kruglanski's need for cognitive closure theory did not yield results. However, sociograms and the position of the power value in the PLC members' value profiles indicated an influence on the relational context of the PLC. When the power value was rated last or next to last in the value profile, reports from teacher members suggested that the PLC functioned at a higher level than PLC members' reports from PLCs with the members' power value rated higher in the value profile. Basically, members that have a lower need for power were more willing to collaborate, develop an environment of trust, and deal with conflict effectively. The sociograms and placement of the power value in school leadership teams did not show an influence. School culture indicated an influence based on the structures of the leadership team. When school leaders had a high level of attendance monitoring, including

monitoring outside the PLC meeting times, data suggested the PLC was implemented with more fidelity. In the school cases where structures and attendance monitoring were demonstrated as school wide initiatives, like unit learning maps, PLC rubrics for professional development, and probes, teacher reports of PLCs suggested the most fidelity. In Blues Middle, where structures and attendance monitoring were reported as more basic, less fidelity was reported. In this way, data suggested multiple influences on sustained change through PLC implementation fidelity: power structure, school leader structures and attendance monitoring, and a culture in which members felt security and could deal effectively with conflicts.

Implications for Educational Leaders

In understanding the roadblocks suggested in this study, the implications for educational leaders became clear. While multiple factors influence PLC implementation, this study suggested roadblocks to sustained change through implementation include time constraints, unbalanced power structures, school culture, and conflict resolution. When school leaders worked to rid their school of these roadblocks, the opportunity for sustained change was increased.

The first roadblock is school culture. Cultures that are built on mutual respect, understanding others' perspectives, and a sense of security create a strong foundation for factors that build an environment of trust. An environment of trust is needed so PLC members' can effectively deal with conflict; without this conflict resolution step, PLC implementation does not include deep collaboration (Jones & Thessin, 2015; Barton & Stepanek, 2012; Leclerc et. al, 2012; Lujuan & Day, 2010; Riveros, Newron & Burgess, 2012; Teague & Anfara, 2012; Scribner et. al, 1999). School leaders must be willing to model and coach PLC members through the process of effectively dealing with conflicts. However, this endeavor will not be successful

until school leaders build a culture that includes an environment of trust through respect and understanding.

Another road block is time constraints. School leaders that monitor PLCs through attendance monitoring, offering feedback and training, and providing strong structures, create an environment conducive to PLC implementation, and fidelity of the PLC process (Barton & Stepanek, 2012; Glickman, 2002; Leclerc et. al, 2012; Lujuan & Day, 2010; Riveros, Newron & Burgess, 2012; Spillane, 2005; Spillane, Halverson, & Diamond, 2004; Teague & Anfara, 2012). School leaders must be willing to plan time to monitor and attend PLC meetings. Making PLC meeting attendance a priority is important for school leaders. Their participation allows PLC implementation influences the PLC as a vehicle of sustained change, as fidelity creates the opportunity for more collaboration, an environment of trust, and groups that can effectively deal with conflict. School leaders that focus their time on PLC implementation with fidelity improve not only instruction, but create the opportunity for a school that functions as a collaborative community.

A more collaborative community comes with power structures that are balanced. Just as complex systems seek to maintain balance (Alhedeff-Jones, 2008; Julien, 2009; Krstacic & Krstacic, 2014; Levy, 1994; Orzen & Karatas, 2013; Pollock, Adler & Sankaron, 2014; Ross, 2014; Shoup & Studer, 2010; Smitherman, 2005; Trueit, 2013), this study suggested power structures are influential in PLC implementation. Unbalanced power structures created disruption, another roadblock to PLC implementation for sustained change. When PLCs did not resolve this disruption through conflict mediation, the unbalanced power structure remained, and sustained instructional change did not occur. School leaders must be willing to assist teachers that are reluctant to work through these processes. Additionally, school leaders must understand

these power structures and seek to resolve them within PLCs so that sustained instructional changes may occur.

Limitations

A bounded case study of multiple school cases was indicated in this research as the timeline was appropriate for the PLC initiative, giving time for participants to reflect on PLC implementation, fidelity to become apparent or not, and for the PLC implementation to imbed within the school. Bounded case studies create the issue of generalizability. First, while this study can only be generalized to the other seven middle schools in the district, data analysis in this study can be included in a growing amount of research findings on specific influences on new initiatives in schools both inside and outside the district. Secondly, my initial proposal included analysis that incorporated both the NFC scale and the PX5VQ value questionnaire to determine where participants fell on the theoretical framework of high NFC/conservation vs. low NFC/openness to change continuum. In the case of the NFC scale, the data analysis did not suggest differences in data to a degree ethically appropriate to determine participant placement. More research is needed to determine if this proposed continuum is a determining factor of workgroups within the context of schools or if the null hypothesis is correct.

Implications for Future Research

While this study added to the growing research about new initiatives in the educational environment, many other opportunities for future research remain. Schwartz and other scholars believe values are contextual (Biber, Hupfeld & Meier, 2008; Borg et. al, 2011; Cieciuch & Schwartz, 2012; Kaptan, Shiloh & Onkal, 2013; Kilburn, 2009; Parks & Guay, 2009; Roccas & Amit, 2011; Sagiv & Schwartz, 2000; Schwartz, 2014; Schwartz, 1999; Schwartz et. al, 2012; Schwartz, Struch & Bilsky, 1990; Vecchione et. al, 2011). The analysis of value profiles for

PLC members suggested the value of power influenced PLC implementation for sustained change. Future research is needed to determine influences on power structures in PLC implementation. Using the lens of complex systems, further research could analyze the interrelation context of school culture on value structures within the school environment to determine if changes in value profiles occur over time when influenced by school culture. In short, what came first: the power structure or the implementation processes?

Secondly, using the lens of complexity, more research is needed on the influence of multiple initiatives on schools. Each complex system incorporates new, and often multiple, stimuli into all parts of the system to create sustained change (Byrne & Callaghan, 2014; Chillers, 2010; Curlee & Gordon, 2010; He, 2014; Julien, 2009; Krstacic & Krstacic, 2014; Levy, 1994; Orzen & Karatas, 2013; Pollock, Adler & Sankaron, 2014; Ross, 2014; Shoup & Studer, 2010; Smitherman, 2005; Trueit, 2013). As this study suggest that PLC implementation has influenced collaboration beyond PLC meetings, further research about the influence of other initiatives on the whole school environment is needed. Future research should explore the influence of multiple initiatives on the complex educational system.

Lastly, another area of research is the relational context of school workgroups. This study sought to understand the phenomenon of relational context in PLC implementation to create sustained change in the instructional environment. For example, Green Middle English 6 PLC consisted of more members and seemed to have the most PLC implementation. While all PLCs have the opportunity to have special education teachers as members, it seems this PLC included them as active members when others did not. Is this due to successful PLC implementation creating opportunities for more collaboration in the form of bigger social workgroups? The influence of relationship within school workgroups can add thick description

to the growing body of research on workgroups, both within the school environment and outside of it. While you can mandate people meet, you cannot make them work together. More research is needed to understand the ways in which leaders can influence workgroups to work together in order to move beyond surface level change into sustained change processes.

Conclusion

This research studied the relational context of professional learning communities in three middle schools in one Southeastern Virginia school district. The influence of both school leaders and teachers were viewed through a bounded case study methodology. Using a complex systems lens, a deeper understanding of the phenomenon was seen. As with all complex systems, the findings in this study work in tandem to create an environment for PLC implementation which creates sustained changes or surface level changes. As each influence works on the system to a different level, the system of each school, as well as each PLC, is changed and emerges as unique from one another.

Research finding suggested that two schools are more successful in PLC implementation for sustained change, and while we gain insight from the findings from these two schools, the school that was suggested to be less successful aided in a deeper understanding of the phenomenon. Data analysis suggested four major themes: power structures, school leader involvement, school culture factors, and sustained changes. PLC implementation that occurred within a school culture of security aided in building an environment of trust, effectively dealing with conflict, and in-depth collaboration. Effectively dealing with conflict was seen as a gateway to fidelity and yielded more sustained changes throughout the school cases. Without this factor, data analysis suggested less PLC implementation. While both value dimensions, openness to change and conservation, and NFC did not suggest an influence, the placement of the power

value in PLC teacher members' value profiles did suggest an influence on the ability to PLC implementation through the gateway of conflict resolution. Beyond the influence on school culture, school leaders' influence was seen through attendance monitoring, building structures, and continuous training. Successful PLC implementation suggested an influence on the whole school environment, moving towards a more collaborative community overall.

The question that began this research was: why do some schools show success in increasing student achievement and others do not? This study suggested that while "data is king," relationships that build collaboration are the key to sustained change. School leaders must understand the importance of a secure and trusting environment that breeds the opportunity for these important relationships. In this research, I discovered that each school, as well as each PLC was different. The completion of this research created a clearer understanding that the original question of how schools create sustained change is as complex as the complex educational system within which it is asked.

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APPENDIX A

INTERVIEW PROTOCAL FOR SCHOOL LEADERS

Hello, my name is Johnna Byrd-King and I am a student at ODU. I am working towards my dissertation researching instructional change through a case study of professional learning communities. I am asking for you to participate in a survey and interview to assist me with this research, which should take less than an hour of your time. I am also asking you to complete a survey which will assist in this research. Your participation is voluntary and you can elect to stop your participation at any time. The information you provide will be kept confidential and will be kept with protected passwords and/or a locked file cabinet. Individual results from this survey will not be shared with anyone. Results from the research may be used in the dissertation, presentations, and publications. Overall results for the entire school may be shared with the principal. If you have any questions, you can contact me through school email or at my home number listed below. Thank you for completing the survey. Do you have any questions before we begin the interview questions? Do you agree to your voluntary participation in this interview? Thank you for your time and assistance.

1. Tell me about the PLC implementation process in your school.
2. What did you think initially about PLCs?
3. What do you think at this time about PLCs?
4. At the beginning of the implementation process, what were the strengths in your school that aided this process?
5. What have been the challenges to implementing PLCs in your school?
6. Before the implementation of PLCs, what was the structure in your school for teachers to collaborate by grade and subject?
    a. Do you feel this structure was successful?
7. What do you do to aid the implementation of PLCs in your building?
8. How did you present the implementation of PLCs to your staff?
9. What does a leader need to do to implement a new schoolwide program?
10. What changes has the implementation of PLCs created in your school?

11. What values are most important when implementing a new process or program in your school?
12. Is there any additional information about PLC implementation that you would like to share?

Thank you for taking your time to answer the interview questions. Information regarding results for your school will be shared with the principal. If I have any additional questions or need to verify your meaning about what you have said, may I contact you with these inquiries? If you have any questions, please feel free to contact me through school email or at my telephone number (757) 408-0737. Thank you again for your participation.

Contact Information:
Johnna Byrd-King
(757) 408-0737
Byrdjly@yahoo.com
Johnna.Byrd-King@ cpschools.com

APPENDIX B

INTERVIEW PROTOCAL FOR TEACHERS

Interview Script and Prompts for Teacher Interviews

Hello, my name is Johnna Byrd-King and I am a student at ODU. I am working towards my dissertation researching educational change through a case study of professional learning communities. I am asking for you to participate in an interview as part of this research. This should take less than thirty minutes of your time. Your participation is voluntary and you can elect to stop your participation at any time. The information you provide will be kept confidential and will be kept with protected passwords and/or a locked file cabinet. Results from the research may be used in the dissertation, presentations, and publications. If you have any questions, you can contact me through email or at my cell number listed below. Thank you for your time and assistance. Do you understand and agree to your voluntary participation?

Contact Information:
Johnna Byrd-King
(757) 408-0737
byrdjly@yahoo.com
Johnna.Byrd-King@cpschools.com

Interview Prompts:

Please tell me about your experiences with professional learning communities in your school.

- Administrator involvement
- Group dynamics/ relationships
- Advantages or disadvantages to you
- PLC structure (time, place, how often)
- Leadership within the PLC
- Influence on your instruction
- Conflict resolution
- Sustained change

APPENDIX C

ONLINE SURVEY MEASURES

Teacher Demographics and Sociogram Questionnaire

Subject: (Circle all that apply): English History Math Science Special Education

Grade: (Circle all that apply): 6 7 8

Years of teaching experience: 0-5 6-10 11-15 16 or more

Please answer the following questions with first names only:

- Please pick one person in your professional learning community (PLC) that you would choose first to partner with to complete a project: _____
- Please pick one person you feel is the leader of the PLC: _____
- Please pick one person you feel knows the most subject content from the PLC: _____
- Pick one person that contributes the least to the PLC: _____
- Please write your first name: _____

- How do you feel the implementation of PLCs at your school has impacted your instruction in the classroom?
- What are the advantages to you as a member of the PLC?
- What are the disadvantages to you as a member of the PLC?

School Leader Information and Sociogram Questionnaire

Job Title: Principal Assistant Principal Grade: (Circle all that apply): 6 7 8

Subject of PLC you attend: (Circle all that apply): English Math History Science

Years of experience: 0-5 6-10 11-15 16 or more

Please answer the following questions with first names only:

- Please pick one person in your administrative team that you would like to partner with to complete a project: _____
- Please pick one person you feel is the leader of the administrative team: _____
- Please pick one person you feel has the most educational knowledge in your administrative team: _____
- Pick one person you feel contributes the least to the administrative team: _____
- Please write your first name: _____

- How do you feel the implementation of PLCs at your school has impacted classroom instruction?
- What are the advantages to you as a member of the PLC?
- What are the disadvantages to you as a member of the PLC?

Please rate each of the following statements according to your thoughts and values using the six-point Likert scale. Thank you for your time and information.

Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
1	2	3	4	5	6

I think that having clear rules and order at work is essential for success.	1	2	3	4	5	6	I usually make important decisions quickly and confidently.	1	2	3	4	5	6
Even after I've made up my mind about something, I am always eager to consider a different opinion.	1	2	3	4	5	6	I have never been late for an appointment or work.	1	2	3	4	5	6
I don't like situations that are uncertain.	1	2	3	4	5	6	I think it is fun to change my plans at the last moment.	1	2	3	4	5	6
I dislike questions which could be answered in many different ways.	1	2	3	4	5	6	My personal space is usually messy and disorganized.	1	2	3	4	5	6
I like to have friends who are unpredictable	1	2	3	4	5	6	In most social conflicts, I can easily see which side is right and which is wrong.	1	2	3	4	5	6
I find that a well ordered life with regular hours suits my temperament.	1	2	3	4	5	6	I have never known someone I did not like.	1	2	3	4	5	6
I enjoy the uncertainty of going into a new situation without knowing what might happen.	1	2	3	4	5	6	I tend to struggle with most decisions.	1	2	3	4	5	6
When dining out, I like to go to places where I have been before so that I know what to expect.	1	2	3	4	5	6	I believe orderliness and organization are among the most important characteristics of a good student.	1	2	3	4	5	6
I feel uncomfortable when I don't understand the reason why an event occurred in my life.	1	2	3	4	5	6	When considering most conflict situations, I can usually see how both sides could be right.	1	2	3	4	5	6
I feel irritated when one person disagrees with what everyone else in a group believes.	1	2	3	4	5	6	I don't like to be with people who are capable of unexpected actions.	1	2	3	4	5	6
I hate to change my plans at the last minute.	1	2	3	4	5	6	I prefer to socialize with familiar friends because I know what to expect from them.	1	2	3	4	5	6
I would describe myself as indecisive.	1	2	3	4	5	6	I think that I would learn best in a class that lacks clearly stated objectives and requirements.	1	2	3	4	5	6
When I go shopping, I have difficulty deciding exactly what it is I want	1	2	3	4	5	6	When thinking about a problem, I consider as many different opinions on the issue as possible.	1	2	3	4	5	6
When faced with a problem I usually see the one best solution very quickly	1	2	3	4	5	6	I don't like to go into a situation without knowing what I can expect from it.	1	2	3	4	5	6

When I am confused about an important issue, I feel very upset.	1	2	3	4	5	6	I thinks it is important that every person in the world have equal opportunities in life	1	2	3	4	5	6
I tend to put off making important decisions until the last possible moment.	1	2	3	4	5	6	It is important to me to listen to people who are different from me	1	2	3	4	5	6
It's annoying to listen to someone who cannot seem to make up his or her mind.	1	2	3	4	5	6	Being creative is important to me	1	2	3	4	5	6
I find that establishing a consistent routine enables me to enjoy life more.	1	2	3	4	5	6	It is important to me that the country protect itself against all threats	1	2	3	4	5	6
I enjoy having a clear and structured mode of life.	1	2	3	4	5	6	Having a good time is important to me	1	2	3	4	5	6
I prefer interacting with people whose opinions are very different from my own.	1	2	3	4	5	6	It is important to me to avoid upsetting other people	1	2	3	4	5	6
I like to have a plan for everything and a place for everything.	1	2	3	4	5	6	Protecting society’s weak and vulnerable members is important to me	1	2	3	4	5	6
I feel uncomfortable when someone's meaning or intention is unclear to me.	1	2	3	4	5	6	I want people to do what I say	1	2	3	4	5	6
I believe that one should never engage in leisure activities.	1	2	3	4	5	6	I strongly believe that I should care for nature	1	2	3	4	5	6
When trying to solve a problem I often see so many possible options that it's confusing.	1	2	3	4	5	6	It is important to me that no one should ever shame me	1	2	3	4	5	6
I always see many possible solutions to problems I face.	1	2	3	4	5	6	I am always looking for different kinds of things to do	1	2	3	4	5	6
I'd rather know bad news than stay in a state of uncertainty.	1	2	3	4	5	6	I go out of my way to be a dependable and trustworthy friend	1	2	3	4	5	6
I feel that there is no such thing as an honest mistake.	1	2	3	4	5	6	It is important to me to be loyal to those who are close to me	1	2	3	4	5	6
I do not usually consult many different options before forming my own view.	1	2	3	4	5	6	Having the feeling of power that money can bring is important to me	1	2	3	4	5	6
I dislike unpredictable situations.	1	2	3	4	5	6	I think it is important to be ambitious	1	2	3	4	5	6
I have never hurt another person's feelings.	1	2	3	4	5	6	It is important to me to maintain traditional values or beliefs	1	2	3	4	5	6
I dislike the routine aspects of my work (studies).	1	2	3	4	5	6	It is important to me to make my own decisions about my life	1	2	3	4	5	6
I like to know what people are thinking all the time.	1	2	3	4	5	6	Protecting my public image is important to me	1	2	3	4	5	6
I dislike it when a person's statement could mean many different things.	1	2	3	4	5	6	It is important to me to work against threats to the world of nature	1	2	3	4	5	6

Excitement in life is important to me	1	2	3	4	5	6	It is important to me to follow rules even when no one is watching	1	2	3	4	5	6
I wants the state to be strong so it can defend its citizens	1	2	3	4	5	6	Being wealthy is important to me	1	2	3	4	5	6
Enjoying life's pleasures is important to me	1	2	3	4	5	6	It's very important to me to help the people dear to me	1	2	3	4	5	6
Caring for the well-being of people I am close to is important to me	1	2	3	4	5	6	It is important to me to form my own opinions and have original ideas	1	2	3	4	5	6
Doing everything independently is important to me	1	2	3	4	5	6	My personal security is extremely important to me	1	2	3	4	5	6
It is important to me to be humble	1	2	3	4	5	6	Being very successful is important to me	1	2	3	4	5	6
It is important to me to be the one who tells others what to do	1	2	3	4	5	6	Following my family's customs or the customs of a religion is important to me	1	2	3	4	5	6
Learning things for myself and improving my abilities is important to me	1	2	3	4	5	6	It is important to me to be satisfied with what I have and not to ask for more	1	2	3	4	5	6
Obeying all the laws is important to me	1	2	3	4	5	6	I always try to be tactful and avoid irritating people	1	2	3	4	5	6
I think it is important to have all sorts of new experiences	1	2	3	4	5	6	I want everyone to be treated justly, even people I don't know	1	2	3	4	5	6
I think it is important never to be annoying to anyone	1	2	3	4	5	6	It is important to me to live in secure surroundings	1	2	3	4	5	6
I strongly value the traditional practices of my culture	1	2	3	4	5	6	I want people to admire my achievements	1	2	3	4	5	6
Protecting the natural environment from destruction or pollution is important to me	1	2	3	4	5	6	I wants those I spend time with to be able to rely on me completely	1	2	3	4	5	6
Having order and stability in society is important to me	1	2	3	4	5	6	Even when I disagree with people, it is important to me to understand them	1	2	3	4	5	6
Freedom to choose what I do is important to me	1	2	3	4	5	6							

Thank you again for your participation in my research. If you would like information regarding the results, please check the box below. These results will be given to you in a sealed envelope when the results are available. Thank you!

Yes, please give a report back to me regarding the results. If you would like your individual results, please print you first and last name. My name is: _____

APPENDIX D

EXAMPLE WORKSHEET FOR PLC AND SCHOOL LEADERSHIP TEAMS PLC MEMBER'S PORTRAIT VALUE PROFILE

ADMIN GREEN

NFC Score	Name Code
153.00	G1
152.00	G2
178.00	G3
162.00	G4

PLC	Universalism	Benevolence	Conformity	Tradition	Security	Power	Achievement	Hedonism	Stimulation	Self-direction
G1	4.67	5.83	4.08	3.00	5.33	3.50	3.67	4.00	3.33	5.33
G2	4.11	5.67	5.08	4.33	5.58	3.75	5.00	6.00	4.67	4.33
G3	3.67	5.83	4.50	4.33	5.67	3.75	4.33	5.00	4.33	4.67
G4	4.67	5.67	5.50	5.00	5.50	3.75	3.33	5.00	4.67	4.50

G1	G2	G3	G4
Benevolence	Hedonism	Benevolence	Benevolence
Self-direction	Security	Security	Security
Security	Benevolence	Hedonism	Conformity
Universalism	Conformity	Self-direction	Tradition
Conformity	Achievement	Conformity	Hedonism
Hedonism	Stimulation	Stimulation	Stimulation
Achievement	Self-direction	Achievement	Universalism
Power	Tradition	Tradition	Self-direction
Stimulation	Universalism	Universalism	Power
Tradition	Power	Power	Achievement

VITA

Johnna L. Byrd-King

1008 Roxbury Court, Chesapeake, VA 23320 Phone (757) 408-0737
Email: Johnna.Byrd-King@cpschools.com

Educational History

Old Dominion University	Classes for Ph.D. Educational Leadership Expected Graduation: May 2018	
Old Dominion University Norfolk, VA	Ed.S. Educational Leadership Certification: School Administration (K-12) 2007	
Old Dominion University Norfolk, VA	M.S.Ed. Guidance and Counseling Certification: School Counseling (K-8) 1995	
Virginia Tech Blacksburg, VA	B.S. Psychology 1993	

Professional Positions

Assistant Principal *2016-Present*

Greenbrier Middle School, Chesapeake, VA
MetLife-NASSP National Breakthrough School

Duties:

- Seventh Grade Administrator
- Instructional Monitoring
- Observation/Evaluation
- Interviewing/Hiring Recommendations
- Math Department
- Staff Activities
- Master Scheduling
- Guidance Liason
- Security Liason
- Special Education
- Substitutes
- Paraprofessional Liason
- Substitutes
- State and District Testing

Supervisor: Dr. Michael Mustain, Principal

Assistant Principal *2010-2016*

Oscar Smith Middle School, Chesapeake, VA
MetLife-NASSP National Breakthrough School

Duties:

- Sixth Grade Administrator
- Instructional Monitoring
- Observation/Evaluation
- Interviewing/Hiring Recommendations
- ARC Liason
- Math Department
- Algebra Readiness/ Teacher Corps / math remediation
- Staff Activities
- All Scheduling (master, assembly, early release, bell, etc.)
- Special Education
- Substitutes
- Paraprofessional Liason

Supervisor: Dr. Linda Scott, Principal (2010-2012)
Mrs. Judy Thurston, Principal (2012-2016)

Guidance Director *2009-2010*
Hugo A. Owens Middle School, Chesapeake, VA

Duties:

- Master Schedule for all staff positions
- Create Staffing Report
- Responsible for all student scheduling
- SOL Site Testing Coordinator
- Responsible to educate students in the areas of social, emotional, career, and academic planning
- Responsible for grading processes
- Guidance Department Head

Supervisor: Michael Perez, Principal

Administrative Assistant *2008-2009*
Great Bridge Middle School, Chesapeake, VA

Duties:

- English as a Second Language Coordinator
- Administrative Designee for IEP meetings
- Edit all IEPs
- Remediation Program Coordinator
- Discipline
- Lunch duty
- Inventory
- After School Study Hall / Activities Administrative Designee

Supervisor: Beverly Oliver, Principal

GED Examiner *2006-2010*
Adult and Continuing Education Department, Chesapeake, VA

Duties:

- Administer the GED tests successfully to students

Supervisor: Deborah Hunley-Stukes, Director

Guidance Director *2002-2008*
Crestwood Middle School, Chesapeake, VA

Duties:
- Master Schedule for all staff positions
- Create Staffing Report
- Homebound Coordinator
- Responsible for all student scheduling
- Assist in NAEP Testing Program
- Site Testing Co-Coordinator
- Responsible to educate students in the areas of social, emotional, career, and academic planning
- Responsible for grading processes
- Guidance Department Head

Supervisor: Jacque K. Tate, Principal

Summer School Guidance Director *Summers 2000-2002*
Deep Creek Middle School & Western Branch Middle School

Duties:
- Responsible for student schedules
- Responsible to educate students in the areas of social, emotional, career, and academic planning
- Responsible for grading processes
- Responsible for Daily Enrollment Counts
- Responsible for grading processes

Supervisor: Robert Scott, Assistant Principal

Guidance Counselor *1997-2002*
Hugo A. Owens Middle School, Chesapeake, VA

Duties:
- Responsible for sixth grade student guidance activities
- Responsible for student schedules
- Responsible to educate students in the areas of social, emotional, career, and academic planning
- Responsible for grading processes
- Responsible for classroom guidance lessons with all sixth grade students
- Career Day Co-Chair
- Academic Awards Committee
- Student Recognition Committee

Supervisor: Deborah Hunley-Stukes, Principal

Guidance Counselor *1995-1997*
Georgetown Primary & Greenbrier Intermediate Schools, Chesapeake, VA
Duties:
- Responsible for student guidance activities
- Responsible for student groups
- Responsible to educate students in the areas of social, emotional, career, and academic planning
- Responsible for classroom guidance lessons with selected classes
- Career day Co-Chair

Supervisor: Dr. Glenn Brown, Principal
Dr. Alan Vaughn, Principal

Membership in Professional Associations

ASCD
National Middle School Association
Tidewater Association of Curriculum and Development
Tidewater Consortium of Teachers of Mathematics
Virginia Association of Secondary School Principals
Chesapeake Reading Association

Professional Activities

1. Breaking Ranks Trainer, 2013
2. Scholastic Math Inventory Training, 2011
3. Summer Leadership Training, 2011, 2010
4. Graduation Helper, Ted Constant Center, 2009, 2011, 2012
5. Summer School Graduation Program Developer, 2009
6. Summer School Graduation Helper, 2009
7. Graduation Helper, Indian River High School Graduation, 2009
8. Middle School Career Interest Survey, Creator, Summer 2009
9. Drop-Out Prevention / Transition Program Study Committee, 2009-2010
10. Great Bridge Middle School Staff Development, Presenter
    Topic: Drill to the Skill- Data Analysis Using SOL and Benchmark Results, January, 2009
11. Secondary Summer School Committee, Presenter / Member, 2008-2009
12. Entry Level Leadership Academy, Member, Spring 2008
13. Cooperating Teacher, Summer 2006, Spring 2007, Fall 2009
14. Scheduling Night Coordinator, Crestwood Middle School, 2002-2008
15. Chesapeake Public Schools School Counselor Training Academy Presenter,
    Topic: School Counselor Accountability, September 2005
16. Chesapeake Public Schools School Counselor Training Academy Presenter,
    Topic: Incorporating SOLs into Classroom Guidance Activities, September 2004
17. VCA Annual Conference Presenter
    Topic: Incorporating SOLs into Classroom Guidance Activities, April 2005
18. 504 Committee Chair, Hugo A. Owens Middle School, 2000-2002

Conference Highlights

1. Breaking Ranks Middle School Conference, January 2012
2. Virginia Department Of Education Conference, July 2010
3. School Refusal Behavior Conference, May 2007
4. Bully Prevention Workshop, October 2006
5. VCA Annual Conference, April 2005
6. How to Handle the Hard to Handle Parent, January 2003
7. Tidewater Tech Prep Consortium Tech Trek Tours, July 2003
8. Preventing School Violence through Emotional Safety, February 2000
9. Gender Equity in Education, August 1998
10. PRIDE Leadership Conference, July 1997
11. World Drug Conference, March 1997

References available upon request.