PROFESSIONAL LEARNING COMMUNITIES AND RELATIONAL TRUST: A CORRELATIONAL STUDY

by

Theresa Ann Pedersen

Liberty University

A Dissertation Presented in Partial Fulfillment

Of the Requirements for the Degree

Doctor of Education

Liberty University

2019

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ABSTRACT

Professional Learning Communities (PLC) are considered best practice, but additional research was needed to examine the relationships necessary to build and sustain PLCs. The purpose of this correlational study was to determine if there is a relationship between the perceptions educators have about their PLC and the level of relational trust among its members. Scores for the analysis came from two surveys, The Professional Learning Community Assessment-Revised and The Omnibus T-Scale (Hoy & Tschannen-Moran, 2003). The sample consisted of 104 educators in 3 school districts in Iowa, Illinois, and New York; each was awarded model PLC distinction. Each teacher completed both surveys and provided additional demographic data. To examine if the dimensions of a PLC would predict the 3 elements of trust, the researcher used 3 standard multiple regressions. Descriptive statistics about the variables were calculated. Results from the Pearson product-moment correlation coefficient (Pearson's *r*) analyses demonstrated significant correlations existed between a teacher's understanding of the dimensions of a PLC and the three dimensions of trust. Dimensions of a professional learning community (PLC) statistically significantly predicted trust in principal, trust in colleague, and trust in stakeholders. Significant evidence allowed the researcher to reject the null hypothesis. Four variables made individual significant contributions: shared and supportive leadership, supportive conditions-relationships, shared personal practice, and collective learning and application. Building and nurturing trust among its members is key to building and sustaining effective PLCs. School or district administrators planning to develop or sustain PLCs must evaluate the key dimensions, while encouraging a culture of trust.

Keywords: collaboration, trust, relational trust, professional learning community (PLC)

Copyright

Acknowledgements

I would like to thank my husband, Eric, for walking with me on this challenging journey. You have always been my best friend and the most encouraging person I know. I am courageous in my aspirations because you believe in me. Your faith in me kept me moving forward, especially when I feared I would not complete this dissertation.

I would like to thank my daughter, Grace Katherine. You inspire me with your intelligence, tenacity, and strength. Thank you for supporting my dreams, even when it meant I missed your games or events. You are my greatest treasure, and I am so proud to be your mom.

I would like to thank my parents, Joyce and Richard Reiland, for your constant love and support. You were my first cheerleaders! You believed I could be ANYTHING I chose to be. I am forever grateful for the sacrifices you made so I could go to college at Loyola University. I will never forget the "flying $20's" Dad left for me to find on the counter while I was a struggling graduate student at Rockford University. I miss you, Dad.

Thank you to my dissertation chairperson, Dr. Amy Jones, who believed I would prevail. Your patience, guidance, and prayers during this endeavor were a blessing to me. I am also indebted to my dissertation committee members, Dr. Roger Stiles and Dr. Nina Dorsch. Your encouragement, prayers, and expertise are the reason I finished my dissertation. Finally, I would like to thank Dr. Amanda Rockinson-Szapkiw who acted as my consultant on this project. I could not have completed my analysis without your expertise and encouragement.

I am indebted to my first mentor, Dr. Richard DuFour. His commitment to excellence in education drives me to lead. His groundbreaking ideas about collaboration inspired this research.

Throughout this journey, I have learned what it means to trust my Lord and Savior. He has walked with me every step of the way, has never failed me, and the glory is His!

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Communities of Practice (CoP)

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CHAPTER ONE: INTRODUCTION

Overview

Evidence of school improvement through the collaborative work of teacher leaders, administrators, and families had been in the research for over 30 years (Adams, 2013). A growing body of research focused on how structured collaboration among teachers relates to the improvement of public schools. To foster collaboration and reduce teacher isolation, research by Liou and Daly (2014) cited administrators engage in planning to restructure teachers' work environments into collaborative communities of practice.

Findings by Liou and Daly (2014) demonstrated schools function effectively when there are learning-focused interactions among teacher teams called Professional Learning Communities. Research showed schools with increased teacher collaboration also tend to have a greater sense of relational trust. In fact, some level of collaboration designed to improve student learning and improve teachers' pedagogical knowledge was present in schools with high trust (Costa & Anderson, 2011).

The background section of chapter one presents a look at the definition of professional learning communities (PLC), the dimensions of the PLC model, the importance of school reform, and the connection between relationships and trust in a PLC. The researcher presents the problem and showed why literature had not fully addressed the focus of this study. The purpose statement shares how this problem was addressed through this study. The significance of this study serves to clarify how this research added to the present body of knowledge on this topic. This chapter concludes with a research question and a list of definitions.

Background

DuFour, Eaker, and DuFour (2005) believed Professional Learning Communities (PLCs)

are “the best, least expensive, most professionally rewarding way to improve schools. . . and hold out immense, unprecedented hope for schools and the improvement of teaching” (p. 128). PLCs emerged as school reform initiatives were designed to improve instructional competency and contribute to student learning (Harris & Jones, 2013). At the core of the PLC concept was the belief that simply providing instruction was not enough; educators must also ensure students are learning (DuFour, 2004; Teague & Anfara, 2012). Staff development failed to affect student achievement (Marzano, 2003) and leaders shifted toward reflective practices requiring teachers to work and learn together on teams (Fulton & Britton, 2011).

PLCs required a schoolwide or a districtwide effort by educators to achieve better student results. They provided educators with on-the-job professional development. This training allowed teachers to gather data about individual performance, develop strategies to address student problems, and assess solutions to improve performance. The PLC was the creation of an environment where all stakeholders had a voice and common goals (DuFour, DuFour, Eaker, & Many, 2006). Effective PLCs required job-embedded collaboration and shared decision-making around curriculum, assessment, and instruction. Yet, many schools failed to move beyond simply sharing instructional practices (Hord & Sommers, 2013), calling their grade-level meeting a PLC.

According to Olivier, Hipp, and Huffman (2010), the term Professional Learning Community (PLC) first emerged as early as the 1960s in response to an unpopular isolation epidemic in the teaching profession in the United States. Hipp and Huffman (2010) explained, “The term professional learning community actually emerged from organizational theory and human relations literature; it is where educators continuously seek to find answers” (p. 11). By 1980, top-down educational reforms meant PLCs were an answer to budget cuts, as co-teaching

relationships became the answer for general education teachers tapped to teach children with special needs in greater numbers (DuFour & DuFour, 2012). In the 1990s, a constructivist mindset, popular in education, inspired formal PLCs based upon meaningful learning, engaged staff members, and increased student achievement (Vescio, Ross, & Adams, 2008). Each of these trailblazing trends saw PLCs as way to change the school culture and improve student learning.

From 1995 to 2007, Hord and his team (2013) at the Southwest Educational Development Laboratory conducted a federal study about the development of PLCs. This study led the team to develop the five dimensions of the PLC model, which is required for teachers to work together: (a) supportive and shared leadership, (b) shared vision and values, (c) collective learning and application of learning, (d) supportive conditions, and (e) shared personal practice. PLCs were initially met with enthusiasm as a way to build teacher capacity. Education reformers and researchers viewed PLCs as a tool to enhance teacher learning, competency, and practice, which would lead to improvements in student learning (Hairon, Goh, Chua, & Wang, 2017). The opportunity to improve student achievement through shared vision in a PLC (Harris & Jones, 2013) inspired leaders to articulate outcomes and plan future action as they considered student-learning data (Hallam, Smith, Hite, Hite, & Wilcox, 2015).

PLCs are not an educational fad. They continue to exist because educational leaders need a way to prepare today's students to succeed in the current global economic climate (Jones & Thessin, 2015). According to Jones and Green (2015), public education in the United States endured many reforms, particularly to address substantial gaps in educational achievement persisting among America's students. Overall, school improvement progress was slow, with little cumulative effect to show for the effort (Adams, 2013). The research and evaluation of

PLCs continued to be an area of need, especially once major contributors and researchers began to develop protocols, plans, and assessments about the process of PLC development (Vescio et al., 2008).

For much of the last century and well into the current one, many teachers have worked behind their classroom doors to independently design interventions to meet student needs (Jones & Thessin, 2015), and small pockets of excellence have been accepted as the norm (Van Lare & Brazer, 2013). While collaboration was touted as the answer to lagging student achievement, the culture of teacher autonomy continued in American education. The demands of a 21st century world called for students who were college-and-career-ready, and those requirements have placed student deficiencies on standardized testing under the microscope. The response was a renewed focus on improving classroom instruction to improve student outcomes (Hord & Sommers, 2013).

The latest reform, signed by President Obama in 2015, was known as Every Student Succeeds Act (ESSA). ESSA was designed to reauthorize the 1965 Elementary and Secondary Education Act (ESEA) and focused on preparing students (Saultz, Fusarelli, & McEachin, 2017) for its demands. In these situations, PLCs were presented as a quick fix or a simple solution, instead of a solid vehicle for addressing the needs of 21st century students in a variety of school districts (Mathews, Holt, & Arrambide, 2014).

In a well-developed PLC, participants regularly worked together, with shared values and vision, to design practical activities focused on student learning. At the core of a successful PLC was collaboration through focused interactions and meaningful exchanges of professional educators (Liou & Daly, 2014). These groups often included grade level teams, interdisciplinary teams (i.e., general and special education), and subject area vertical teams (Teague & Anfara,

2012).

The concept of a PLC was not new, yet school districts struggled to find the best ways to implement an effective PLC design. Some districts' efforts to implement PLCs resembled other superficial reform efforts. PLCs with a loosely configured, informal structure made it easy for teachers to pay attention to everything else except professional learning and student achievement (Harris & Jones, 2013). In those cases, faculty involved in the collaboration significantly reduced the potential impact of their work. Too often, frustration with change, structural issues, and the lack of buy-in led to confusion, criticism, and lots of complaining (DuFour & Marzano, 2014).

As committed teachers supported students, teachers in effective PLCs also worked together to encourage, support, trust, and respect one another. A PLC was a supportive and safe environment built on high expectations, organizational structures, and meaningful relationships (DuFour & Reeves, 2016). A more personal, collaborative approach focused on the relationships among teachers, leading to more problem-solving and pedagogical collaboration among participants (Conner, 2015).

Yet, often lack of trust prevented a team from meeting important goals or communicating. Costa and Anderson (2011) observed teams without trust were quick to stifle new ideas with the potential to improve student learning. Teachers often did not share their ideas with others for fear of seeming pushy, being perceived as a weak, or being viewed as a struggling teacher. For these reasons, opportunities to influence colleagues were lost, and the potential to collaborate was limited (Conner, 2015). Trust was not only important, but essential, to the development of effective PLCs.

This correlational study was guided by three theoretical frameworks commonly

associated with PLCs. These theories were Bandura's (1989) Social Learning Theory, Mezirow's (1997) Transformative Learning Theory, and Senge and Sterman's (1992) Organizational Learning Theory. All were necessary because adults working together in a community was a complex and multi-layered tool for professional learning and student improvement.

Bandura's (1989) Social Learning Theory suggested learning is impacted by collaborative activities, especially modeling or observation. This theory was appropriate to apply to PLCs because it is both cognitive and behaviorally based (Law, Chung, Leung, & Wong, 2017). One study shared evidence many teachers were willing to try a new strategy and reflect on past practice in a social setting (Margolis & Doering, 2012). Bandura influenced DuFour and others to build problem-solving and peer-observation opportunities into PLC structure in order to design instruction (DuFour, DuFour, Eaker, Many, & Mattos, 2016).

Another theoretical framework associated with this study was Mezirow's (1997) Transformative Learning Theory. When teachers critically examined their practice and encouraged feedback from their peers, they made meaning through collaboration. In addition, teachers on teams learned to anticipate and work through conflict while collaborating. Recent qualitative research found teachers believed collaboration was high-quality professional development, as long as the conversations encouraged self-reflection and transformed practice (McComish & Parsons, 2013).

Lastly, Senge and Sterman's (1992) Organizational Learning Theory articulated a common belief that learning occurred in organizations where collaboration had value. Hoy and Tschannen-Moran (2003) applied this concept to schools. He added trusting relationships like those found on collaborative teams developed practices positively impacting student learning.

PLCs encouraged organizational learning through shared aspirations and the development of individual capabilities (Gray, Kruse, & Tarter, 2016).

Problem Statement

PLCs were defined as a group of professional educators working collectively to create and sustain a learning culture (Olivier et al., 2010). Proposed as a vehicle schools can use to improve student achievement (DuFour & Marzano, 2014), educational leaders were obligated to align the work of their schools with best practices. Yet, many schools struggled to develop and sustain effective PLCs. Some studies suggested trust relationships were essential to the development and sustainability of effective PLCs. One practice heralded by effective PLCs was the need to focus on the relationships among the participants. One study demonstrated the presence of relational trust and found this trust may make it more likely that each teacher, while working on a team, could challenge the status quo in educational practice (Hallam, Smith, Hite, Hite, & Wilcox, 2015). An atmosphere of trust among teachers in a community or school was closely related to the development of a PLC.

Little has been known about the relationships between PLCs and other teacher-level or school-level factors such as relational trust or a teacher's sense of belonging to a team. Lee, Zhang, and Yin (2011) studied the characteristics and operations of PLCs through interviews and focus groups and found trust to be a significant predictor of overall job satisfaction and risk-taking behaviors within an organization. However, little has been discovered about the specific relationship between effective PLCs and relational trust. This research study was designed to contribute to the body of research regarding the impact of trust on how and why teams of teachers collaborate effectively. While earlier findings suggested a connection between relational trust and effective collaboration in small samples of collaborative teams, larger scale

quantitative research should be pursued to improve generalizability (Tschannen-Moran, 2014). Educators should continue to study the development of trust within a PLC, the strategies for building and maintaining trust among members of collaborative teams, and the impact of trust on effective school collaborative practices (Hallam et al., 2015).

This study attempted to address the gap by looking at two issues. First, this study employed quantitative analysis and survey research to assess teachers' evaluation of the dimensions of their PLCs. Next, the study considered relational collective trust. As much as PLCs have been considered by most to be a best practice, thus far, little research has examined the nature of the relationships that must exist in order to build and sustain PLCs (Cranston, 2011). Additional research was needed to determine how trust specifically affects collaboration in larger samples of teachers (Hallam et al., 2015).

Purpose Statement

The purpose of this quantitative correlational study was to determine the relationship between two variables: teachers' evaluation of their PLC, through the lens of the five PLC dimensions, and the level of relational collective trust (Forsyth, Adams, & Hoy, 2011). Olivier et al. (2010) defined the evaluation of dimensions of a PLC, another variable in this study, through the six dimensions of a PLC. The dimensions were: (a) shared and supportive leadership, (b) shared vision and values, (c) collective learning and application of learning, (d) shared personal practice, (e) supportive conditions-relationships, and (f) supportive conditions-structures. Relational collective trust, the other variable of this study, was defined as a form of collective trust in which the relational members can be trusted to act in the best interest of all. There were five facets of trust: benevolence, reliability, competence, honesty, and openness (Tschannen-Moran, 2014). Relational trust meant teachers expected the words, actions, and

promises of their peer group were grounded in support and cooperation to facilitate trust (Forsyth et al., 2011).

The researcher utilized two instruments: The Professional Learning Community Assessment-Revised (PLCA-R, Oliver and Hipp, 2010) and the Omnibus Trust Survey (Hoy & Tschannen-Moran, 2003). These instruments measured teacher evaluation of the dimensions of a PLC and the level of relational trust in the sample consisting of educators in three school districts located in Iowa, Illinois, and New York. Each school district had been awarded model PLC distinction.

Significance of the Study

PLCs, also known as communities of practice or interdependent teams, have provided educational leaders with a supportive environment for school improvement. Authentic PLCs may enhance educators' effectiveness and lead to school improvement through increased student outcomes (Woodland, 2016). The existing body of knowledge points to a consensus among PLC experts believing implementation is critical for PK-12 instructional improvement and increased student outcomes (Darling-Hammond, 2013; DuFour & DuFour, 2012).

Previous studies had focused a qualitative lens on the behavior and experiences of teacher teams in a few schools (Carpenter, 2014; Schaap & Bruijn, 2018). Carpenter (2014) conducted his qualitative study at three secondary schools in the Midwestern United States. Results encouraged school administrators to focus on structures supporting teachers and lead to effective PLCs. Researchers Schaap and Bruijn (2018) followed four PLCs over a 3-year period in a multi-method study using survey and participatory research. Results revealed PLCs differed in learning processes, group characteristics, and outcomes, indicating a need to isolate elements significant to the development of PLCs by having participants reflect on the dimensions of their

PLCs. This study deployed the PLCA-R to three school districts with PLCs to collect this important data.

The data source for this quantitative study was model PLC districts, as defined by Solution Tree, Inc., home of the Professional Learning Communities at Work process. The analysis filled a gap in the research by using this unique group of school districts. To be named a model PLC district, each organization must show documented commitment to PLC approaches, PLC implementation for at least three years, and evidence of student improvement (Solution Tree, 2018). There is no evidence of existing quantitative research using this data source. The common PLC criteria across individual schools and school districts allowed the researcher to expand the pool of participants from one school to 40 schools and across state lines, without sacrificing the integrity of the study. Comparisons can be made because each district designed their PLCs to incorporate the dimensions defined by the research of Richard DuFour and the Solution Tree, Inc. team (DuFour, DuFour, Eaker, and Many, 2006)

This research is important to the school districts being studied. In each of the participant school districts, the district leadership were interested in collecting data about how their teachers evaluate the dimensions of the PLCs, isolating any strengths and weaknesses, and using this information to improve practice. If the results of this study showed a relationship between a teacher's evaluation of the dimensions of their PLC and the level of relational trust on the team, these school administrators could use the information to examine the nature of the relationships needed to build and sustain PLCs. Strong relationships and trust build collaboration. An atmosphere of distrust can lead to a teacher's self-protection, increasing the opportunity for disengagement from the educational process (DuFour & Marzano, 2014). Several qualitative studies connected relational trust among the group members to the way the teachers individually

evaluated the success or failure of their PLC (Adams, 2013; Conner, 2015). This study was designed to correlate relational trust to the way teachers perceive how their PLC operates and so fill a gap in the literature.

DuFour and Marzano (2014) argued the intended concept of a PLC is slowly losing value. Hairon et al. (2017) found simply providing time and space for teachers to meet together did not create community nor lead to collaboration. Group members came to PLCs with varying levels of openness. The researchers stated that although essential characteristics of PLCs have been accepted as best practice, less attention has been devoted to how to conceptualize and implement each of those characteristics at the school or district level. Administrators around the world could use this research to benefit from the experiences of high-performing educational systems, where PLCs have been successfully building teacher capacity and improving student performance.

This study also addressed a gap in the research about relational trust. Research by Gray et al. (2016) confirmed organizational structures such as rules and regulations are a necessary condition for community building, but such structures are necessary yet insufficient to an effective PLC. A PLC falls flat if relational trust among the faculty is absent. They suggested future research should investigate how relational trust works and is nurtured in PLCs. This research study increased understanding about the impact of trust on a teacher's evaluation of PLC dimensions, especially those relating to relationships. Armed with this enhanced understanding, administrators currently supporting the PLC initiative might consider encouraging a culture of trust to sustain a PLC.

Research Question

RQ1: Is there a statistically significant relationship between a teacher's understanding of

the dimensions of a PLC and relational trust?

Hypotheses

The null hypotheses for this study are:

$H_0$1: There is no statistically significant relationship between teachers' perceptions of the dimensions of a PLC, as measured by the Professional Learning Community Assessment-Revised (PLCA-R), and the level of relational trust in the principal as measured by the Omnibus T-Scale.

$H_0$2: There is no statistically significant relationship between teachers' perceptions of the dimensions of a PLC, as measured by the Professional Learning Community Assessment-Revised (PLCA-R), and the level of relational trust in colleagues as measured by the Omnibus T-Scale.

$H_0$3: There is no statistically significant relationship between teachers' perceptions of the dimensions of a PLC, as measured by the Professional Learning Community Assessment-Revised (PLCA-R), and the level of relational trust in the clients (students and parents) as measured by the Omnibus T-Scale.

Definitions

1. *Collaboration* - the process in which two or more professionals work together to improve individual and collective results through analysis of professional practice. Collaboration includes an ethical focus on collegiality and effective teaching (Conner, 2015).
2. *Trust* - one person's willingness to be vulnerable to another person based on the confidence the latter is "benevolent, reliable, competent, honest, and open" (Tschannen-Moran, 2014, p. 204).
3. *Relational trust* - a form of trust in which teachers can be expected to act in the best

interest of all. Relational trust means teachers have an expectation the words, actions, and promises of their peer group are grounded in support and cooperation to facilitate collective trust (Forsyth et al., 2011).

4. *Professional Learning Community (PLC)* - a group of educational professionals collaborating to learn through engaging, job-embedded professional development. A PLC is a tool to advance school improvement initiatives and develop common goals through data analysis of student work (Jones & Thessin, 2015).

CHAPTER TWO: REVIEW OF LITERATURE

Overview

This study explored the relationship between teachers' evaluation of their PLC and their rating of the level of relational collective trust they have experienced therein. A review of current scholarly literature begins with an examination of the theoretical bases for the central phenomena of PLCs and relational trust. A comprehensive review of the literature surrounding PLCs follows, including an examination of the conceptual and theoretical bases undergirding the PLC construct and a history of PLC initiatives. Based on this literature, schemata of essential characteristics of effective PLCs emerge, as well as an examination of the obstacles surrounding and misconceptions about effective implementation of PLCs and the implications for professional development. Then, the literature surrounding the collaborative relationships and functioning of PLCs is presented, providing a segue to the literature related to the dynamic of relational trust. Scholarly investigations of trust in both organizational and educational contexts provide a basis for the identification of facets of trust, particularly the dynamics of relational trust in schools as those dynamics relate to collaboration and leadership.

Conceptual or Theoretical Framework

Social Learning Theory

Bandura's (1971, 1989) Social Learning Theory served as an important piece of the theoretical framework guiding this correlational research study. Bandura's theory suggested observation, imitation, and modeling play a key role in learning because learning is considered a social behavior. Based on the premise that humans regulate their emotions, ideas, and actions in relationships, Bandura's (1971) theory advised researchers to study the behavior of individuals during collaborative activities. Social environments and collegial collaboration allowed for

contingencies, where behavioral change occurred through conversation and social interaction (Bandura, 1989).

The Social Learning Theory is appropriate to apply to educational models, such as PLCs, because it combines elements from both behavioral and cognitive theorists. While Social Learning Theory is rooted in Traditional Learning Theory, Bandura (1989) proposed learning could also occur simply by observing the actions of others, specifically through modeling (Law, Chung, Leung, & Wong, 2017). Bandura's theory added a social element to learning. Many teachers who worked in PLCs stated they were more willing to implement new strategies and learned most efficiently in social settings. For example, teachers learned from the opportunity to observe a colleague or reflect on their own behaviors as a practitioner (Margolis & Doering, 2012). Collaboration provided the opportunity for teachers to share time, talent, and experiences with peers specifically to learn how to solve problems in the classroom (DuFour, DuFour, Eaker, Many, & Mattos, 2016).

PLCs offered teachers the structure to learn within a social community, to observe one another, and to reflect on their practices and the outcomes of their actions. The social aspects of collaborative teams made applying Social Learning Theory to PLCs a pertinent way to investigate how educators, teacher leaders, and administrators facilitated social change (DuFour & Fullan, 2013). DuFour et al. (2016) argued a PLC was a vehicle of collaboration where inquiry and action research were used to help students meet academic goals. Teachers learned from each other in the PLC, in their own classroom, and by observing in another's classroom in order to design instruction for their current class of students (Margolis & Doering, 2012).

Transformative Learning Theory

Mezirow's (1997) work in Transformative Learning Theory influenced the field of

collaboration research and served as the second theoretical framework for this study. Developed in the late 1900s, Mezirow applied this theory to describe how people develop and use critical self-reflection to examine their view of the world around them. In exploring how adults make meaning of their lives and learning, Mezirow linked Transformative Learning Theory to his research focus on the improvement of teacher practice through collaboration. Transformative Learning Theory applied to instruction was evident when teachers critically examined their practice and encouraged each other to question beliefs regarding teaching and learning.

Recent qualitative research found teachers in 10 schools across five school districts believed collaboration with other teachers was the best professional learning they had ever engaged in (McComish & Parsons, 2013). Mezirow (1997) suggested adults' assumptions about their craft can be influenced through reflection and communication among teachers on teams. Instead of avoiding conflict, teaching teams learned to anticipate and work through conflict as they collaborated. Conflict was used to transform pedagogical practice that applied transformative learning principles to student learning. For example, teachers infused their lessons with journaling and Socratic seminars to allow for critical questioning of beliefs and assumptions (Howie & Bagnall, 2013). Teaching, an active process, inspired professional growth through teacher teams as communicative learning. Transformation seldom occurred in isolation.

Schools that implemented Transformative Learning Theory insured teachers have opportunities to collaborate, examine, and articulate concerns about teaching and learning while participating in PLCs. Changing teacher practice to improve student outcomes was a challenge (Brendefur, Whitney, Stewart, Pfiester, & Zarbinisky, 2014). Many teachers viewed their collaboration with colleagues as a vehicle to improve student achievement. Transformative

learning only occurred when teachers engaged in conversations encouraging self-reflection and changed teachers' beliefs and practices related to teaching and learning (McComish & Parsons, 2013).

Individuals had difficulty changing because their worldviews were deeply held. Yet experiences with others influenced a change in beliefs. Collaboration through a PLC was an experience similar to the disorienting dilemma Mesirow (1997) laid out in his work. Shared work, conflict, and transforming practice increased teacher agency and changed attitudes about teaching and learning (Christie, Carey, Robertson, & Grainger, 2015). Transformative Learning Theory explored the impact of values, assumptions, and beliefs on professional practice. Participants regularly re-assessed the validity of work in the classroom and applied it to new situations and across the curriculum. Organized learning, as in the work of a PLC, benefited from Transformative Learning Theory.

Organizational Learning Theory

The concept of organizational learning as a structure to address societal change was introduced by Peter Senge in the early 1990s. Senge and Sterman (1992) believed collaborative communities were organizational learning environments where colleagues created change. In their work, Senge and Sterman maintained three main types of learning occurred in organizations: formal, informal, and independent learning. While formal learning characterized scheduled professional development activities, informal learning occurred organically when there was an opportunity, need, or motivation to learn. When K-12 teacher development became a key component of education quality reform, Hoy and Tschannen-Moran (2003) applied this ideal to schools, asserting organizations must consider trusting relationships, like those found in collaborative teams, as they develop policies and practices to impact student achievement.

Organizational Learning Theory required active problem solving within these collaborative relationships. The overall health of the school was positively impacted when organizations learned together. PLCs were designed to encourage organizational learning (Gray, Kruse, & Tarter, 2016), often with a focus on informal and independent learning.

Informal learning and independent learning found regularly within PLCs inspired cooperation among educators, as teachers watched their colleagues perform in the classroom through peer observation or acquired knowledge about student performance through data discussions. This on-going and targeted support continued the work of more formal professional learning opportunities (Jones & Dexter, 2014). Organizational Learning Theory provided a holistic system for teacher learning to address the needs of students

The theoretical frameworks as described support the study by explaining the meaning, nature, and challenges associated with PLCs in schools. Because effective teaching was seen as a powerful influence on students' achievement, improving teaching quality became a central focus of reform initiatives, especially PLCs (Wang, 2015). Each theory supports the idea that professional practices of teachers can be impacted by collegial relationships, active problem solving, and self-reflection.

Related Literature

Professional Learning Communities

As expectations for accountability in schools began to rise, school leaders were increasingly challenged to meet the needs of diverse learners (Huffman, 2011). New learning standards aimed at assuring college and career readiness for all students required new expectations for teaching and learning. Educational leaders assured stakeholders that these standards improved student success in higher education, in the workplace, and on collaborative

teams. Teacher collaboration played a role in guiding students toward the latter goal because teachers modeled their own teamwork skills. Ultimately, in order to teach collaboration, one must practice it. Additionally, teachers and school leaders were more likely to coach their students to meet future workplace demands when the focus was placed on supporting high quality classroom instruction (Hallam et al., 2015). The role of professional development in the continuous school improvement process meant encouraging PLC creation at the school level was crucial to embrace the college and career readiness standards (Harris & Rosenman, 2017).

Since the 1990s, school leaders have looked to teams of teachers, inherent in PLCs, to deploy professional development and improve instruction through focused collaboration. In several important studies, effective PLCs were a professional development tool and the key to improving the practice of teachers and student achievement (Huffman, 2011; Schaap & Bruijn, 2018). Research about PLC capacity, as well as a desperate desire to meet federal educational benchmarks (Stoll, Bolam, McMahan, Wallace, & Thomas, 2006), led to an important consensus. Effective PLCs had the capacity to promote professional growth and improve student achievement (Huffman, 2011). According to Brodie (2013), a PLC was an organized group of professionals focused on improving schools and student achievement. Fundamentally about learning, effective PLCs required a degree of trust, a culture of collaboration, and a focus on student achievement. As improvement-focused teams engaged in discussions about the most critical questions of the profession, the work of teachers in the classroom and its impact on student achievement needed to be examined (Woodland, 2016). Most recently, PLCs have inspired increasing attention from schools, educational systems, and governments as promising vehicles to secure improvements in teaching quality, and thereby, student learning outcomes (Wang, 2015).

Growing numbers of schools around the globe have implemented PLCs to change current practice in a sustainable way (Teague & Anfara, 2012). In some high-performing educational systems in Asia, PLCs have been used to build organizational capacity and improve the performance of both staff and students (Wang, 2015). A formal collaboration model of school organization, PLCs embraced the opportunity to engage collectively in planning, action research, and assessment (Spencer, 2016). Margolis and Doering (2012) embraced the idea that a community of educators could make a difference. A school's culture was the key. Those schools that emphasized an individual teacher's impact on student achievement, instead of valuing the team approach, battled to launch successful PLCs. In contrast, when many professionals took responsibility for student learning, there was evidence PLCs produced positive effects on teachers and their instruction, leading to improved student performance (Linder, Post, & Calabrese, 2012).

Teams worked collectively to meet goals by using all available assets (DuFour & Fullan, 2013). Admiraal, Lockhorst, and van der Pol (2012) claimed teaching and learning were strengthened when ineffective teaching practices were collectively examined. More than a group of individuals meeting together to vent about concerns, PLCs were a way of working. At its core, the PLC was a highly effective collaborative team focused on improving student achievement (DuFour & DuFour, 2012). In an effective PLC, the focus of discussions was to find answers through inquiry and data to create action plans to improve student learning (DuFour et al., 2016).

When a small group of teachers believed they could positively impact the entire learning organization, this belief often predicted student success in schools (DuFour & Marzano, 2014). In an effective PLC, the organizational hierarchy had flattened; all participants were equal when

it came to decision making (Schaap & Bruijn, 2018). A successful PLC collaborated across the day, in both formal meetings and informal conversations. Whether by the photocopier or in the teacher's workroom, teams of teachers shared ideas and methods designed to meet the needs of their students (Hallam et al., 2015).

Some agreement emerged among scholars about the characteristics of PLCs. Hord and Sommers (2013) and Huffman (2011) agreed educators often successfully worked together to sustain a learning culture for all students. Often the interactions in the PLCS were steeped in shared responsibility, values, leadership, and trusting relationships. The use of data during these meetings succeeded in adding a layer of vulnerability to the situation. In isolation, a teacher often excused the poor results of an assessment. But in collaboration, the assessment was open for discussion, questions, and challenges from the team (Hallam et al., 2015).

Kelly (2013) explored the creation of new PLCs, especially the interdependence of those on the teams, by looking at the criteria of effective teams. Findings indicated a key component of the professional learning, vulnerability, was associated with dependence on the group. The flattening of the leadership hierarchy helped members take ownership over the team. Critical information was shared and the opportunity to reflect was available. In this culture of collaboration, team members were open to sharing and willing to take risks, both necessary for real change to occur (Harris & Jones, 2013).

When the characteristics of a successful PLC were not evident, Jones and Green (2015) found evidence PLCs failed to be implemented with fidelity. The result was a team of teachers working in a group merely named a PLC. In another study, Harris and Jones (2013) observed the absence of key characteristics of a PLC meant the collaboration failed to improve instruction, resulting in little or no improvement in student achievement. PLCs rooted in teacher

collaboration were responsible for a move toward discussions filled with evidence of student learning, a key component. DuFour and Marzano (2014) agreed failure to discuss evidence of student learning, instead focusing on the nuts and bolts of school business, does not build educator capacity or an effective PLC. Many district professional learning plans included PLCs but rarely delineated PLC routines (Spencer, 2016). Rich, collaborative routines to sustain PLCs were an important component to securing improved student learning outcomes (Harris & Jones, 2013).

In a landmark study on the topic, Vescio, Ross, and Adams (2008) looked for a relationship between PLCs and student achievement by reviewing six studies. All six revealed student learning improved in schools with highly effective PLCs. In these particular schools, the team met on a consistent basis to reflect on classroom instruction, student performance, and curriculum. The collaborative aspect of the PLC reduced isolation. The work allowed the team to focus on common goals and held the team accountable for student results (Woodland, 2016). Moreover, DuFour and Marzano (2014) suggested implementing effective PLCs in schools could transform low-performing schools to high-performing schools.

The four DuFour and DuFour (2012) questions, driving the actions of collaborative teams, addressed the strengths and weaknesses of the PLC. The questions were: (a) What do we want students to learn? (b) How will we know if they have learned it? (c) What will we do if they have not learned it? (d) How will we provide extended learning opportunities for students who have mastered the content? Protocols were developed to help teams focus on these questions (DuFour & Reeves, 2016). Failure to apply these questions meant the PLC met to simply address standards, focus on disciplinary issues, and share individual frustrations. Teams used the questions to analyze student data gleaned from common formative and summative assessments

and develop specific interventions (Hallam et al., 2015). Harris and Jones (2013) and Easton (2015) have concluded schools with highly effective collaborative practices have seen a positive impact on both teaching pedagogy and student achievement.

History of PLCs

The concept of PLCs in schools began outside the field of education as researchers examined human relationships within organizations. Early studies by prominent business sector researchers Senge and Sterman (1992) helped educational leaders examine schools to determine why traditional methods and structures were ineffective at improving student learning and teacher performance. Senge and Sterman's work in organizational communication from a corporate perspective laid a foundation for those engaged in early studies of learning organizations. In the 1990s, Senge and Sterman introduced the concept of reflective conversations, which were conversations allowing professionals to address problems through shared understanding.

Foundational work by Rosenholtz demonstrated achieving high levels of collaboration benefits schools (Teague & Anfara, 2012). Senge and Sterman (1992) echoed these ideas by a focus on professional support through teacher networks to improve effectiveness in the classroom (Harris & Jones, 2013). Teamwork required teachers to take a deep look at their own practice.

The concept of a PLC in educational settings was also rooted in early studies by Wenger, McDermott, and Snyder (2002) about communities of practice (CoP), applying this concept to learning organizations. One key difference between CoPs and PLCs was CoPs were not mandated. Teams chose to come together in CoPs in response to a student in crisis or new curricular requirements (Bannister, 2015). The work of researchers and educational leaders

suggested the concept of CoPs could be introduced to school systems as PLCs, an important initiative to improve public education (DuFour & DuFour, 2006). The ideas of shared vision, shared purpose, and trust were neatly embedded in both Senge and Sterman's (1992) learning communities research and in Wenger et al.'s (2002) CoP work.

The concept of a PLC also had roots traced to the work of Judith Little (2003). Influenced by Wenger et al.'s (2002) CoP research, Little found a connection between teachers' collegial relationships, organizational structures, and professional development. As expectations for accountability in schools began to rise, school leaders were increasingly challenged to meet the needs of diverse learners (Huffman, 2011). Additionally, Little was focused on the school as a work environment, collegial relationships, and professional development. Her work suggested teacher teams displayed norms and habits making teacher learning and improved practice possible. Little's work examined the connection between school improvement efforts and relationships among teachers, adding to the foundational aspects of PLCs (Teague & Anfara, 2012).

Characteristics of an Effective PLC

Jones and Green (2015) believed in a collegial culture where professionals could share best practices, discuss student data, observe one another, and celebrate successes. In such an environment, there was potential for teachers to lead and bring about improved teacher effectiveness (Hairon, Goh, Chua, & Wang, 2017). The PLC model was a way of ensuring educators the opportunity to learn new practices and to generate new knowledge. Early on, DuFour (2004) defined a PLC as a group of professionals, focused on a collective purpose, working to analyze and improve their classroom practice. The majority of members in a PLC were classroom teachers, as the purpose of the team was to design and improve student

instruction and performance (Buttram & Farley-Ripple, 2016). PLCs provided teachers with the opportunity to investigate their practice (Hairon et al., 2017). At the core of the PLC concept was the belief simply providing instruction was never enough. Instead, educators had to be certain students were learning (DuFour & Marzano, 2014).

When Hord (1997) first adopted the term PLC in the late 1990s, he established several dimensions that must be present to create a PLC. These included leadership, faculty values, collective learning, collaboration, and conditions for school improvement. Top researchers in the field agreed about these essential dimensions of PLCs but stated and defined each slightly differently. For example, instead of adopting Hord's five dimensions, DuFour, DuFour, Eaker, and Many (2006) modified these into a list of seven characteristics: shared purpose, shared mission, collaborative culture, collective inquiry, action orientation and experimentation, continuous improvement, and results orientation (DuFour et al., 2016). In order to define this innovation in professional practice, educational leaders training others to launch the PLC model applied this set of dimensions (Hord & Sommers, 2013).

PLC characteristics were the central component in the development of The Professional Learning Community Assessment (PLCA) in 2003 and later revised for the PLCA-R in 2010 R The tool was used by school leaders and researchers to assess everyday classroom and school-level practices related to key dimensions of PLCs. The questionnaire inquired about six dimensions of the PLCs and their related attributes.

The first dimension of a PLC, as measured by the PLCA-R (Olivier et al, 2010), was focused on shared and supported leadership. This dimension addressed communication among staff members and the role of the leader to provide support. Shared leadership models assured both teachers and administrators were working together to improve student outcomes as a result

of their collective action (Buttram & Farley-Ripple, 2016). While school change literature addressed the impact of school leaders on school improvement, PLCs were unique because they required a shared leadership structure, where decisions were made by both teachers and principals. The team worked together to seek solutions for school improvement and to reach shared goals (Hord & Sommers, 2013).

The second dimension of a PLC, as measured by the PLCA-R, explored how staff members built shared values and vision through collaborative practices, high expectations for students, and data teams. Fundamental to a PLC was an unwavering focus on student learning (Hord & Sommers, 2013). The team's vision shifted to quality in the classroom, engaging the entire team to encourage rigor in the curriculum and prepare students for college and career (Buttram & Farley-Ripple, 2016).

The third dimension of a PLC, as measured by the PLCA-R, applied to the collective learning and application within the work of the PLC. As staff members strengthened collegial relationships, sought solutions, and shared personal practice, the team began to depend on one another and worked interdependently to impact student achievement (DuFour et al., 2006). Focused on collective creativity, PLCs engaged school staff to seek new knowledge to apply to their work, resulting in creative solutions to problems. The team approach meant a wide variety of the best strategies and instructional practices were brought to light in order to respond to students' learning needs (Hord & Sommers, 2013).

The fourth characteristic of a PLC, as measured by the PLCA-R, focused on shared personal practice. School improvement depended on an end to teacher isolation. PLCs encouraged teachers to interact and develop trust. Darling-Hammond (2014) believed sharing practice with the team was required to meet the needs of diverse learners. If the school promoted

an environment of continuous improvement, the staff was focused on student learning and willing to change in order to reach high standards (Hord & Sommers, 2013). Research indicated teachers believed new approaches should be modeled by a peer and practiced in the classroom, rather than professional development about the strategy in another setting (Margolis & Doering, 2012).

The fifth and sixth characteristics of PLCs focused on two types of supportive conditions: structures and relationships, both needed for the team to promote or support change (Hord & Sommers, 2013). Supportive conditions-structures included: developing schedules, faculty meetings, school size, and communication systems (Olivier et al, 2010). Supportive conditions-relationships pointed to the learning community as a focused time to collaborate and a desire to learn together. By supporting these relationships, the team developed a shared sense of purpose and trust-infused collaboration (Hord & Sommers, 2013).

Administrators and teachers engaged in PLCs needed to embrace best practices to avoid common pitfalls (Spencer, 2016), often devolving into trivial conversations or unproductive time spent on the minutia of school life. Without a supportive culture, Hirsh (2012) found teacher leaders were ineffective, and schools saw very little sustained change. While landmark studies by Huffman (2011) and Hord and Sommers (2013) discovered the collaboration model of a PLC inspired teachers to address the needs of diverse and marginalized students, many educators experienced their PLC as a committee or meeting not focused on student success. It became critical for PLCs to be implemented correctly to reap the benefits. Many school districts claimed PLCs were present in their building or district, but leaders were not deliberate in their capacity-building efforts for effective PLCs to be implemented in schools (Philpott & Oates, 2017). Research was needed to analyze how the members of a PLC work together and use the team as a

resource for innovative classroom practice (Hairon et al., 2017).

Educational leaders had an obligation to align the practices of their schools and districts with research-based, highly-effective strategies to achieve high levels of learning for all students (Buttram & Farley-Ripple, 2016). Weekly scheduled time set aside for PLCs was a difficult, but necessary, organizational step to troubleshoot student failure (Spencer, 2016). The PLC offered teachers a means to clarify purpose, set priorities, change negative behavior, and improve student learning outcomes (DuFour & Marzano, 2014). Teams recognized their purpose was to ensure all students learn specifically by analyzing classroom practice and monitoring student progress together.

Obstacles to an Effective PLC

The earliest versions of PLCs were non-mandatory, providing a low stakes opportunity to engage with colleagues. For PLCs that convened infrequently or felt disconnected from the real work of teachers on the team, the PLC was simply another meeting of colleagues (Spencer, 2016). Collaborative teams were not always organic. Often, because leaders divided teachers into collaborative teams by grade level or content area teams, grade-level or department team meetings were merely rebranded as PLCs (Buttram & Farley-Ripple, 2016). When a PLC was merely predicated on existing relationships (grade-level team, co-teaching partners, or specialists working in tandem), the infrastructure failed to lay a foundation for overhauling teaching and learning activities (Woodland, 2016). In his early work, DuFour (2003) argued a group of teachers assembled to work together was just the beginning and would not alone bring about sustainable change. The need for quick fixes, responding to frantic calls for school reform, stood in the way of developing effective PLCs (DuFour & DuFour, 2012).

Another challenge faced by fledgling PLCs was to remove barriers to student learning by

maintaining a laser focus on student success. School improvement, measured by student achievement, was transferred to PLCs for a relatively easy response (Carpenter, 2014). There was tension as teachers were asked to shift from more traditional mindsets about school improvement. For example, instead of changes pushed down from leadership, teams of teachers were asked to develop plans within the PLC to improve student achievement (Buttram & Farley-Ripple, 2016).

Significant planning, training, and relationship building were necessary to build infrastructure for PLCs to flourish (Kelly, 2013). Hairon et al. (2017) found simply providing time and space for teachers to meet together did not create community or lead to collaboration. Group members came to PLCs with varying levels of openness, and this impacted collaborative relationships necessary for successful collaboration. Much of the rhetoric around PLCs as the key component in school improvement fell short of the level of discourse and inquiry needed to make change (Woodland, 2016). Many educational leaders underestimated the time, training, and support necessary to establish effective PLC practice (DuFour & DuFour, 2012).

Long-held practices of isolation within the teaching profession negatively impacted the use of PLCs for professional development. For example, fear of judgement limited the use of teacher rounds or peer observations, especially with teacher quality under a microscope. Further, the persistent cultural norm in many schools to close the door and teach was deeply embedded and difficult to reverse (Margolis & Doering, 2012).

Despite the fact PLCs were recognized and mandated as a school improvement strategy, weak local implementation and lack of evaluation weakened the ability of one district to operationalize what another district had accomplished (Woodland, 2016). DuFour saw collaboration as a commitment to a way of life within a school, instead of a trendy strategy for

school improvement (DuFour & Marzano, 2014). Dysfunctional PLCs needed to address their difficulties or seek help from an instructional coach, another team, or a school leader to increase productivity and return to work (Spencer, 2016).

Misconceptions about PLCs

Many schools believed their reform effort was a PLC. Without clear evidence of the dimensions of an effective PLC, this was a false premise (DuFour et al., 2016). Collaboration fell short of impacting student learning because the PLC model was not accepted by the group as a learning resource for its members (Bannister, 2015). While many schools claimed to engage in PLCs, DuFour and Reeves (2016) believed most were ineffective. Collaborative time was devoted to topics, which did not impact student learning or monitor student achievement.

One key element, collaboration, required a shift in priorities and resources, especially in providing the supportive and shared leadership between teachers in the PLC and school leaders. Collaboration in a true PLC was designed so all members took responsibility for student learning. Without collective responsibility, students failed to develop skills necessary for college and career readiness (DuFour & Reeves, 2016). Carpenter (2014) cautioned school leaders and teachers needed to be engaged in a collaborative culture so innovation could occur. Where team meetings were already a required practice, renaming those teams PLCs led to the misconception that a loosely-knit group of previously autonomous professionals would instantly be transformed into a community of learners with shared values.

In ersatz PLCs, while complaining about student behavior to a group of peers gave the teacher an outlet for frustration, solutions were not proffered up automatically. Bannister's (2015) discovered the perspective a team had about the student came only from what was shared unless there was data to support it. Without data, stories about student behavior, unusual

experiences in the classroom, or local school issues distracted from the PLC agenda and mission. Simply, the nuts and bolts of running a classroom or a grade-level team of teachers dampened the work of a PLC (DuFour & Marzano, 2014).

Professional Development through a PLC

Traditional models of professional development for teachers consisted of gathering a group to listen to an expert share ideas, information, and strategies. Leaders assumed teachers implemented new practices in their classrooms to increase student achievement and change instructional practice. In particular, districts struggled to provide their teachers with real-time training about the latest technological advancements because those opportunities were slow to launch (Jones & Dexter, 2014). Brendefur et al. (2014) found this sit-and-get model did not provide teachers with the tools they need to address 21st century standards. Conventional models for professional development failed because they lacked context, which helped teachers apply new strategies to meet student needs (King, 2014).

PLCs gained recognition as an effective strategy for embedding professional development over the long-term in schools (Spencer, 2016). Research showed when teachers engaged in the mission of PLCs, this work offered opportunities to shift professional learning from short events with external experts to a community where teachers shared their talent and skill over time (Tam, 2015). As opposed to discrete professional development courses, PLC allow teachers to continuously work as a team and come to an agreement on the best teaching practices through reflective dialogue and action research. While PLCs provided structured time for relevant professional learning, in contrast formal professional development with learning goals pushed down from district level or school level leadership meant topics may not align with the learning goals of the members of the PLC (Jones & Dexter, 2014).

Informal professional development more clearly aligned with the embedded professional development recommended by PLC experts (DuFour & DuFour, 2012). Traditionally, teachers became frustrated when professional development provided irrelevant information disengaged from classroom practice or was merely a one-time opportunity to learn a new skill (King, 2014). Educational reform efforts shifted from decontextualized lectures in a workshop setting to embedded training and coaching in the classroom (Margolis & Doering, 2012). Schools adopting PLCs found ongoing, embedded work helped teachers change practice to improve student learning. Within the team, teachers had opportunities to discuss, reflect on, and observe practice to achieve instructional goals (Hughes-Hassell, Brasfield, & Dupree, 2012). In fact, many district professional development plans included PLCs. Leaders hoped teachers collaborated with their peers inside and outside of a school to gain expertise (King, 2014). Unlike optional after-school study groups, graduate courses or continuous school improvement curriculum events, PLCs organically integrated adult learning into the workday (Woodland, 2016).

Many professional development opportunities for teachers focused on creating and sustaining effective PLCs; often coming too little or too late to be effective. Watson (2014) concluded PLCs became an answer to outdated models of professional development where learning was isolated from practice. As schools moved to collaboration-based models, educators were energized by an intentional focus on teacher learning. Current research focused on the learning processes within PLCs to identify how teachers learn from one another (Schaap & Bruijn, 2018).

Teachers tasked to form PLCs benefited from the opportunity to develop a team identity. Engaging in a team building exercise and sharing information about teaching experiences was an

effective way to build a culture of collaboration for the team (Harris & Rosenman, 2017). Time spent sharing goals, norms, and expectations at the beginning of the endeavor was instrumental to ensure some of the isolating aspects of teaching were diminished. Without these structures, teams failed to move beyond a shallow business meeting to a professional development endeavor. For example, many teachers avoided peer collaboration when the requirement was to observe another's classroom practice, make a video of a lesson, or share an artifact from a failing student. The experience caused teachers to feel vulnerable and uncomfortable (Watson, 2014).

The shift from working in isolation to teacher collaboration meant teachers and leaders needed to reconsider the ways teachers improve their practice. Isolation was not conducive for teachers to develop instructional strategies or design assessments (Spencer, 2016). Participation in a PLC provided job-embedded continuous learning for professionals through collaboration instead of isolation (Mathews, Holt, & Arrambide, 2014). Woodland (2016) found working in a PLC reduced teacher isolation and increased some teachers' ability to collect and use data. Tremendous commitment was required to meet these high expectations, including planning when and where to meet.

PLCs allowed teachers to learn through collaboration with other teachers as discussions focused on best practices to increase student achievement. These structured conversations required tools to teach the members how to guide, coach and listen. Over time, teams of teachers shared, listened, and provided feedback (Harris & Rosenman, 2017). Harris and Jones (2013) offered evidence PLCs afforded opportunities for teachers to reflect upon and refine their practice. Working together increased competency in a teacher's individual ability to make instructional decisions, a cornerstone of professional development. Student learning was positively affected by the quality of professional development offered to their teachers (Hirsh,

2012).

DuFour and Fullan (2013) shared professional development through a PLC was only possible if teachers were singularly focused on the important task of improving instruction and student achievement. The PLC structure was designed to improve practice by engaging teachers in the process of assessing student work as a team and solving problems based on this same evidence (Woodland, 2016). Protocols, designed to encourage focused conversations about student learning, led to positive outcomes for the teachers and students (Harris & Rosenman, 2017). Gray et al. (2016) provided examples of teacher networks who failed to produce the gains expected, simply because they were not focused on improving learner outcomes through embedded professional development. The PLCs' focus on data required the teams to emphasize a student's capability and contributions supported by academic or behavioral data points. In several studies, a positive relationship emerged between strong teacher communities and student success (Bannister, 2015; Watson, 2014).

The most effective PLCs promoted the learning of all professionals to enhance student achievement (Philpott & Oates, 2017). Teachers acted as agents of change, while intentionally focused on problem solving or critical thinking as a team (King, 2014). There was a consensus among researchers school reform required teachers to become learners and schools to emerge as learning communities (Tam, 2015). Continuous improvement through engaged professionals in PLCs inspired change and drove school reform. Continuous learning required ongoing inquiry among the colleagues in the PLC. Teams independently discussed and provided means to explore and share new ideas. As a result, they saw innovations to teacher practice and student improvement (Hughes-Hassell et al., 2012). As a result, evidence emerged of positive outcomes for teachers and students (Darling-Hammond, 2014).

Collaborative learning promised to develop teacher competencies in an authentic environment (Admiraal, Lockhorst, & van der Pol, 2012). The PLC gained recognition as an effective way to provide long-term, site-based embedded professional development for educators (Stoll, Harris, & Handscomb, 2012). In research by DuFour and Fullan (2013), successful PLCs allowed opportunities for teachers to creatively find solutions, instead of being implemented as the solution. Restructuring schools to incorporate PLCs placed the emphasis on building professional community to develop teacher practice.

Collaboration in a PLC

In a PLC, teachers contributed to school improvement by working together. Teams shared their expertise in order to analyze assessment data and student work, identify instructional strategies to meet students' learning needs, and explore best instructional practices (Lee, Zhang, & Yin, 2011). In their school improvement research, Harris and Jones (2013) pointed to the importance of effective collective processes. Teachers, devoted to student success, encouraged reflection and respected one another. Schaap and Bruijn (2018) ascertained PLCs who focused on common goals and student success quickly engaged in collaboration. Community-based efforts, like PLCs, became a popular investment many leaders made to address calls for school improvement and teacher professional development (Bannister, 2015).

Relationships were the key to a successful school climate (Schaap & Bruijn, 2018). Once trust and camaraderie established a firm foundation for a solid collegial relationship (Conner, 2015), educators employed authentic collaboration. A PLC interested in the development of supportive adult relationships often attracted a wide variety of professionals inclined to innovative teaching and learning (Carpenter, 2014).

Organizational research by Brodie (2013) revealed successful team building allowed the

members to solve complex problems from a variety of perspectives. The opportunity to work collaboratively and examine best and worst practices provided a path for continuous school improvement (Hughes-Hassell et al., 2012). The PLC process required dialogue among professionals to provoke change, a key building block of a collaborative culture. Further, professional conflict was encouraged to promote problem solving and relational growth. In order for professional conflict to avoid becoming personal conflict, an ethic of care and trust was necessary. Lack of balance between conflict and trust led to ineffective communication by the team (Watson, 2014).

Using a PLC to reform instructional practice and meet the needs of a variety of students meant teachers were empowered to make decisions. Team members embraced new ways of working together leading to systemic changes (DuFour & DuFour, 2012). DuFour and Fullan (2013) believed when instruction was innovative and effective, large numbers of schools and their classrooms showed evidence of systemic change. Teams grew in their capacity to meet goals and increase student achievement as a direct result of their work to develop knowledge and skills collectively. Collective ownership, also known as intentional teacher leadership, served the team by improving collaborative relationships and the teaching practices of the members. When such collaborative relationships went undeveloped, very little change in pedagogy was evident as teams were disjointed (Schaap & Bruijn, 2018).

Function of Collaborative Teams

Schaap and Bruijn (2018) explored the PLCs' group processes to learn and work together. In one study, PLCs analyzed data from common formative assessments and used them as a springboard to intervene when students were unsuccessful (DuFour & Fullan, 2013). This assessment process allowed PLCs to use data to identify students needing support or requiring

extension activities after reaching mastery (DuFour & Reeves, 2016). Common formative assessments were also used to check for student understanding across the curriculum and improve professional practice.

Implementing PLC work meant teachers put instructional practice under a microscope. PLCs acted as a catalyst for change in schools, especially in the hands of an effective teacher-leader (Watson, 2014). Embedded professional development occurred when a team carefully assessed student data, created interventions, and refined assessments in order to improve student outcomes. The most successful interventions employed intensive and focused work with students individually or in small groups (DuFour & Reeves, 2016). The interdependent nature of collective learning, as defined by Jones and Thessin (2015), meant the group must critically examine individual practice against the standards students are expected to address and master. A PLC functioned as a collaborative group devoted to learning. The team was able to reflect critically on their individual and collective practices.

History of Trust Research

In a significant study, Tschannen-Moran and Hoy (1998) asserted trust among teachers could emerge as the foundation of school effectiveness. Moreover, positive adult relationships in schools improved schools. This research found trust built quality interpersonal relationships and a source of competitive advantage. Additionally, the researcher proposed a definition of relational trust in which trust was based on the willingness of the teacher to be vulnerable in relationships (Tschannen-Moran, 2014).

Julian Rotter (1967) was one of the early researchers who set out to define trust in business, management, or economic organizations. He described trust as a characteristic of a relationship defined by verbal or written statements (Rotter, 1967). In the late 1970s, Driscoll

(1978) studied how the level of trust could be used to measure how an organization prepares for change. Following their lead, educational researchers borrowed trust research concepts and applied them to collaboration models in schools (Tschannen-Moran, 2014).

Within organizations, building trust required patience, time, effort, and risk (Spencer, 2016). Tschannen-Moran (2014) clarified the multi-dimensional definition of trust in schools and gained acceptance by educational scholars. Teachers who did not trust one another did not relinquish enough autonomy to successfully collaborate with others, which was a centerpiece of highly effective PLCs. A culture of trust allowed teachers to admit mistakes, take risks, strive for innovation, and have the confidence to share ideas (Hallam et al., 2015).

Facets of Trust

PLCs hold trust in high regard as a key characteristic of effective collaboration (Watson, 2014). Initially, understanding of trust in organizations was limited, and trust was viewed as a simple construct naturally occurring in teams (Hallam et al., 2015). Tschannen-Moran (2014) disagreed, holding patience and time were required to build trust. Initial ground-breaking research by Tschannen-Moran and Hoy (1998) introduced five main facets of trust, applied later to teachers working on PLCs. These facets, used to describe the actions of those on the team, were benevolence, honesty, openness, reliability, and competence. Faculty trust in schools examined trust across groups, not just with individuals (Tschannen-Moran, 2014). Vulnerability was included in most common definitions of trust. Teaching was historically an isolated, individual experience. Greater cooperation and trust emerged when communication and collaboration became the focus of the team (Hallam et al., 2015).

In many ways, trust among the participants of a PLC was at the center of the strong relationships necessary to meet the demands of today's educational standards (Hallam et al.,

2015). PLCs helped to establish relationships of trust. The PLCs infused with trust-inspired teachers acted benevolently, in the best interests of one another. Members would share information, talk honestly about the needs of their struggling students (or those requiring enrichment), and critique individual practice (Hughes-Hassell et al., 2012). On the other hand, when distrust prevailed, those in the PLC were motivated to minimize his or her vulnerability to the other members.

Tschannen-Moran and Hoy (1998) defined the first facet of trust, benevolence, as "the confidence of one's well-being or something one cares about is protected by the trusted person or group" (p. 187). Being fair and extending goodwill was important in teams (Tschannen-Moran, 2014). Another facet of trust was reliability (Tschannen-Moran & Hoy, 1998). Reliability pointed to the extent team members can count on one another to be available for support. Being dependable demonstrated commitment and diligence to the work of the team. Reliability was often coupled with both benevolence and predictability, especially over time (Tschannen-Moran, 2014). The third facet, competence, took trust beyond good intentions (Tschannen-Moran & Hoy, 1998). Members of a team counted on each other because of a history of consistent performance in the workplace (Tschannen-Moran, 2014). The fourth facet, honesty, encouraged an expectation among the members for integrity and responsibility for one's actions (Tschannen-Moran & Hoy, 1998). The fifth facet of trust was openness, which was crucial for the communication on a team (Tschannen-Moran & Hoy, 1998). Relevant information was available and shared, leading to confidence in the relationship.

Relational Trust in Schools

Historical research by Rotter (1967) asserted the ability to trust and believe in others was a key component of learning. Follow-up trust research by Costa and Anderson (2011) identified

several types of trust most often found in educational settings. One key type, relational trust, was also known interchangeably as collegial trust or faculty collective trust. Relational trust was foundational to the functioning of school systems. While relational trust within an organization indicated systems were operating at optimal levels, distrust prevented school professionals from adapting practices to meet students' needs (Forsyth, Adams, & Hoy, 2011). Teacher quality and satisfaction not only indicate student success but are undeniably linked with the teacher's perception of the environment in which he or she works (Watson, 2014).

Cranston (2011) primarily focused on relational trust. He used this term to describe trust built through social interactions occurring in the school environment. This research explained relational trust was founded both on beliefs about the school and observed behavior of the individuals within the school. In other words, trust in the team had an indirect effect on teacher practice. Similarly, relational trust was vital in schools because teachers need to be able to believe their colleagues are hard at work behind classroom doors (Conner, 2015).

Trust in colleagues had a direct influence on classroom practice because collaboration required transparency (Gray et al., 2016). Tschannen-Moran (2014) defined relational trust as a belief in teachers and other professionals. Relational trust meant teachers could turn to one another for help and have confidence in the integrity of those they collaborate with. Collaboration and trust depended upon one another; it was unlikely individuals would choose to work together with integrity without some level of trust. Teachers taught behind closed doors and limited interactions with colleagues when trust was low (Hallam et al., 2015). In order to improve results, professionals worked together to improve practice through support, accountability, and challenge. Relational trust in colleagues facilitated change by supporting collaboration.

Hallam et al. (2015) found trust in a PLC developed when kindness and patience among the team members was the norm. Teachers shared teaching strategies and opened up about student data, especially when the environment was safe for making and correcting mistakes. Effective teams allowed for mistakes and were slow to judge members, moving quickly past the superficial to deeper trust and cohesion (Gray, Mitchell, & Tarter, 2014). Collegiality through a PLC offered opportunities for teachers to challenge their individual beliefs and practices through ongoing communication with trusted colleagues. PLCs provided a place for innovation through multiple perspectives, new experiences, and deeper understanding of curriculum or standards (Tam, 2015).

Trust and Collaboration

Early research into effective collaborative teams informed teacher practice, especially when trust was a precondition (Tschannen-Moran, 2014). Trust improved team collaboration, especially when teams spent time studying the five facets of trust (Hallam et al., 2015). PLC research explored the power of collaboration to change how a school works. Conner (2015) and Adams (2013) posited trust must be present to guarantee the success of teachers' collaborative teams. They addressed the relationship of trust to PLC behavior at the team level, explaining how it benefitted principals and teachers seeking to implement effective PLCs.

Where trust was present, cooperative behaviors emerged (Costa & Anderson, 2011). Some school administrators, team leaders, and teachers understood how PLC trust develops and affects collaboration. Researchers discovered trust influenced how much collaboration a team truly enjoyed. Teams with high levels of trust often cooperated to solve problems and the focus turned to results. In an atmosphere of distrust, teachers often hid from collaboration. The resulting self-protection increased disengagement from the educational process (Hallam et al.,

2015).

Simply placing individuals in the same room together failed to guarantee they would become a collaborative team. When trust was missing, people reluctantly worked closely together and rarely shared information. Without trust, a teacher's energy focused on self-protection instead of professional development (Tschannen-Moran, 2014). Many studies investigated the roles of organizational and relational factors impacting PLCs. Few have considered trust in the development of PLCs (Gray et al., 2014). It is possible PLCs could not be built without trust, respect, and other related structures to promote learning. Teachers may appear more reluctant to share ideas and work collaboratively without trust (Thornton & Cherrington, 2014).

Trust and Leadership

Several studies indicated school leadership indirectly affected student achievement. Analysis of principal actions in support of PLCs suggested stronger PLCs emerged when the leader focused on setting goals and expectations with the team and allocated time, money, and materials to the endeavor (Buttram & Farley-Ripple, 2016; Hallam et al., 2015). The school principal and leadership team influenced organizational structure, working conditions, and school culture. Cranston's (2011) research about school principals focused on the desire to build collaborative school cultures through PLCs. Some principals believed trust and respect among their staff were crucial for true collaboration and reflective dialogue about instructional practice. Sadly, a lack of shared leadership and trust led to a toxic school culture and promoted teacher isolation (Carpenter, 2014). Scholars concluded PLCs affected school culture and the lack of collaborative activities and dialogue among the members had the greatest negative impact. Teacher isolation decreased student outcomes, reflection, and teacher professionalism (Schaap &

Bruijn, 2018). Reflective teaching was a powerful strategy when combined with teacher partnerships, and focused on student learning (DuFour & Reeves, 2016).

Hallam et al. (2015) asserted principals were positioned to impact the level of trust in a school. Principals who engaged with teachers in unstructured interactions positively impacted trust in the school. Simply allowing the PLCs the autonomy to direct their own efforts influenced the amount of trust the team had in one another. Collective ownership of the work in the PLC was impacted by the commitment of the individuals in the group, as well as the leadership of the school (Schaap & Bruijn, 2018). Principals fostered greater trust by allowing teachers on PLCs to use their professional judgement to meet the needs of their students (Tschannen-Moran, 2014). School principals, who aligned their teachers' needs to collaborate with organizational needs to improve student outcomes, stimulated innovation.

Summary

PLCs, a group of professional educators working collectively to create and sustain a learning culture, are praised as best practice (Olivier et al., 2010). Surmounting the influence of traditional teacher isolation, a relatively small number of successful school districts developed PLCs in order to unify teachers through collaboration, embedded professional development, and school improvement (Van Lare & Brazer, 2013). In these exemplary schools, PLCs were a vehicle for collaboration with the power to solve difficult problems of practice (DuFour et al., 2016). Successful teams developed goals, dug into the standards to address how each impacts instruction, and developed common assessments. Studies found teachers who collaborated on a PLC challenged the status quo in educational practice (Hallam et al., 2015).

Little is known about how levels of trust among teachers affect the development of relationships in PLCs, strategies for building and maintaining trust among members of

collaborative teams, and the impact of trust on effective school collaborative practices (Hallam et al., 2015). Small samples of collaborative teams participated in qualitative research studies, suggesting a connection between relational trust and effective teacher collaboration. However, more research was required to examine the nature of the relationships existing in order to build and sustain PLCs (Cranston, 2011). In addition, research was needed to determine how trust specifically affects collaboration in larger samples of teachers (Hallam et al., 2015). Larger-scale quantitative research is needed to improve generalizability regarding the impact of trust on effective teacher collaboration (Tschannen-Moran, 2014).

CHAPTER THREE: METHODS

Overview

The purpose of Chapter Three is to describe the research design, the methodology, the data collection, and the data analysis procedures in this study. The researcher delineates the sampling procedures and instrument validations. The chapter is divided into six sections. Section one provides the introduction; section two describes the design; section three provides the research question and hypotheses; section four describes the population and sample; section five contains data collection procedures; and section six describes data analysis procedures. The researcher's purpose was to examine the relationship between teachers' beliefs about the dimensions of a PLC and relational trust. Faculty questionnaires were utilized to investigate how teachers participating in PLCs rate their teams and the relationships within them. Lee, Zhang, and Yin (2011) suggested trust may impact how a team of teachers collaborate effectively, and this may have an impact on school-wide collaborative practices.

Design

The design for this research study was a quantitative correlational design, using three standard multiple regressions, of one group and two instruments for comparison. Correlational design was appropriate because the strength and direction of the relationship between two variables was examined using correlational statistics (Rockinson-Szapkiw, 2013). One of the variables in this study was the level of relational trust, looking at all three subscales. The other variable was teacher evaluation of the dimensions of a PLC. Correlational research allowed for analysis of Pearson's product-moment, also known as Pearson's *r*, to gather data about both the direction and the strength between two sets of continuous scores (Warner, 2012). Making causal inferences about the statistically significant relationships found in a correlational study would be inappropriate.

Research Question

RQ1: Is there a statistically significant relationship between a teacher's understanding of the dimensions of a PLC and relational trust?

Hypotheses

The null hypotheses for this study are:

$H_0$1: There is no statistically significant relationship between teachers' perceptions of the dimensions of a PLC, as measured by the Professional Learning Community Assessment-Revised (PLCA-R), and the level of relational trust in the principal as measured by the Omnibus T-Scale.

$H_0$2: There is no statistically significant relationship between teachers' perceptions of the dimensions of a PLC, as measured by the Professional Learning Community Assessment-Revised (PLCA-R), and the level of relational trust in colleagues as measured by the Omnibus T-Scale.

$H_0$3: There is no statistically significant relationship between teachers' perceptions of the dimensions of a PLC, as measured by the Professional Learning Community Assessment-Revised (PLCA-R), and the level of relational trust in the clients (students and parents) as measured by the Omnibus T-Scale.

Participants and Setting

The participants for the study were drawn from a purposeful sample of elementary, middle, and high school teachers from school districts located in Iowa, Illinois, and New York. The researcher selected purposeful sampling for this study to understand and gain insight about PLCs and, therefore, needed to select school districts using them according to established and accepted criteria. Sample districts were required to meet these criteria, accepted by the

researcher, based on the research questions (Creswell, 2009). Each of these organizations was a model PLC district as defined by Solution Tree, Inc. (2018), home of the Professional Learning Communities at Work process.

To earn model status, school district leadership provided Solution Tree, Inc. with evidence of sustainable PLCs. A district had to meet three requirements to be named a model PLC. First, each district documented their commitment to PLC approaches as designed by the Solution Tree, Inc. model. Next, each district implemented PLCs district-wide for at least three years. Last, the district documented evidence of improved student learning in the district (Solution Tree, 2018). The researcher invited 20 of these model PLC school districts to participate. Three model PLC districts committed to participate in this study.

All of the teachers in each district were invited to participate. Each teacher was given the two surveys for this study. The sample size exceeded the minimum of 66 suggested by Gall, Gall and Borg (2007). This minimum must be met for a medium effect size with a statistical power of .7 and an alpha of .05. Additionally, demographic questions of sex, racial identity, subjects, grades and levels taught, years of teaching experience, and school district context (urban, suburban, and rural) were collected.

Instrumentation

The Omnibus T-Scale (Hoy & Tschannen-Moran, 2003) was designed to be a short operational measure used for elementary school and secondary school teachers to measure three dimensions of relational trust (Hoy & Tschannen-Moran, 2003). The survey measured trust in the principal, trust in colleagues, and trust in stakeholders (students and parents). Vulnerability, benevolence, reliability, competence, honesty, and openness characterized each of the dimensions of trust (Hoy & Tschannen-Moran, 2003). The Omnibus T-Scale (Hoy &

Tschannen-Moran, 2003) utilized a six-point, forced Likert scale ranging from 1 = strongly disagree to 6 = strongly agree.

This assessment tool passed construct validity (expert study and factor analysis) and yielded satisfactory internal consistency for reliability. The most recent analyses confirmed internal consistency resulting in the following Cronbach's alpha reliability coefficients for the factored subscales (Hoy & Tschannen-Moran, 2003):

- Trust in principals (.98)
- Trust in colleagues (.93)
- Trust in clients (.94)

The instrument was appropriate for use in this study because it allowed the researcher to measure the level of relational trust among its members. The author of the Omnibus T- Scale granted permission to use the scale for this study. The document is located in Appendix A.

The Professional Learning Community Assessment-Revised (PLCA-R) (Olivier et al, 2010) was created to assess classroom and school-level practices related to dimensions of PLCs. The tool was used to help determine the strength of practices within each PLC dimension across schools and districts (Olivier et al., 2010). The PLCA-R was a 54-question survey utilizing a four-point, forced Likert scale ranging from 1 = strongly disagree to 4 = strongly agree. This assessment tool passed construct validity (expert study and factor analysis) and yielded satisfactory internal consistency for reliability. The most recent analyses of this diagnostic tool confirmed internal consistency resulting in the following Cronbach's alpha reliability coefficients for factored subscales (n = 1209):

- Shared and supportive leadership (.94)
- Shared values and vision (.92)

- Collective learning and application (.91)
- Shared personal practice (.87)
- Supportive conditions-relationships (.82)
- Supportive conditions-structures (.88).

There was no full-scale result for this tool, and each subscale was correlated with the relational trust score as measured by the Omnibus T-Scale (Hoy & Tschannen-Moran, 2003). The instrument was appropriate for use in this study because it measured perceptions educators have about their PLC. The author of the PLCA-R granted permission to use the scale for this study. The document is located in Appendix B.

Procedures

First, the researcher secured Institutional Review Board (IRB) approval from Liberty University (see Appendix C). In order to secure approval from the IRB, the researcher elicited approval from a pool of qualifying districts to participate in this study. At least three school districts granted permission. The researcher asked the superintendent of each school district to send out the online survey to elicit faculty participants (see Appendix D). The researcher sent consent forms to each participant and secured consent before participation (see Appendix E). The researcher trained each individual school district superintendent to send out the online survey link and answer any questions staff members had during the open survey period of two weeks.

Participants completed the surveys online. The researcher accessed the data collected through Google Forms and data were coded to ensure anonymity of the individual participants. The researcher performed the appropriate tests and inferential statistics using SPSS. All surveys are kept in a secure location for three years following the completion of the survey, at which time

the surveys will be destroyed. The researcher shared the survey data with the cooperating school district superintendents.

Data Analysis

A Standard Multiple Regression was used for this study to determine if a statistical correlation existed between a teacher's understanding of the dimensions of a PLC and three subscales of relational trust scores. Continuous data collected from both the PLCA-R (Oliver, Hipp, and Huffman, 2010) and Omnibus T- Scale were analyzed. The Pearson product-moment coefficient (Pearson's *r*) followed the regression. Pearson's *r* was appropriate to measure the three null hypotheses because it allowed the researcher to describe the strength of the relationship between two or more variables (Gall et al., 2007). According to Gall et al (2007), "Product-moment correlation is the most widely used bivariate correlation technique because most educational measures yield continuous scores and because Pearson's *r* as a small standard error" (p. 347).

The following are the assumptions for the Standard Multiple Regression (Rockinson-Szapkiw, 2013). First, the independence of observations was checked by using the Durbin-Watson statistic. The assumption required the observations within each variable be independent. Second, linearity required the relationship between the two variables be linear. The assumption required comparing the scatterplot of the residuals to the predicted values. A roughly straight line appearing on a scatterplot indicated the assumption is tenable. Third, homoscedasticity meant the variability in scores in both variables should be similar. The assumption required looking for a cigar shape on the scatterplot, indicating the assumption is justifiable. Fourth, multicollinearity required the independent variables are not highly correlated with each other. The researcher used the tolerance and Variance Inflation Factor (VIF) values, along with a

correlation matrix, to demonstrate the association between the pairs of predictor variables. Finally, normality meant the population distributions were normal. This assumption required inspection of the P-P Plot to demonstrate the residuals were approximately normally distributed. Additionally, examination of case wise diagnostics and studentized deleted residuals were completed to check for any outliers in the data. If all of the assumptions are met, a standard multiple regression analysis would be conducted.

Summary

The purpose of Chapter Three was to outline and explain the questions, methods, and procedures used in this study. The researcher conducted a quantitative study to determine whether or not a relationship exists between teacher's beliefs about the dimensions of a PLC and relational trust among the members of the PLC. Two surveys were utilized to collect data: The Professional Learning Community Assessment-Revised (PLCA-R) (Olivier et al., 2010) and The Omnibus T-Scale (Hoy & Tschannen-Moran, 2003). The researcher received Institutional Review Board (IRB) approval from Liberty University after the researcher elicited approval from the Liberty University Research Consultant, dissertation team, and each district committed to participate in this study. The online survey tool and consent forms were sent to the participants by the superintendent of each school district and the open survey period was 30 days. Participants completed the surveys and coded data (designed to protect the anonymity of the participants) were collected through an online platform and accessed by the researcher. The researcher performed the appropriate tests and inferential statistics using SPSS. All surveys will be kept in a secure location for three years. Chapter Four summarizes the data concerning teachers' evaluation of the dimensions of a PLC and trust among the members. The demographics for participating districts were reported using descriptive data. A standard

multiple regression explored the relationships between the dimensions of a PLC and relational trust. Results are summarized in table form.

CHAPTER FOUR: FINDINGS

Overview

The purpose of this chapter is to present the analysis of the data collected for this correlational research study. The study was designed to determine the relationship between teachers' evaluation of their PLC, through the lens of the five PLC dimensions, and the level of relational collective trust (Forsyth, Adams, & Hoy, 2011). Quantitative data were obtained utilizing two survey instruments: The Professional Learning Community Assessment-Revised (PLCA-R) (Olivier et al, 2010) and the Omnibus Trust Survey (Hoy & Tschannen-Moran, 2003). The findings, including the research questions, null hypotheses, descriptive statistics, and results are discussed below.

Research Question

RQ1: Is there a statistically significant relationship between a teacher's understanding of the dimensions of a PLC and relational trust?

Null Hypotheses

$H_{o1:}$ There is no statistically significant relationship between teachers' perceptions of the dimensions of a PLC, as measured by the Professional Learning Community Assessment-Revised (PLCA-R), and the level of relational trust in the principal as measured by the Omnibus T-Scale.

$H_{o2:}$ There is no statistically significant relationship between teachers' perceptions of the dimensions of a PLC, as measured by the Professional Learning Community Assessment-Revised (PLCA-R), and the level of relational trust in colleagues as measured by the Omnibus T-Scale.

$H_{o3:}$ There is no statistically significant relationship between teachers' perceptions of the

dimensions of a PLC, as measured by the Professional Learning Community Assessment-Revised (PLCA-R) and the level of relational trust in stakeholders (students and parents) as measured by the Omnibus T-Scale.

Descriptive Statistics

Demographics of the Sample

One hundred and six educators began the survey by giving consent to participate. Two cases were removed due to incomplete data. Thus, data of 104 educators (N = 104) were used for analysis. The sample consisted of educators who were primarily female (*n* = 80; 76.9%) and Caucasian (*n* = 101; 97.1%). The educators ranged in age from 18 and 74, with most being between the ages of 25 and 54 (*n* = 88, 84.6%; see Table 1). The educators held positions at the elementary school (*n* = 53; 51%), middle school (*n* = 16; 15.4%), and high school (*n* = 32; 30.8%). Three educators in the sample did not report their position. The majority of the educators had over five years of experience in education (*n* = 94; 90.3%) and had participated in a PLC in their current school district for over five years (*n* = 84; 80.8%; see Table 1).

Table 1

Demographic Data

Variable	*n*	*% of n*
Age Ranges		
Did not report	3	2.9
18-24	1	1.0
25-34	26	25.0
35-44	36	34.6
45-54	26	25.0
55-64	11	10.6
65-74	1	1.0
Years of Educational Experience		
Did not report	1	1.0
0-5 years	9	8.7
6-11 years	23	22.1
12-17 years	28	26.9
18+ years	43	41.3
Years in a PLC		
less than 1 year	1	1.0
1 year	1	1.0
2 years	4	3.8
3 years	8	7.7
4 years	6	5.8
5+ years	84	80.8

Descriptive and Reliability Analyses

Table 2 displays the descriptive statistics for each of the variables analyzed. Cronbach's alpha coefficient was calculated for each scale and subscale to assess the reliability of the scale with the current sample. Based on the recommended value of 0.7 or higher (Kline, 2005), all scales and subscales may be considered reliable. Table 3 is a correlation matrix demonstrating the association between the pairs of the predictor variables and predictor and criterion variables.

Table 2

Descriptive Statistic and Cronbach's Alpha Coefficients for Variables

	M	*SD*	*Cronbach's alpha*
Omnibus T Scale	4.326	.880	.949
-Principal (P)	4.281	1.434	.964
-Colleagues (C)	4.768	.952	.939
-Stakeholders (S)	4.009	.926	.921
Shared And Supportive Leadership (SSL)	2.936	.739	.945
Shared Values And Vision (SVV)	3.158	.706	.994
Collective Learning And Application (CLA)	3.307	.615	.941
Shared Personal Practice (SPP)	3.142	.661	.889
Supportive Conditions-Relationships (SCR)	3.123	.727	.898
Supportive Conditions-Structures (SCS)	3.169	.624	.909
PLCA-R Total	3.136	.721	.981

Table 3

Correlation Matrix

	P	C	S	SSL	SSV	CLA	SPP	SCR	SCS
Principal (P)	-	.538**	.305**	.778**	.572**	.443**	.329**	.476**	.522**
Colleagues (C)	-	-	.636**	.526**	.579**	.608**	.512**	.707**	.543**
Stakeholder (S)	-	-	-	.470**	.545**	.510**	.568**	.574**	.483**
Shared and Supportive Leadership (SSL)	-	-	-	-	.824**	.718**	.613**	.712**	.778**
Shared Values and Vision (SVV)	-	-	-	-	-	.819**	.689**	.822**	.807**
Collective Learning and Application (CLA)	-	-	-	-	-	-	.834**	.898**	.801**
Shared Personal Practice (SPP)	-	-	-	-	-	-	-	.773**	.779**
Supportive Conditions-Relationships (SCR)	-	-	-	-	-	-	-	-	.770**

Note. ** Correlation is significant at the 0.01 level (2-tailed). SCS is Supportive Conditions-Structure

Results

Table 4 is a summary of the results of the three standard multiple regression analyses conducted for this study. Each individual analysis, including data screening and assumption testing, is organized by null hypothesis.

Table 4

Summary of Results

Null Hypothesis	Statistic	Conclusion	Decision
H_{o1}: There is no statistically significant relationship between teachers' perceptions of the dimensions of a PLC*	$F(6,97) = 29.53$, $p > .001$, $R^2 = .646$ (adjusted $R^2 = .624$)	Dimensions of a professional learning community (PLC) statistically significantly predict trust in principal. The dimensions of PLC explain 62.4% of the variability of the criterion variable, trust in principal.	Significant evidence to reject the null hypothesis.
H_{o2}: There is no statistically significant relationship between teachers' perceptions of the dimensions of a PLC**	$F(6,97) = 16.63$, $p > .001$, $R^2 = .507$ (adjusted $R^2 = .477$)	Dimensions of a professional learning community (PLC) statistically significantly predict trust in colleagues. The dimensions of PLC explain 47.7% of the variability of the criterion variable, colleague trust.	Significant evidence to reject the null hypothesis.
H_{o3}: There is no statistically significant relationship between teachers' perceptions of the dimensions of a PLC***	$F(6,97) = 11.29$, $p > .001$, $R^2 = .411$(adjusted $R^2 = .37.5$)	Dimensions of professional learning community (PLC) statistically significantly predict trust in stakeholders. The dimensions of PLC explain 37.5% of the variability of the criterion variable, trust in stakeholders.	Significant evidence to reject the null hypothesis.

Note. * as measured by the PLCA-R, and the level of relational trust in the principal as measured by the Omnibus T-Scale.** as measured by the Professional Learning Community Assessment-Revised, and the level of relational trust in colleagues as measured by the Omnibus T-Scale.*** as measured by the Professional Learning Community Assessment-Revised, and the level of relational trust in stakeholders (students and parents) as measured by the Omnibus T-Scale.

Null Hypothesis One

The first hypothesis was designed to determine if there was a statistically significant relationship between teachers' perceptions of the dimensions of a PLC, as measured by the Professional Learning Community Assessment- Revised, and the level of relational trust in the principal as measured by the Omnibus T-Scale (Hoy & Tschannen-Moran, 2003).

Data screening. Data screening was conducted to ensure no outliers or inconsistencies were present. The examination of casewise diagnostics and studentized deleted residuals indicated one extreme outlier (case 10). Data were examined, but there was no evidence of a data entry error. As the data point was a real person's score and the Cook's distance of the case did not exceed 1, the researcher made the decision to retain the case for the data analysis (Cook & Weisberg, 1982).

Assumptions. Prior to conducting the standard multiple regression analysis, five assumptions were tested: (a) independence of observations, (b) linearity, (c) homoscedasticity, (d) multicollinearity, and (e) normality. First, independence of residuals was assessed. The resulting Durbin-Watson statistic of 1.642 indicated the assumption of independence of observations was tenable. Second, the assumption of linearity was also tenable. Initially, inspection of the partial regression plots (see Figures F1-F6 in Appendix F) demonstrated no gross violations of the assumption of linearity. Additionally, the tenability of linearity as well as homoscedasticity was supported by the inspection of the scatterplot of the studentized residuals against the (unstandardized) predicted values (see Figure 1). The assumption of multicollinearity was assessed using the tolerance and VIF values. All tolerance values were greater than 0.1 (the lowest is 0.131), and the VIF values were greater than 10 (highest is 7.619). Thus, the assumption of multicollinearity was not violated. Finally, inspection of the P-P Plot (see Figure

2) demonstrated the residuals were approximately normally distributed. Given the results of the assumption testing, a standard multiple regression analysis was conducted.

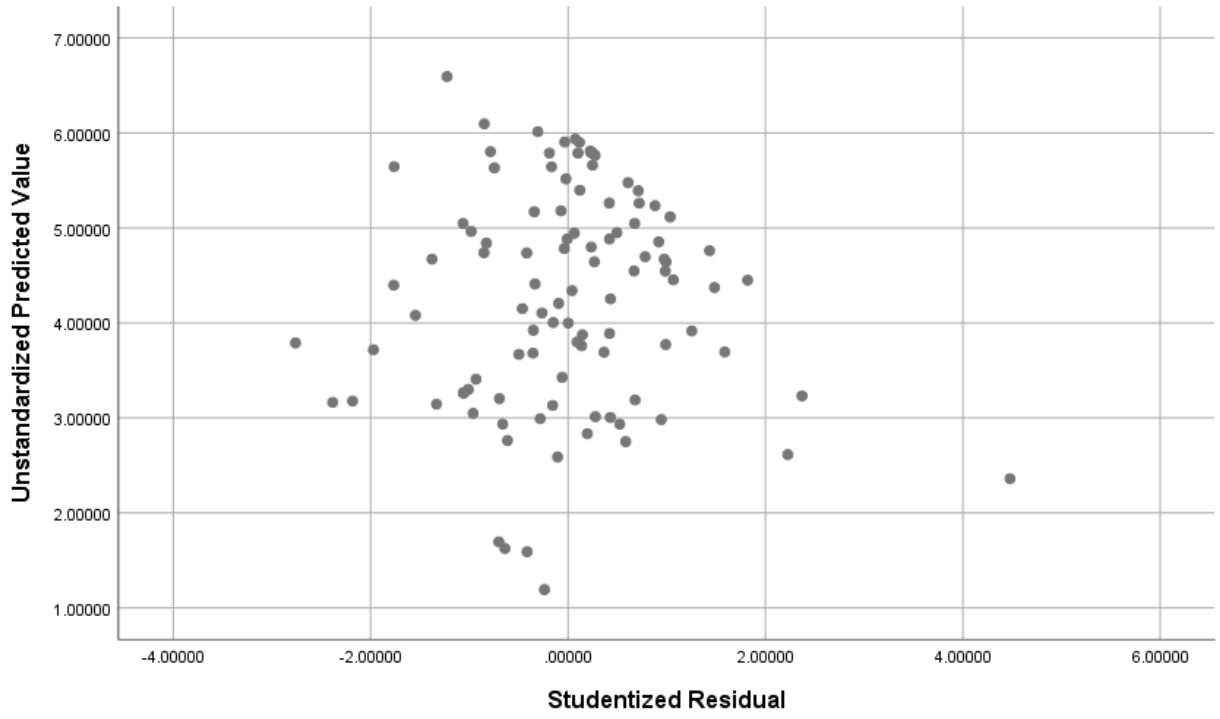

Figure 1. Scatterplot of the studentized residuals against the (unstandardized) predicted values.

Note. Principal (P) subscale

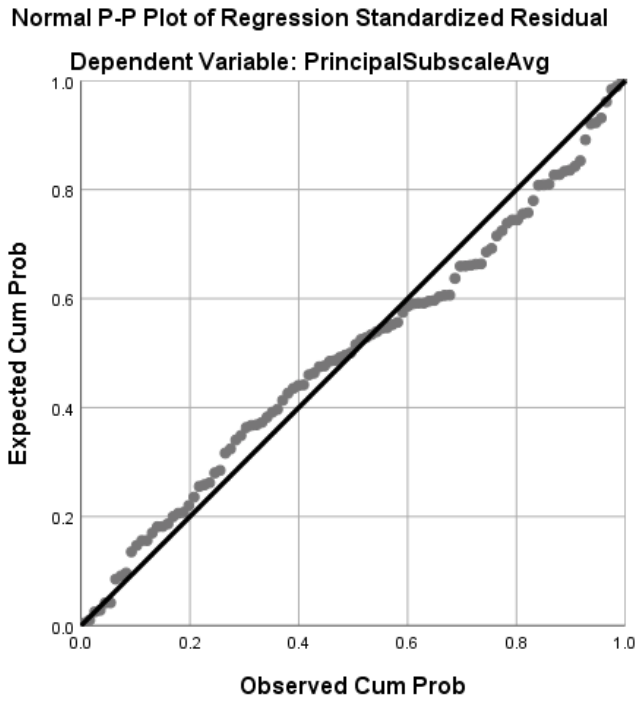

Figure 2. P-P Plot for principal subscale of PLCA-R.

Results. A standard multiple regression was performed to test the null hypothesis there was no statistically significant relationship between teachers' perceptions of the dimensions of a PLC, as measured by the PLCA-R (Oliver et al, 2003), and the level of relational trust in colleagues as measured by the Omnibus T-Scale (Hoy & Tschannen-Moran, 2003). Results of a standard multiple regression demonstrated the linear combination of dimensions of a PLC statistically significantly predicted trust in principal, $F(6,97) = 29.53$, $p > .001$, $R^2 = .646$ (adjusted $R^2 = .624$). The dimensions of PLC explain 62.4% of the variability of the criterion variable, trust in principal. There was significant evidence to reject the null hypothesis. Additionally, with the standardized coefficient, Beta, of .991, shared and supportive leadership made the only and most significant individual contribution (see Table 5). All other variables did not make individual significant contributions.

Table 5

Contributions of Predictor Variables (N = 104)

Variable	Zero-Order *r*	Partial *r*	β	SE B	B	*t*	*p*
Shared & Supportive Leadership	.778**	.663**	1.923	.221	.991	8.714	>.001
Shared Values & Vision	.572	-.069	-.193	.283	-.095	-.682	.497
Collective Learning & Application	.443	-.084	-.323	.388	-.139	-.832	.407
Shared Personal Practice	.329	-.153	-.392	.258	-.181	-1.521	.132
Supportive Conditions-Relationships	.476	.087	.249	.290	.126	.859	.393
Supportive Conditions-Structures	.522	-.014	-.041	.294	-.018	-.139	.889

Note. *$p < .05$, **$p < .01$

Null Hypothesis Two

The second hypothesis was designed to determine if there was a statistically significant relationship between dimensions of a PLC, as measured by the Professional Learning Community Assessment-Revised (PLCA-R) (Olivier et al., 2010), and the level of relational trust in colleagues as measured by the Omnibus T-Scale (Hoy & Tschannen-Moran, 2003).

Data screening. Data screening was conducted to ensure no outliers or inconsistencies were present. The examination of casewise diagnostics and studentized deleted residuals

indicated one extreme outlier (case 10). Data were examined, but there was no evidence of a data entry error. As the data point was a real person's score and the Cook's distance of the case did not exceed 1, the researcher made the decision to retain the case for the data analysis (Cook & Weisberg, 1982).

Assumptions. Prior to conducting the standard multiple regression analysis, five assumptions were tested: (a) independence of observations, (b) linearity, (c) homoscedasticity, (d) multicollinearity, and (e) normality. First, independence of residuals was assessed. The resulting Durbin-Watson statistic of 2.129 indicated the assumption of independence of observations was tenable. Second, the assumption of linearity was also tenable. Initially, inspection of the partial regression plots (see Figures F7-F12 in Appendix F) demonstrated no gross violations of the assumption of linearity. Additionally, the tenability of linearity as well as homoscedasticity was supported by the inspection of the scatterplot of the studentized residuals against the (unstandardized) predicted values (see Figure 3). The assumption of multicollinearity was assessed using the tolerance and VIF values. All tolerance values were greater than 0.1 (the lowest was 0.131), and the VIF values are greater than 10 (highest was 7.619). Thus, the assumption of multicollinearity was not violated. Finally, inspection of the P-P Plot (see Figure 4) demonstrated the residuals were approximately normally distributed. Given the results of the assumption testing, a standard multiple regression analysis was conducted.

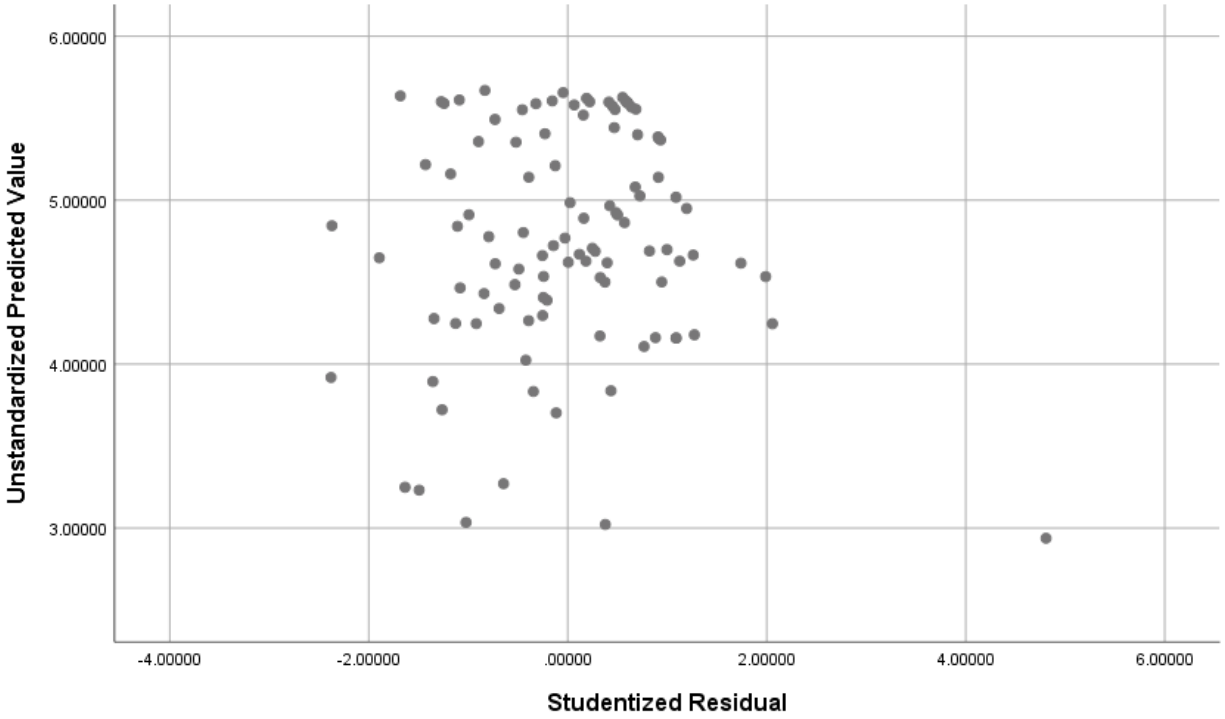

Figure 3. Scatterplot of the studentized residuals against the (unstandardized) predicted values.

Note. Colleague (C) subscale.

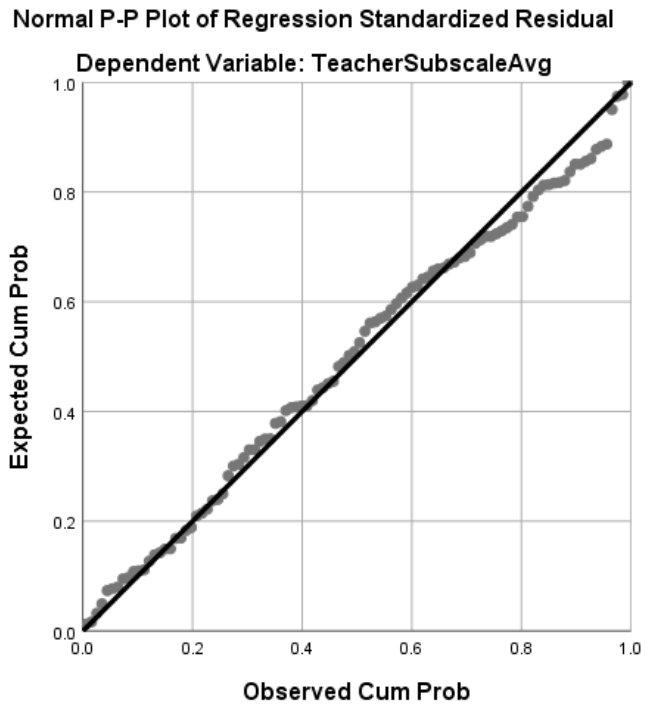

Figure 4. P-P Plot for colleague subscale of PLCA-R.

Results. A standard multiple regression was performed to test the null hypothesis there was no statistically significant relationship between teachers' perceptions of the dimensions of a PLC, as measured by the PLCA-R (Oliver et al, 2003), and the level of relational trust in colleagues as measured by the Omnibus T-Scale (Hoy & Tschannen-Moran, 2003). Results of a standard multiple regression demonstrated the linear combination of dimensions of a PLC statistically significantly predicted trust in colleagues, $F(6,97) = 16.63$, $p > .001$, $R^2 = .507$ (adjusted $R^2 = .477$). The dimensions of a PLC explained 47.7% of the variability of the criterion variable, trust in colleagues. There was significant evidence to reject the null hypothesis. One variable made an individual significant contribution, supportive conditions-relationships (see Table 6). With the standardized coefficient, Beta, of .820, supportive

conditions-relationships made the only and most significant individual contribution. All other variables did not make individual significant contributions.

Table 6

Contributions of Predictor Variables (N = 104)

Variable	Zero-Order *r*	Partial *r*	β	SE B	B	*t*	*p*
Shared & Supportive Leadership	.526	.057	.098	.173	.076	.566	.573
Shared Values & Vision	.579	-.023	-.051	.221	-.038	-.230	.818
Collective Learning & Application	.608	-.065	-.196	.304	-.126	-.642	.522
Shared Personal Practice	.512	-.046	-.091	.202	-.063	-.449	.654
Supportive Conditions-Relationships	.707**	.433**	1.074	.227	.820	4.730**	>.001
Supportive Conditions-Structures	.543	.023	.052	.230	.034	.228	.820

Note. $*p < .05$, $**p < .01$

Null Hypothesis Three

The third hypothesis was designed to determine if there was a statistically significant relationship between dimensions of a PLC, as measured by the PLCA-R (Oliver et al, 2003), and the level of relational trust in stakeholders (students and parents) as measured by the Omnibus T-Scale (Hoy & Tschannen-Moran, 2003).

Data screening. Data screening was conducted to ensure no outliers or inconsistencies were present. The examination of casewise diagnostics and studentized deleted residuals indicated one extreme outlier (case 10). Data were examined, but there was no evidence of a data entry error. As the data point was a real person's score and the Cook's distance of the case did not exceed 1, the researcher made the decision to retain the case for the data analysis (Cook, & Weisberg, 1982).

Assumptions. Prior to conducting the standard multiple regression analysis, five assumptions were tested: (a) independence of observations, (b) linearity, (c) homoscedasticity, (d) multicollinearity, and (e) normality. First, independence of residuals was assessed. The resulting Durbin-Watson statistic of 1.985 indicated the assumption of independence of observations was tenable. Second, the assumption of linearity was also tenable. Initially, inspection of the partial regression plots (see Figures F13-F18 in Appendix F) demonstrated no gross violations of the assumption of linearity. Additionally, the tenability of linearity as well as homoscedasticity was supported by the inspection of the scatterplot of the studentized residuals against the (unstandardized) predicted values (see Figure 5). The assumption of multicollinearity was assessed using the tolerance and VIF values. All tolerance values were greater than 0.1 (the lowest was 0.131), and the VIF values were greater than 10 (highest was 7.619). Thus, the assumption of multicollinearity was not violated. Finally, inspection of the P-P Plot (see Figure

6) demonstrated the residuals were approximately normally distributed. Given the results of the assumption testing, a standard multiple regression analysis was conducted.

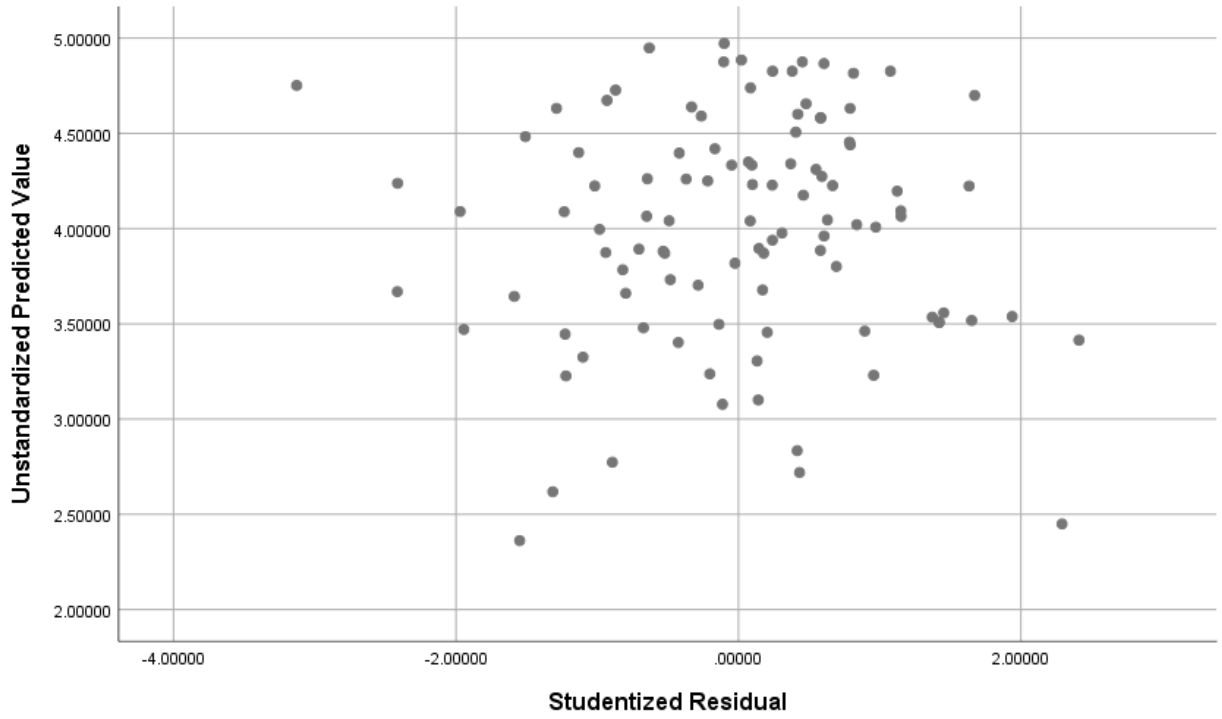

Figure 5. Scatterplot of the studentized residuals against the (unstandardized) predicted values. Note. Stakeholders (S) subscale.

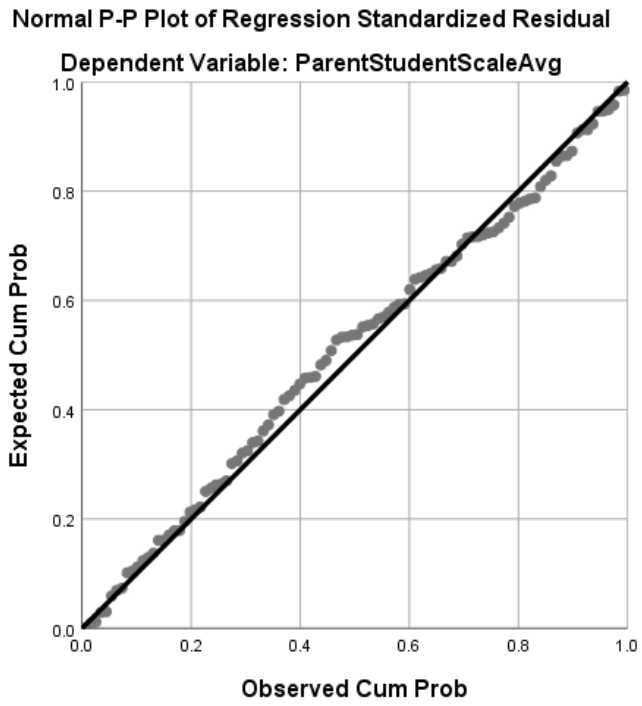

Figure 6. P-P Plot for stakeholder subscale of PLCA-R.

Results. A standard multiple regression was performed to test the null hypothesis there was no statistically significant relationship between teachers' perceptions of the dimensions of a PLC, as measured by the PLCA-R (Oliver et al, 2003), and the level of relational trust in stakeholders (students and parents).

Results of a standard multiple regression demonstrated the linear combination of dimensions of a PLC statistically significantly predicts trust in stakeholders, $F(6,97) = 11.29$, $p > .001$, $R^2 = .411$(adjusted $R^2 = .37.5$). The dimensions of PLC explain 37.5% of the variability of the criterion variable, trust in stakeholders. There was significant evidence to reject the null hypothesis. Three variables made individual significant contributions, supportive conditions-relations, shared personal practice, and collective learning and application (see Table 7). With the standardized coefficient, Beta, of .488, shared personal practice made the most significant individual contribution. It is also interesting to note the association of supportive conditions-

relationships and shared personal practice with trust in stakeholders was positive, but the association between collective learning and application and trust in stakeholders was negative. As collective learning and application increased, trust in stakeholders decreased. All other variables did not make individual significant contributions.

Table 7 *Contributions of Predictor Variables (N = 104)*

Variable	Zero-Order *r*	Partial *r*	β	SE B	B	*t*	*p*
Shared & Supportive Leadership	.470	.045	.082	.184	.066	.447	.656
Shared Values & Vision	.545	.165	.387	.235	.295	1.645	.103
Collective Learning & Application	.510	-.203	-.660	.323	-.438	-2.039*	.044
Shared Personal Practice	.568	.308	.684	.215	.488	3.187*	.002
Supportive Conditions-Relationship	.574	.223	.544	.241	.428	2.258*	.026
Supportive Conditions-Structures	.483	-.101	-.244	.244	-.164	-.997	.321

Note. *$p < .05$, **$p < .01$

CHAPTER FIVE: CONCLUSIONS

Overview

Chapter Five explores the results of this study, designed to research the relationship between the perceptions educators have about their Professional Learning Community (PLC) and the level of relational trust among its members. Faculty of three school districts awarded model PLC distinction were administered two surveys: The Professional Learning Community Assessment-Revised (PLCA-R) (Olivier et al, 2010) and The Omnibus T-Scale (Hoy & Tschannen-Moran, 2003) via Google Forms. Participants were also asked demographic questions about sex, racial identity, subjects, grades, years of teaching experience, and years of PLC experience. The discussion section reviews each of the three hypotheses and the results of the study in light of previous published research. The conclusions and implications sections takes the results and explores both the meaning and practical implications. The recommendations section offers additional ways to study how relational trust works and is nurtured in PLCs.

Discussion

The researcher designed this study to address the gap in the research about PLCs by looking at two issues. First, quantitative analysis and survey research was used to assess teachers' evaluation of the dimensions of their PLCs. Next, the researcher considered relational collective trust. As much as PLCs are considered by most to be best practice, little research examined the nature of the relationships necessary to build and sustain PLCs (Cranston, 2011). Additional research was needed to determine how trust specifically affects collaboration in larger samples of teachers (Hallam, Smith, Hite, Hite, & Wilcox, 2015).

Previous qualitative studies about PLCs and teacher collaboration have focused on the

behavior and experiences of teacher teams in a few schools (Carpenter, 2014; Schaap & Bruijn, 2018). Results from these studies revealed group characteristics and results varied widely. For a clearer understanding of teacher collaboration in a PLC, researchers needed to analyze the individual elements of PLCs by having participants reflect on the dimensions of their PLCs (Schaap & Bruijn, 2018). While there is a body of research examining how and why teams of teachers collaborate effectively, only a few studies suggested a connection between relational trust and effective collaboration at the time of this study. Lee, Zhang, and Yin (2011) researched the characteristics and operations of PLCs through interviews and focus groups and found trust to be a significant predictor of overall job satisfaction and risk-taking behaviors within an organization. However, little is known about the specific relationship between effective PLCs and relational trust. In order to accurately assess this relationship, more quantitative research was needed to improve generalizability (Hord & Sommers, 2013; Tschannen-Moran, 2014; Vescio, Ross, & Adams, 2008).

The purpose of this correlational research was to determine if there is a significant relationship between educators' perceptions of their PLCs as measured by the PLCA-R (Olivier et al, 2010) and the level of relational trust in the principal, among PLC members, and in stakeholders, as measured by the three subtests of the Omnibus T-Scale (Hoy & Tschannen-Moran, 2003). A Quantitative Standard Multiple Regression was utilized for this correlational research. Continuous data collected from both the PLCA-R and Omnibus T- Scale were analyzed. A Standard Multiple Regression using Pearson's *r* to measure the three null hypotheses was appropriate because it allowed the researcher to describe the strength of the relationship between two or more variables (Gall, Gall, & Borg, 2007). According to Gall et al. (2007), "Product-moment correlation is the most widely used bivariate correlation technique

because most educational measures yield continuous scores and because *r* has a small standard error" (p. 347).

Null Hypothesis One

A standard multiple regression was performed to test the null hypothesis there was no statistically significant relationship between teachers' perceptions of the dimensions of a PLC, as measured by the PLCA-R (Oliver et al, 2003), and the level of relational trust in the principal. The researcher found the linear combination of the dimensions of a professional learning community (PLC) statistically significantly predicted trust in principal. The dimensions of PLC explain 62.4% of the variability of the criterion variable, trust in principal. In addition, one variable, shared and supportive leadership, made the most significant individual contribution in the decision to reject the null hypothesis. In this investigation, there was a relationship between teachers' perceptions of the dimensions of a PLC, as measured by the PLCA-R (Olivier et al, 2010), and the level of relational trust in the principal. Specifically, the shared and supportive leadership dimension acknowledges the role of the leader to provide support to the members of the PLC.

The shared and supported leadership dimension of the PLCA identified communication among the staff members and the role of the leader to provide support to the PLC. This research study's results confirmed findings by Hord and Sommers (2013), who agreed educators often successfully worked together to sustain a learning culture for all students. In other research, Buttram and Farley-Ripple (2016) determined shared leadership models assured both teachers and administrators collaborated to improve student outcomes through collective action. Previous findings about successful PLCs required a shared leadership structure, where decisions were made by both teachers and principals. The results substantiate earlier findings that a significant

relationship exists between the shared and supportive leadership dimension and trust in the principal. The results of this research study supports qualitative research findings by Carpenter (2014) encouraging school administrators to focus on structures to support teachers and lead to effective PLCs. This researcher's findings provided evidence to support Carpenter's perception school leaders and teachers needed to be engaged in a collaborative culture, so innovation could occur.

Null Hypothesis Two

A standard multiple regression was performed to test the null hypothesis there was no statistically significant relationship between teachers' perceptions of the dimensions of a PLC, as measured by the PLCA-R (Oliver et al, 2003), and the level of relational trust in colleagues. The researcher found the linear combination of dimensions of a professional learning community (PLC) statistically significantly predicted trust in colleagues. The dimensions of a PLC explain 47.7% of the variability of the criterion variable, trust in colleagues. In addition, one variable, supportive conditions-relationships, made the most significant individual contribution to reject the null hypothesis. In this study, there was a relationship between the teachers' perceptions of the dimensions of a PLC, as measured by the PLCA-R (Olivier et al, 2010), and the level of relational trust in colleagues. Specifically, the supportive conditions-relationships dimension acknowledged the role of PLC colleagues to provide support to one another.

The supportive conditions-relationships dimension of the PLCA-R (Olivier et al, 2010) identified the shared values and vision emerging as a result of collaborative practices among the members of the PLC. The results of the present study confirmed qualitative research findings connecting relational trust among colleagues to teachers' evaluation about their PLC. Adams (2013) and Conner (2015) each connected relational trust among the group members to the way

teachers evaluated the success or failure of their PLC. Previous findings about successful PLCs required leaders to focus on building relationships among the participants. Further, the PLC may collapse if relational trust among the faculty is absent (Gray, Kruse, and Tarter, 2016). The results of the present study substantiated the belief organizational structures are a necessary condition for community building and nurturing relational trust in a PLC. This researcher's work extends qualitative research findings by Hallam et al. (2015). The presence of relational trust may make it more likely each teacher, while working on a team, will challenge the status quo in educational practice. This researcher's work provided evidence to support Hallam et al.'s perception that an atmosphere of trust among teachers is related to their perceptions of their PLC.

Null Hypothesis Three

A standard multiple regression was performed to test the null hypothesis there was no statistically significant relationship between teachers' perceptions of the dimensions of a PLC and the level of relational trust in stakeholders (students and parents). The researcher found the linear combination of dimensions of a professional learning community (PLC) statistically significantly predicted trust in stakeholders (students and parents). The dimensions of PLC explain 37.5% of the variability of the criterion variable, trust in stakeholders. In addition, three variables made individual significant contributions to the decision to reject the null. These were, supportive conditions-relationships, shared personal practice, and collective learning and application. Of these, shared personal practice made the most significant individual contribution. Also, while the association of supportive conditions-Relationships and shared personal practice with trust in stakeholders was positive, the association between collective learning and application and trust in stakeholders was negative. As collective learning and application increased, trust in stakeholders decreased. No other variables made individual significant

contributions. In this study, there was a relationship between the teachers' perceptions of the dimensions of a PLC, as measured by the PLCA-R (Olivier et al,2010) , and the level of relational trust in stakeholders. Specifically, both the supportive conditions-relationships and shared personal practice dimensions acknowledged the role of stakeholders to provide support to the PLC.

The supportive conditions-relationships dimension of the PLCA-R identified the shared values and vision emerging as a result of collaborative practices among the members of the PLC. The researcher confirmed qualitative research findings connecting relational trust among all members of a PLC, including stakeholders, to teachers' evaluation about their PLC. Adams (2013) and Conner (2015) each connected relational trust among the group members to the way each teacher evaluated the success or failure of their PLC. This researcher's work also extended qualitative research findings by Hallam et al. (2015), i.e., the presence of relational trust may make it more likely school staff will challenge the status quo in educational practice, addressing stakeholder concerns about student learning. The collective learning and application dimension of the PLCA-R identified the interdependence emerging as a result of the improved collegial relationships, problem solving and shared personal practice in the PLC (DuFour, DuFour, Eaker, & Many, 2006). Hord and Sommers (2013) found the team approach encouraged teachers to develop better strategies and instructional practices in order to respond to students' learning needs. Trust was built in high-performing schools when teachers, parents, and school leaders worked together. The present research may contradict those claims because the association between collective learning and application and trust in stakeholders was negative. In other words, as collective learning and application increased, trust in stakeholders decreased. No other studies were found to look at this specific dimension of the PLCA-R and stakeholder trust.

Implications

Researchers agreed a set of essential characteristics were necessary to build Professional Learning Communities (PLCs), but less attention was devoted to how to conceptualize and implement each at the school or district level (Hairon, Goh, Chua, & Wang, 2017; Olivier et al., 2010). Further, Lee et al. (2011) studied small groups of teachers' perceptions of the characteristics of PLCs and found trust and relationships to be significant predictors of collaborative behaviors within organizations. According to Cranston (2011), more knowledge was needed to identify the types of relationships necessary to build and sustain PLCs. This researcher found a statistically significant relationship between perceptions educators have about their PLC and the level of relational trust they have in their principal, their colleagues, and stakeholders. Therefore, building and nurturing trust among its members may be implied as key to building and sustaining effective PLCs. This implication was in agreement with research by Gray et al. (2016), who confirmed organizational structures are a necessary condition for building a school community. Such structures, however, were insufficient to build an effective PLC. The work of the team fell flat if trust among the members was absent. Therefore, results may imply school or district administrators developing, or sustaining PLCs must evaluate PLC dimensions while encouraging a culture of trust.

This researcher showed individual PLC dimensions correlated to one or more of the three subscales of trust (principal, colleagues, and stakeholders). First, the PLC dimension of shared and supportive leadership significantly correlated to trust in the principal. When school administrators focus on ways to include and support teachers as partners, it can be implied that trust between the leader and the PLC increases (Olivier et al., 2010). For example, school

principals could encourage shared decision making by incorporating advice from PLC members when making changes to the schedule or setting school-wide goals (Hord & Sommers, 2013).

Next, the PLC dimension of supportive conditions-relationships significantly correlated to trust in colleagues. A focus on relationships can be implied as a necessary condition for community building and nurturing trust among colleagues in a PLC (Olivier et al., 2010). The presence of trust may make it more likely each teacher, while working on a team, will challenge the status quo in educational practice. For example, PLC members in caring relationships encourage recognition of outstanding achievements by their students and other staff members. There may also be unified effort to infuse change into the culture of the school (Hord & Sommers, 2013).

Finally, two of the PLC dimensions, supportive conditions-relationships and shared personal practice significantly correlated to trust in stakeholders. Both results point toward the need for a community effort to infuse change into the school culture and informally share ideas and suggestions for student improvement with both students and parents. One of the dimensions, collective learning and application, had a negative association with trust in stakeholders. The collective learning and application dimension of the PLCA-R identifies the interdependence emerging as a result of the improved collegial relationships, problem solving and shared personal practice in the PLC (DuFour et al, 2006). More research is necessary to determine the reason for this result.

Limitations

The purpose of this study was to determine if there is a relationship between the perceptions educators have about their PLC and the level of relational trust among its members. Scores for the analysis came from two surveys: The Professional Learning Community

Assessment-Revised (PLCA-R) (Olivier et al., 2010) and The Omnibus T-Scale (Hoy & Tschannen-Moran, 2003). The research questions on both instruments were designed to achieve the above-mentioned purpose, but several limitations of this study became evident during the planning and implementation stages of this project. In an effort to increase internal and external validity, replication, and redesign of this study in future research should reduce or eliminate the following limitations:

(a) The researcher utilized a unique sample population and results may not be generalizable to other populations. The sample size (N = 104) was small and lacked diversity. The tested population identified as 76.9% female and 97.1% Caucasian. Also, 84.6% of the educators were between the ages of 25 and 54. While reflective of the teacher educator population, results may not be generalizable to other sexes and races. In addition, 51% of respondents worked in elementary schools, 15.4% in middle schools, and 30.8% in high schools. Further research is needed to generalize these results across elementary, middle and high schools.

(b) This researcher sought participants currently participating in a PLC in their current school district. In fact, 80.8% had participated in their school's PLC for over five years. This population was specifically selected for this study, but limits the generalizability to other settings where PLCs are a new endeavor.

(c) The data source for this study was faculty from three model PLC districts in Iowa, Illinois, and New York. Each district was awarded model PLC distinction, as defined by Solution Tree, Inc., home of the Professional Learning Communities at Work process. To be named a model PLC district, each district showed documented commitment to PLC approaches, PLC implementation for at least three years, and evidence of student improvement (Solution Tree, 2018).

(d) The researcher selected a self-administered survey to gather data. The survey was presented on a digital platform and launched by the building principals to staff members via email. The researcher did not monitor participants and was unable to ensure they did not share responses.

(e) Next, data were reported for the entire population (n = 104) and was not disaggregated by individual school districts to protect the anonymity of the participants. Each teacher completed both surveys and provided additional demographic data.

(f) While the effect size was moderate to high for the analyses and the model built was based on a review of the literature, a portion of the variance in the criterion variables, trust in the principal, colleagues, and stakeholders, still needs to be accounted for in future studies.

Recommendations for Future Research

The following are recommendations for future research:

(a) Researchers should conduct research using model PLC districts, as defined by Solution Tree, Inc. (2018), home of the Professional Learning Communities at Work process. The common PLC criteria across individual schools and school districts will allow that administrators around the world could use this research to benefit from the experiences of high-performing educational systems, where PLCs have been successfully building teacher capacity and improving student performance.

(b) Researchers should conduct quantitative research to isolate strategies for building and maintaining trust among the members of collaborative teams. Research focused on the shared and supported leadership dimension of a PLC would look closely at shared leadership models to improve student outcomes as a result of their collective action (Buttram & Farley-Ripple, 2016). While school change literature addressed the impact of school leaders on school improvement, PLCs were unique because they require a shared leadership structure (Hord & Sommers, 2013).

(c) Researchers should further disaggregate the collected data to compare the perceptions of teachers who have been a member of their PLC after one year, three years, and five years and correlate the data with trust. This particular research did not disaggregate data, nor did it seek to find a balance between the experience levels of the educators who took part.

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APPENDICES

Appendix A: Permission to Use Instrument

William & Mary
School of Education

MEGAN TSCHANNEN-MORAN, PHD
PROFESSOR OF EDUCATIONAL LEADERSHIP

August 4, 2016

Theresa,

You have my permission to use both the Faculty Trust Scale, also called the Omnibus T-Scale, which I developed with Dr. Wayne K. Hoy of the Ohio State University, and my Principal Trust Scale, which I developed with Chris Gareis, in your research. Below are the citations for both.

Hoy, W. K. & Tschannen-Moran, M. (2003). The conceptualization and measurement of faculty trust in schools: The omnibus T-Scale. In W.K. Hoy & C.G. Miskel, *Studies in Leading and Organizing Schools* (pp. 181-208). Information Age Publishing: Greenwich: CT.

Gareis, C. R. & Tschannen-Moran, M. (2004, April). *Principals' Sense of Efficacy and Trust*. Paper presented at the annual meeting of the American Educational Research Association, San Diego.

You can find scoring directions on my web site at http://wmpeople.wm.edu/site/page/mxtsch . I will also attach directions you can follow to access my password protected web site, where you can find the supporting references for these measures as well as other articles I have written on this and related topics.

I would love to receive a brief summary of your results when you finish.

All the best,

Megan Tschannen-Moran
The College of William and Mary
School of Education

P.O. Box 8795 • Williamsburg, VA 23187-8795 • (757) 221-2187 • mxtsch@wm.edu

Appendix B: Permission to Use Instrument

Department of Educational Foundations and Leadership
P.O. Box 4309, Lafayette, LA, 70504-3091

January 28, 2017

Theresa Pedersen
CMR 411 Box 6205
APO, AE, Germany 09112

Dear Ms. Pedersen:

This correspondence is to grant permission to utilize the *Professional Learning Community Assessment-Revised* (PLCA-R) as your instrument for data collection for your doctoral study through Liberty University School of Education. I believe your research *exploring the relationship between teachers' evaluation of dimensions of professional learning communities and the level of collective trust* will contribute to the PLC literature, as well as leadership research. I am pleased you are interested in using the PLCA-R measure in your research. This permission letter allows use of the PLCA-R through paper/pencil administration, as well as permission for online administration (SEDL or other online platform), as detailed in your PLCA-R Request Form. While this letter provides permission to use the measure in your study, authorship of the measure will remain as Olivier, Hipp, and Huffman (exact citation on the following page). This permission does not allow renaming the measure or claiming authorship. Upon completion of your study, I would be interested in learning about your entire study and would welcome the opportunity to receive an electronic version of your completed dissertation research.

Thank you for your interest in our research and measure for assessing professional learning community attributes within schools. Should you require any additional information, please feel free to contact me.

Sincerely,

Dianne F. Olivier

Dianne F. Olivier, Ph. D.
Associate Professor and Coordinator of the Doctoral Program
Joan D. and Alexander S. Haig/BORSF Professor
Department of Educational Foundations and Leadership
University of Louisiana at Lafayette

Appendix C: IRB Approval Letter

Dear Theresa Pedersen,

The Liberty University Institutional Review Board has reviewed your application in accordance with the Office for Human Research Protections (OHRP) and Food and Drug Administration (FDA) regulations and finds your study to be exempt from further IRB review. This means you may begin your research with the data safeguarding methods mentioned in your approved application, and no further IRB oversight is required.

Your study falls under exemption category 46.101(b)(2), which identifies specific situations in which human participants research is exempt from the policy set forth in 45 CFR 46:101(b):

> (2) Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior, unless:
> (i) information obtained is recorded in such a manner that human subjects can be identified, directly or through identifiers linked to the subjects; and (ii) any disclosure of the human subjects' responses outside the research could reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, or reputation.

Please retain this letter for your records. Also, if you are conducting research as part of the requirements for a master's thesis or doctoral dissertation, this approval letter should be included as an appendix to your completed thesis or dissertation.

Your IRB-approved, stamped consent form is also attached. This form should be copied and used to gain the consent of your research participants. If you plan to provide your consent information electronically, the contents of the attached consent document should be made available without alteration.

Please note that this exemption only applies to your current research application, and any changes to your protocol must be reported to the Liberty IRB for verification of continued exemption status. You may report these changes by submitting a change in protocol form or a new application to the IRB and referencing the above IRB Exemption number.

If you have any questions about this exemption or need assistance in determining whether possible changes to your protocol would change your exemption status, please email us at irb@liberty.edu.

Sincerely,

G. Michele Baker, MA, CIP
Administrative Chair of Institutional Research
The Graduate School

Appendix D: Participant Recruitment Letter

As a graduate student in the School of Education at Liberty University, I am conducting research as part of the requirements for an Ed.D degree in Educational Leadership. The purpose of my research is to determine whether there is a relationship between how teachers evaluate their Professional Learning Communities (PLCs) and the trust they have in their principal, other faculty members, and stakeholders (parents and students). I am writing to invite you to participate in my study.

If you are a faculty member who is currently a member of a Professional Learning Community at your school and are willing to participate, you will be asked to complete two short surveys. Your participation should take approximately 20 minutes and will be completely anonymous. No personal, identifying information will be collected.

To participate, click on the link provided. Consent information is provided as the first page you will see after you click on the link. Here you will find additional information about my research, but you do not need to sign and return a consent document. Please click on the survey link at the end of the consent information to indicate that you have read it and would like to take part in the research study.

Sincerely,

Theresa Pedersen, M.A.T, Ed.S
Doctoral Candidate, Liberty University

Appendix E: Participant Consent Page

CONSENT FORM

Professional Learning Communities and Relational Trust: A Correlational Study.

Theresa Pedersen
Liberty University
School of Education

You are invited to be in a research study about Professional Learning Communities (PLCs) and trust. You were selected as a possible participant because you are an elementary, middle, or high school teacher, and you currently participate as a member of a PLC in your school district. Please read this form and ask your district point of contact or the researcher any questions you may have before agreeing to be in the study.

Theresa Pedersen, a doctoral candidate in the School of Education at Liberty University, is conducting this study.

Background Information: The purpose of this study is to determine whether there is a relationship between how teachers rate their professional learning communities (PLCs) and the trust they have in their principal, other faculty members, and stakeholders (such as parents and students). Teachers who are currently members of PLCs in your district will complete two short online surveys, The Professional Learning Community Assessment-Revised (PLCA-R, Oliver and Hipp, 2010) and The Omnibus T-Scale (Hoy & Tschannen-Moran, 2003).

Procedures: If you agree to be in this study, I would ask you to do the following things:

1. Click the link to open the google form containing the questions from the PLCA-R. This survey will take 10-15 minutes to complete.
2. Click the link to open the google form containing the questions from the Omnibus T-Scale (Hoy & Tschannen-Moran, 2003). This survey will take 5 minutes to complete.

Risks: The risks involved in this study are minimal, which means they are equal to the risks you would encounter in everyday life.

Benefits: Participants should not expect to receive a direct benefit from taking part in this study.

Compensation: Participants will not be compensated for participating in this study

Confidentiality: The records of this study will be kept private. Research records will be stored securely, and only I will have access to the records. Survey responses will be anonymous; I will not collect e-mail addresses with the Google forms. Data will be stored on a password locked computer and may be used for future presentations. All electronic records will be deleted after three years.

Voluntary Nature of the Study: Participation in this study is voluntary. Your decision whether or not to participate will not affect your current or future relations with Liberty University or

your school district. If you decide to participate, you are free to not answer any question or withdraw at any time prior to submitting the surveys without affecting those relationships.

How to Withdraw from the Study: If you choose to withdraw from the study, please exit the survey and close your internet browser. Your responses will not be recorded or included in the study.

Contacts and Questions: The researcher conducting this study is Theresa Pedersen. You may ask any questions you have now. If you have questions later, **you are encouraged** to contact her at tpedersen2@liberty.edu. You may also contact the researcher's faculty chair, Dr. Amy Jones, at ajones17@liberty.edu.

If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher, **you are encouraged** to contact the Institutional Review Board, 1971 University Blvd., Green Hall Ste. 2845, Lynchburg, VA 24515 or email at irb@liberty.edu.

Please notify the researcher if you would like a copy of this information for your records.

Statement of Consent: I have read and understood the above information. I have asked questions and have received answers. I consent to participate in the study. Please click the "take my survey" button below to begin.

Appendix F: Figures

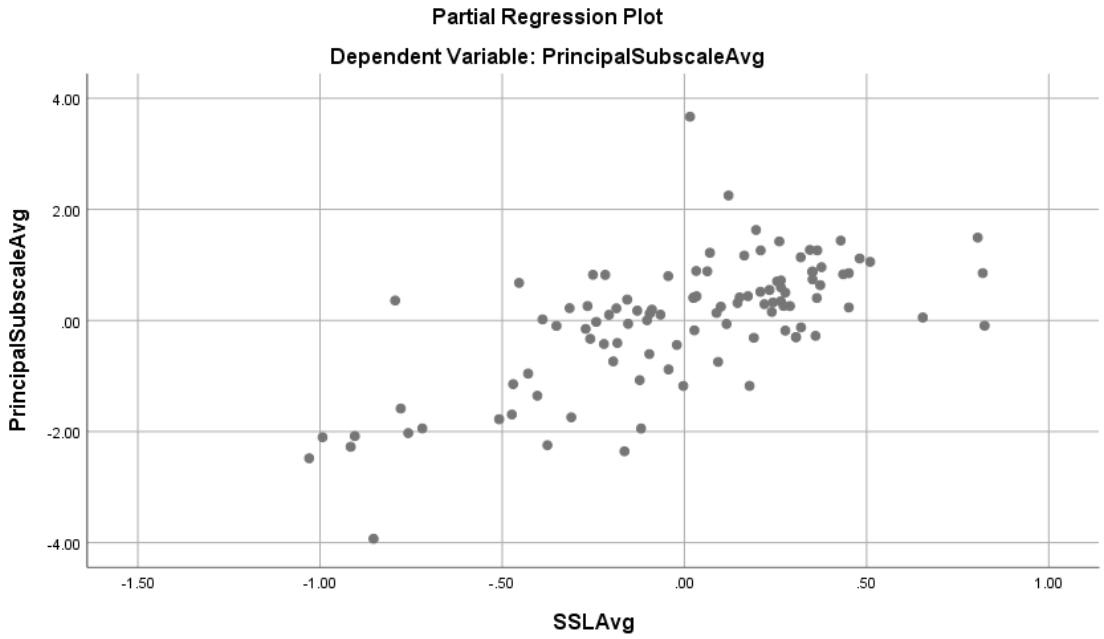

Figure F1. Partial regression plot principal* and shared and supportive leadership**.

Note. *Omnibus T Scale **PLCA-R

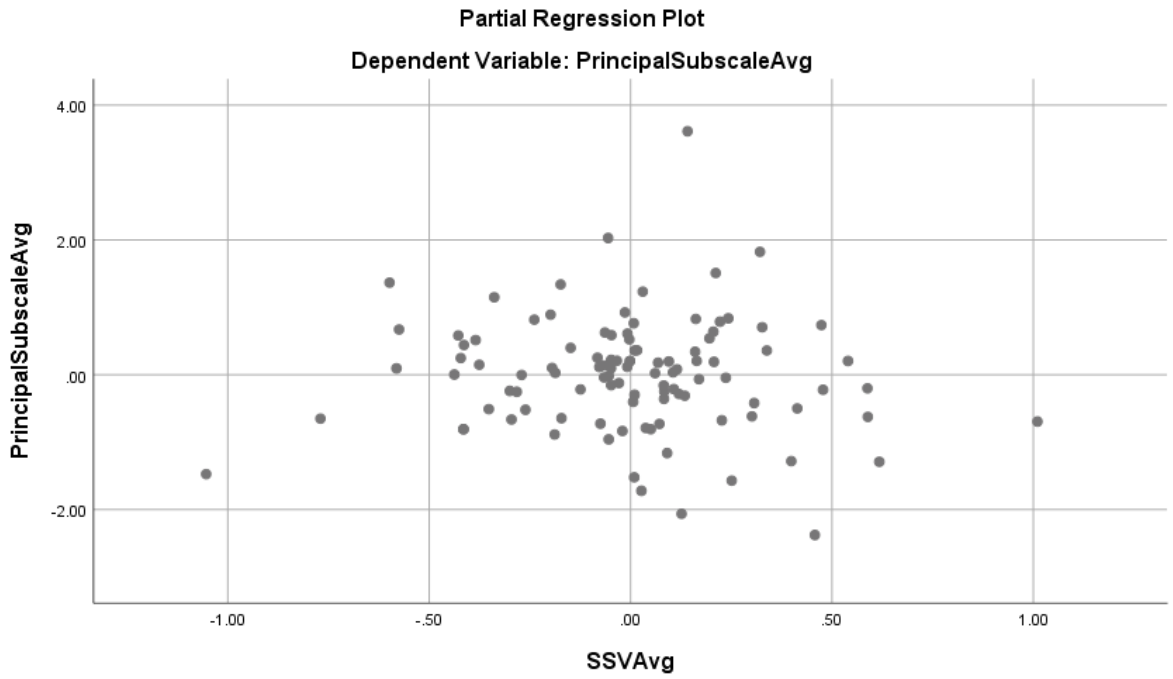

Figure F2. Partial regression plot principal* and shared values and vision**.

Note. *Omnibus T Scale **PLCA-R

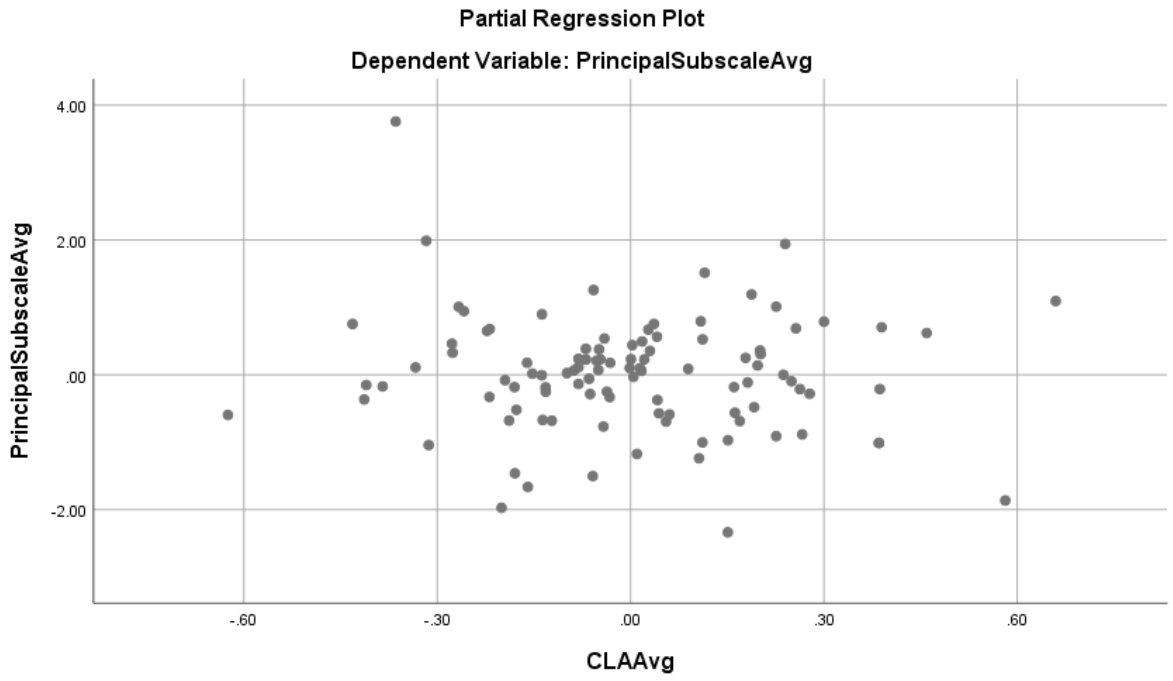

Figure F3. Partial regression plot principal* and collective learning and application**.

Note. *Omnibus T Scale **PLCA-R

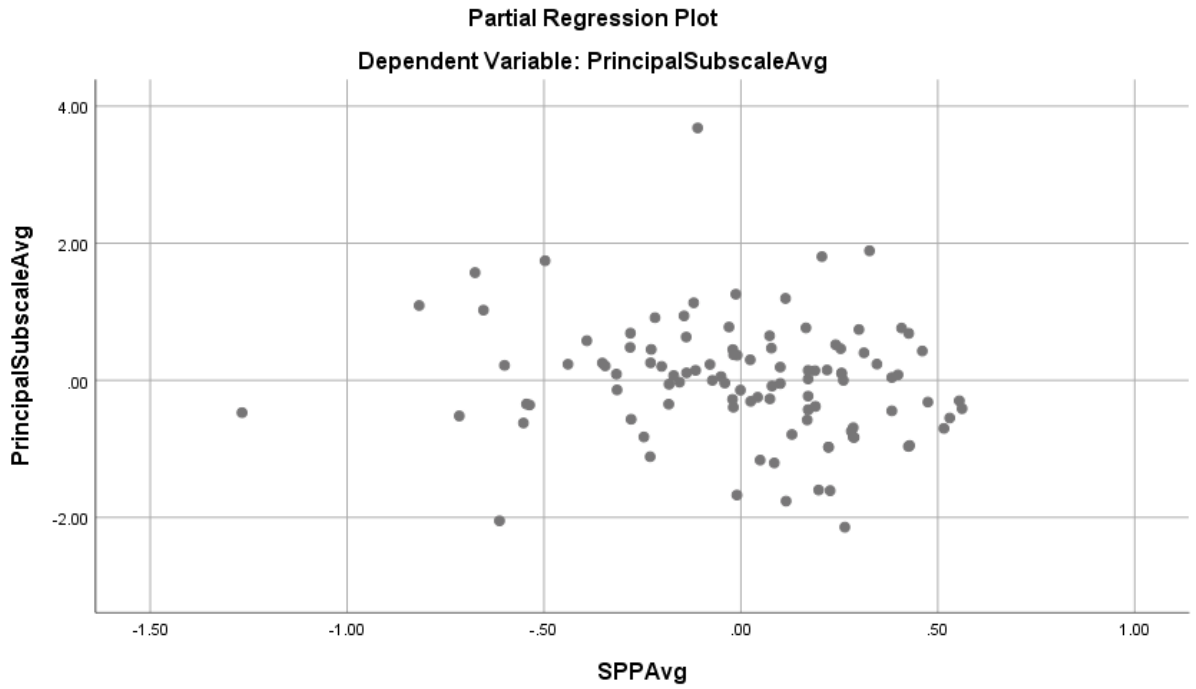

Figure F4. Partial regression plot principal* and shared personal practice**.

Note. *Omnibus T Scale **PLCA-R

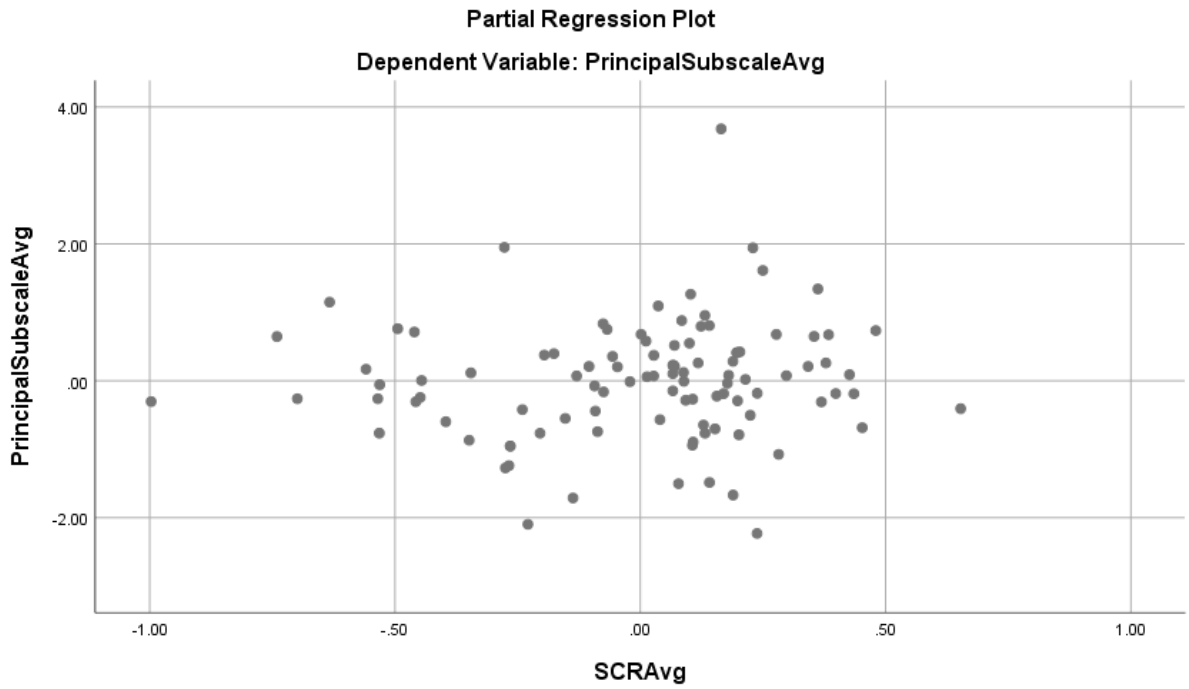

Figure F5. Partial regression plot for principal* and supportive conditions-relationships**.

Note. *Omnibus T Scale **PLCA-R

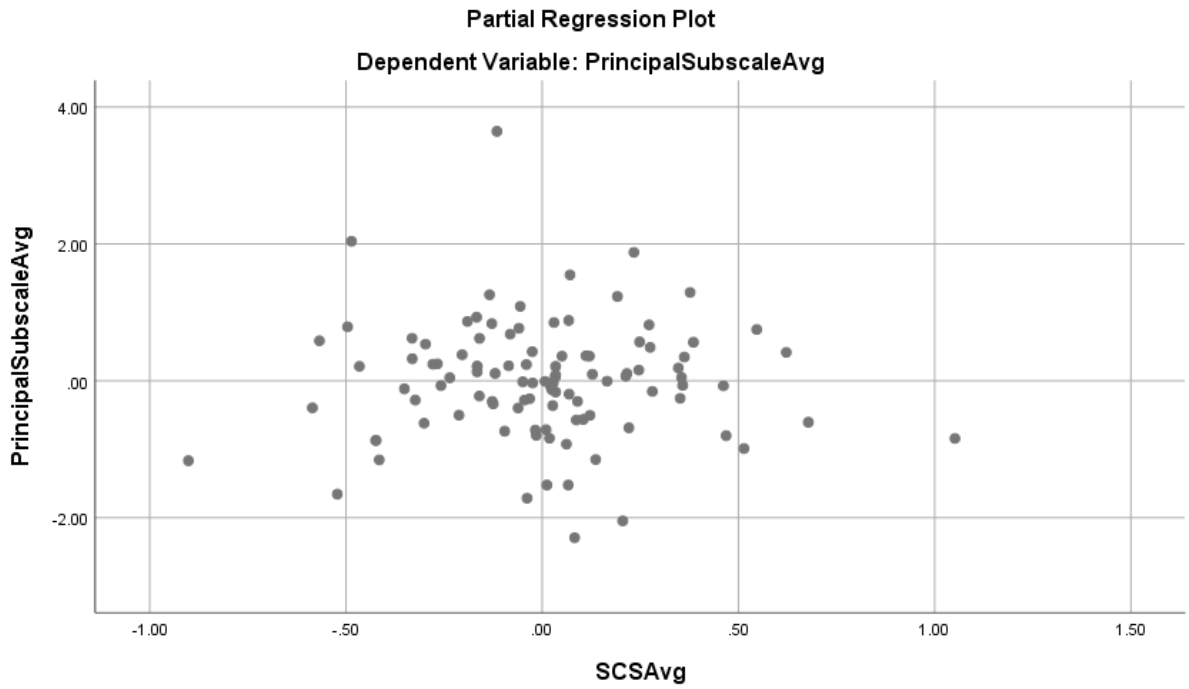

Figure F6. Partial regression plot for principal* and supportive conditions-structures**.

Note. *Omnibus T Scale **PLCA-R

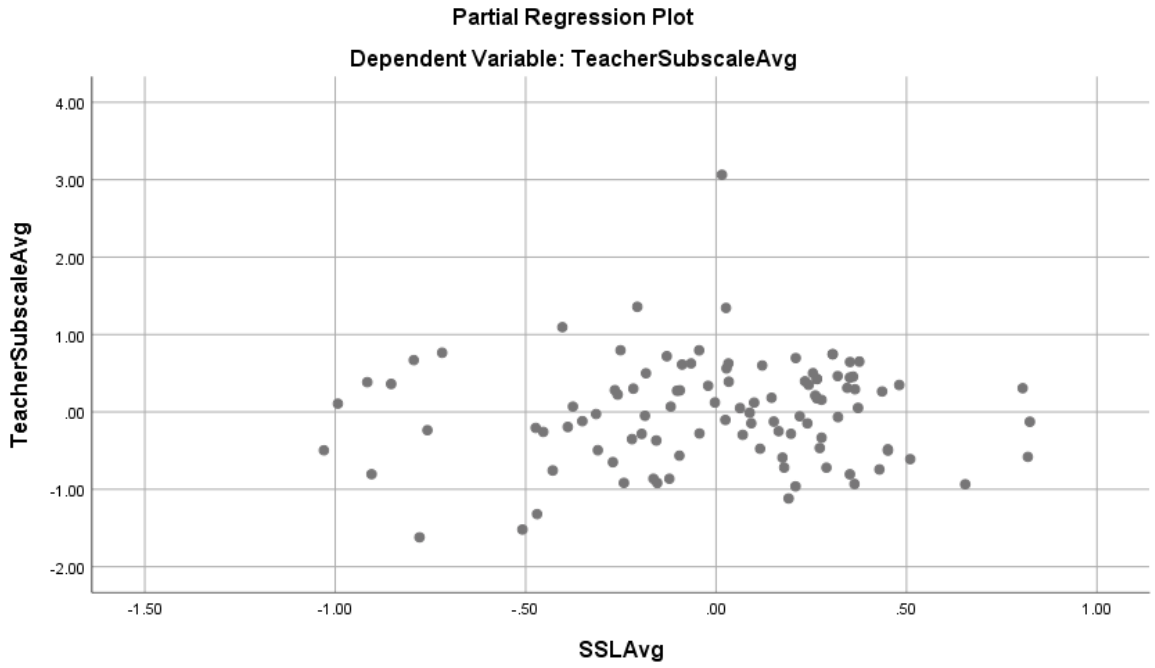

Figure F7. Partial regression plot colleagues* and shared/supportive leadership**.

Note. *Omnibus T Scale **PLCA-R

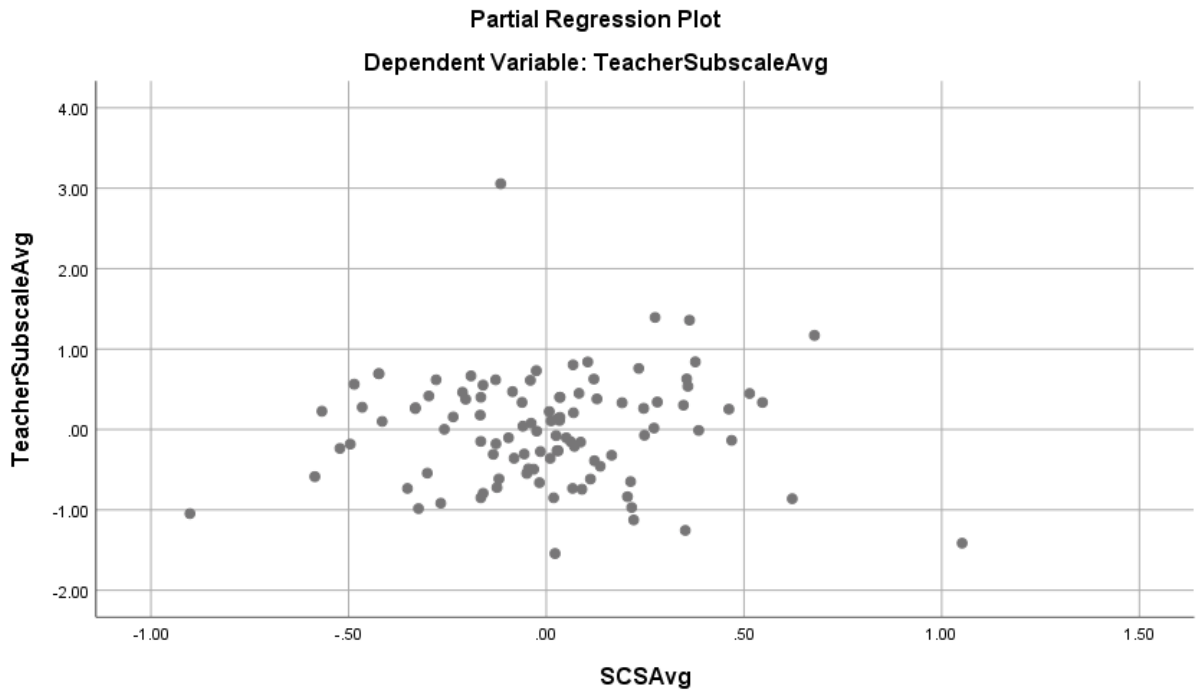

Figure F8. Partial regression plot colleagues* and supportive conditions-structures**.

Note. *Omnibus T Scale **PLCA-R

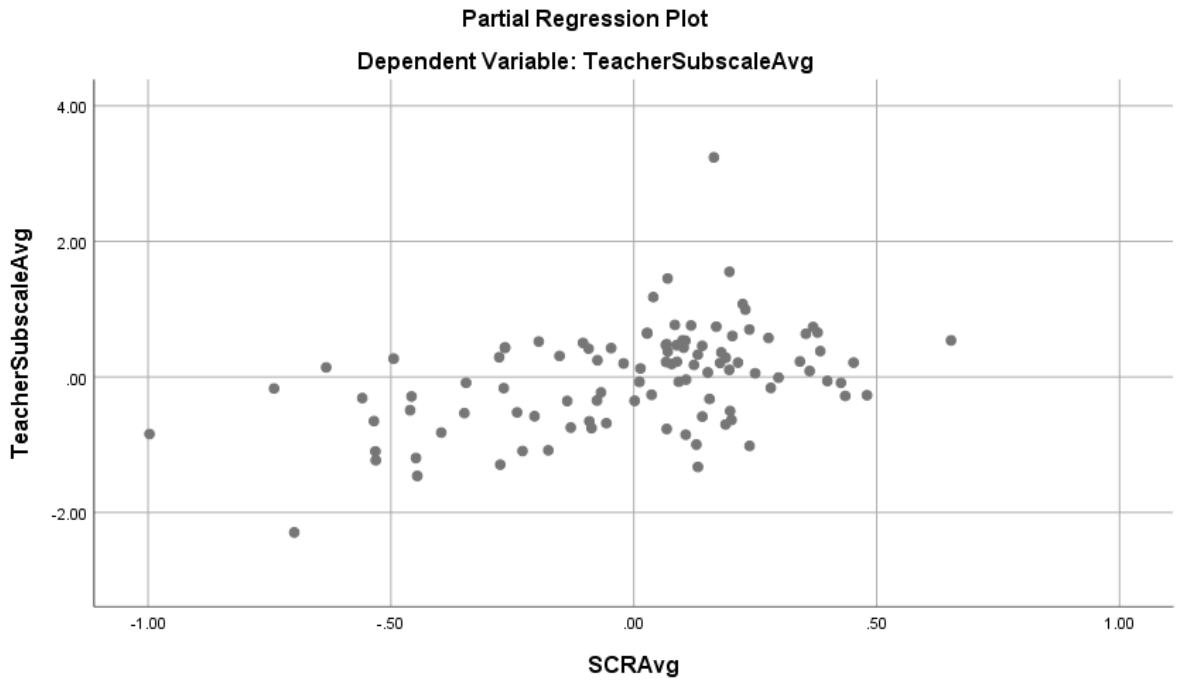

Figure F9. Partial regression plot colleagues* and supportive conditions-relationships**.

Note. *Omnibus T Scale **PLCA-R

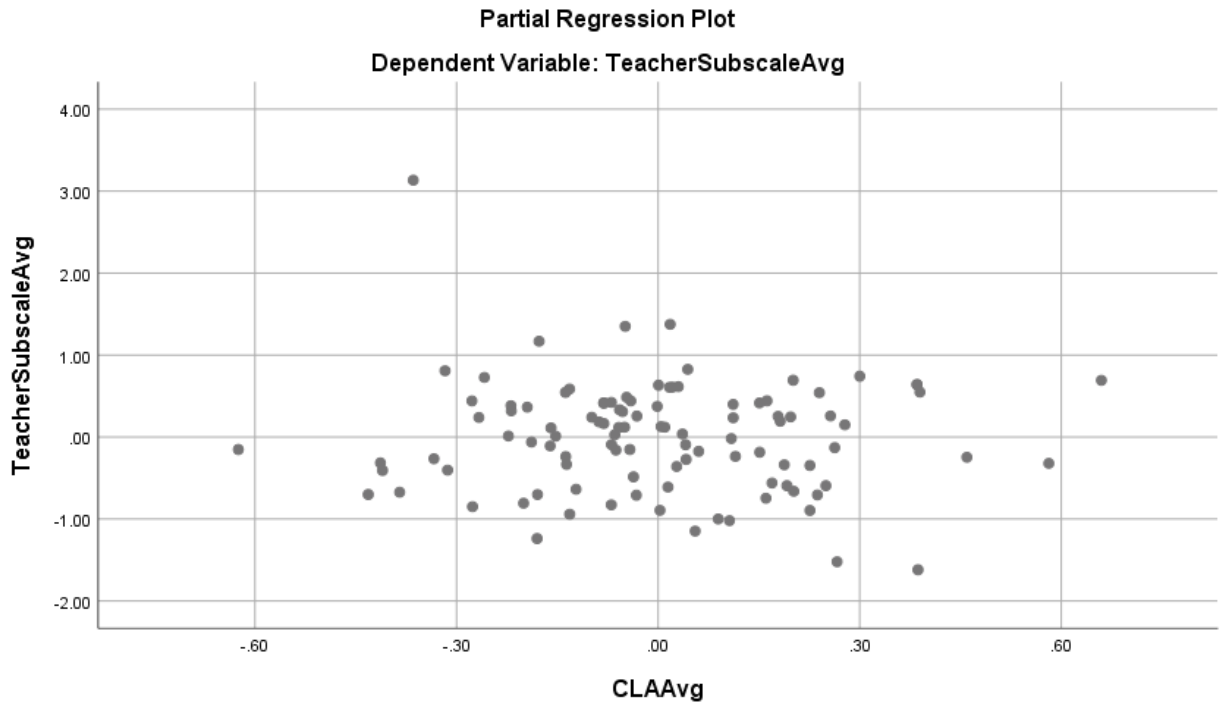

Figure F10. Partial regression plot colleagues* and collective learning and application**.

Note. *Omnibus T Scale **PLCA-R

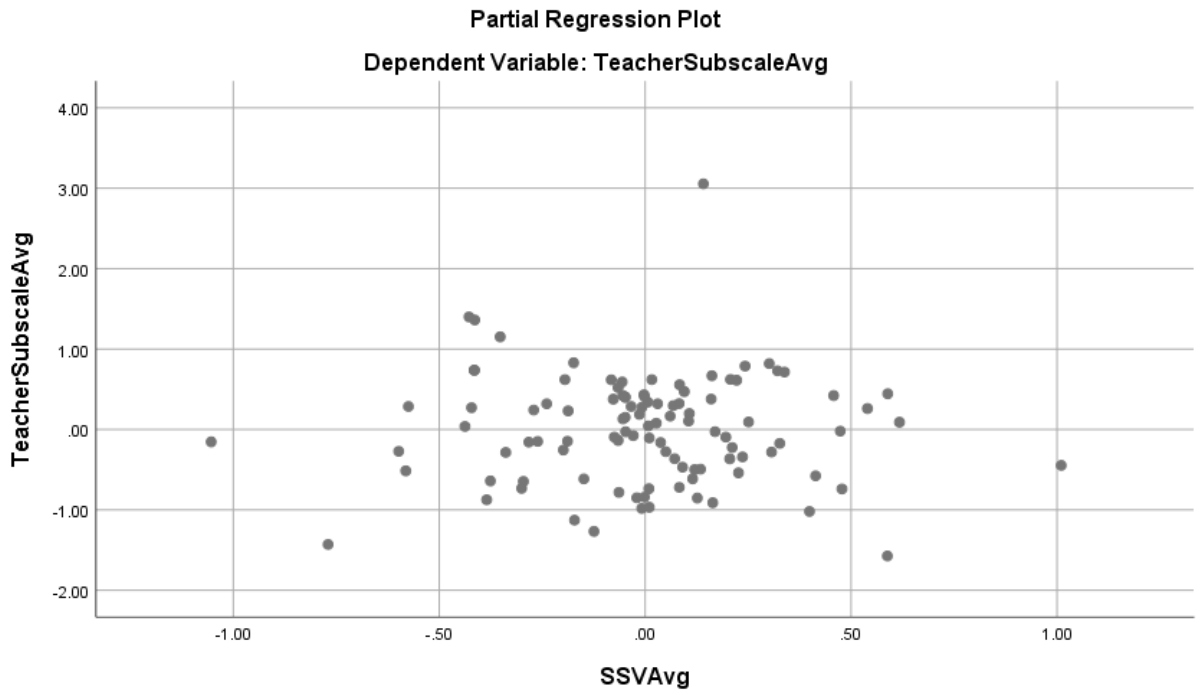

Figure F11. Partial regression plot colleagues* and shared values and vision**.

Note. *Omnibus T Scale **PLCA-R

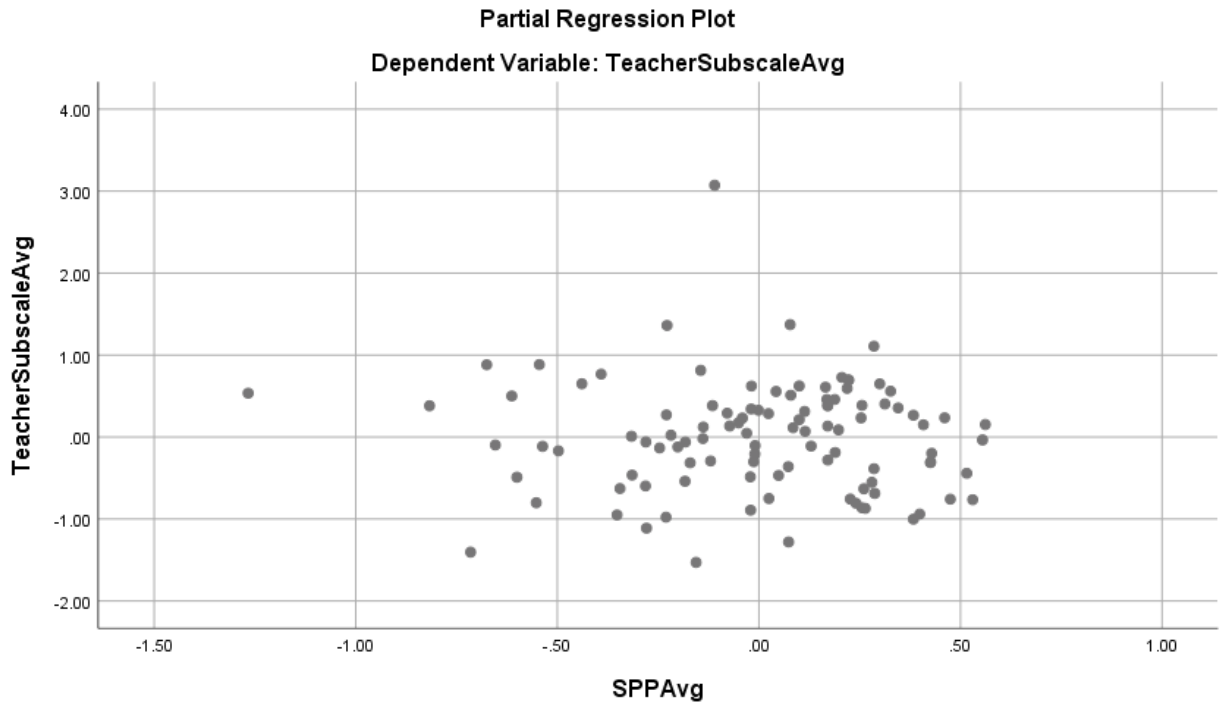

Figure F12. Partial regression plot colleagues* and shared personal practice**.

Note. *Omnibus T Scale **PLCA-R

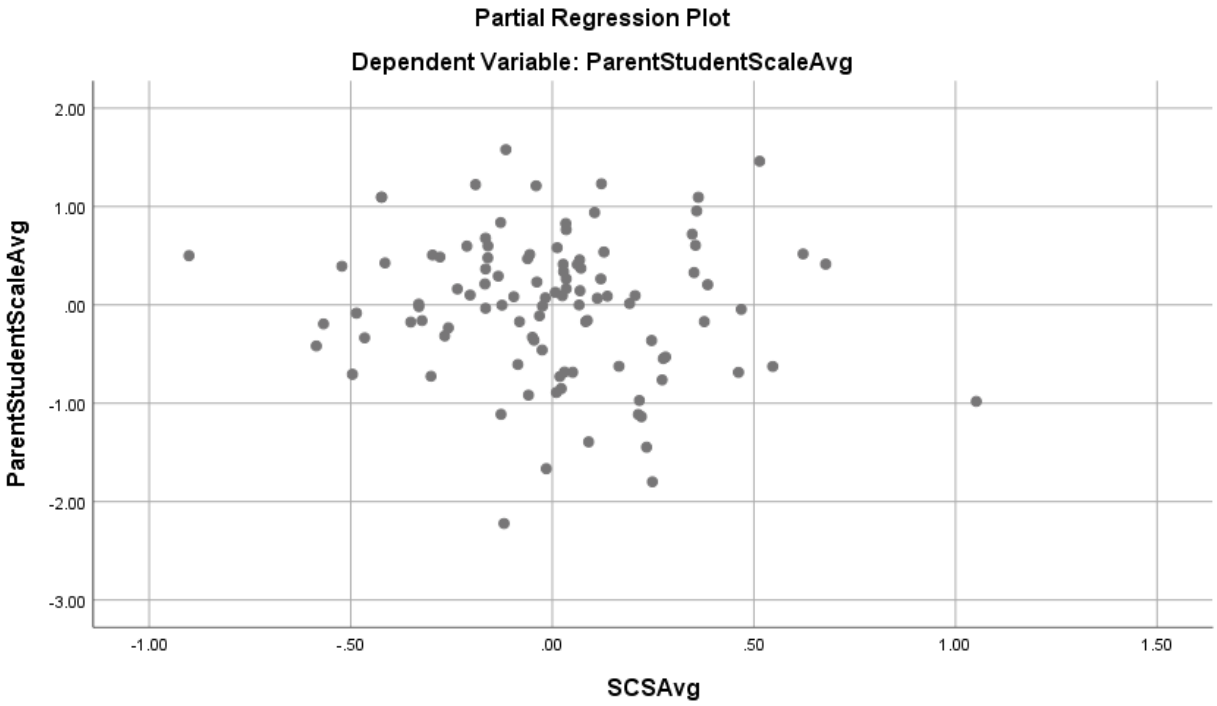

Figure F13. Partial regression plot stakeholders* and supportive conditions-structures**.

Note. *Omnibus T Scale **PLCA-R

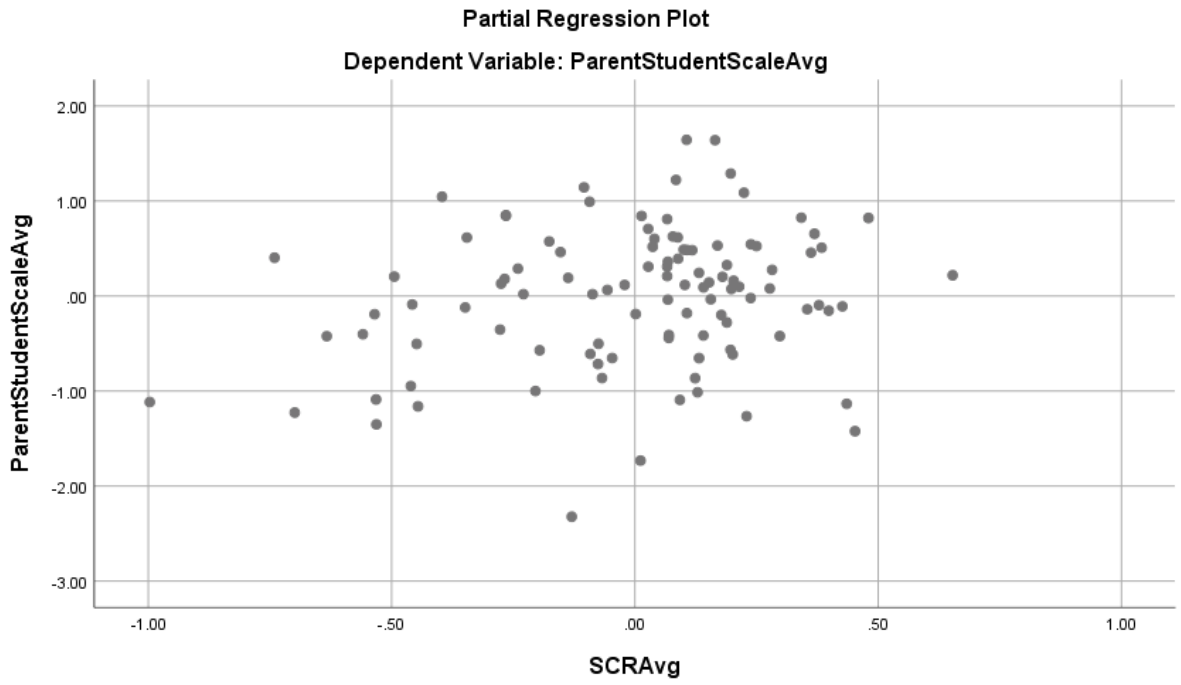

Figure F14. Partial regression plot stakeholders* and supportive conditions-relationships**.

Note. *Omnibus T Scale **PLCA-R

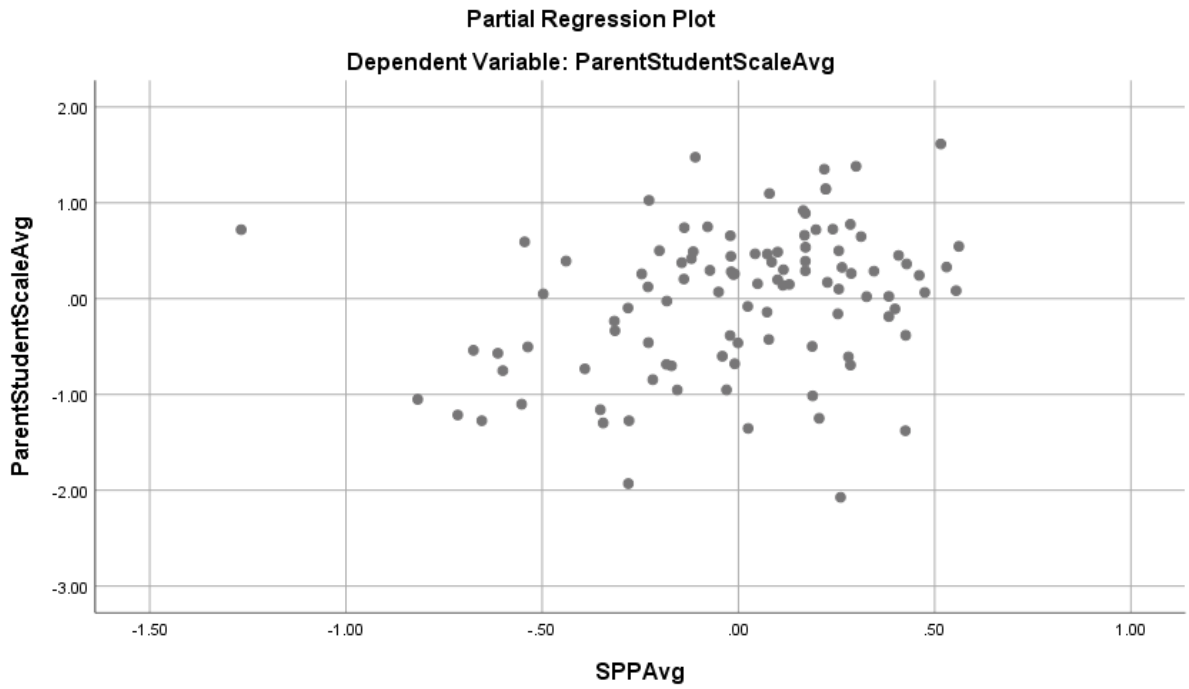

Figure F15. Partial regression plot stakeholders* and shared personal practice**.

Note. *Omnibus T Scale **PLCA-R

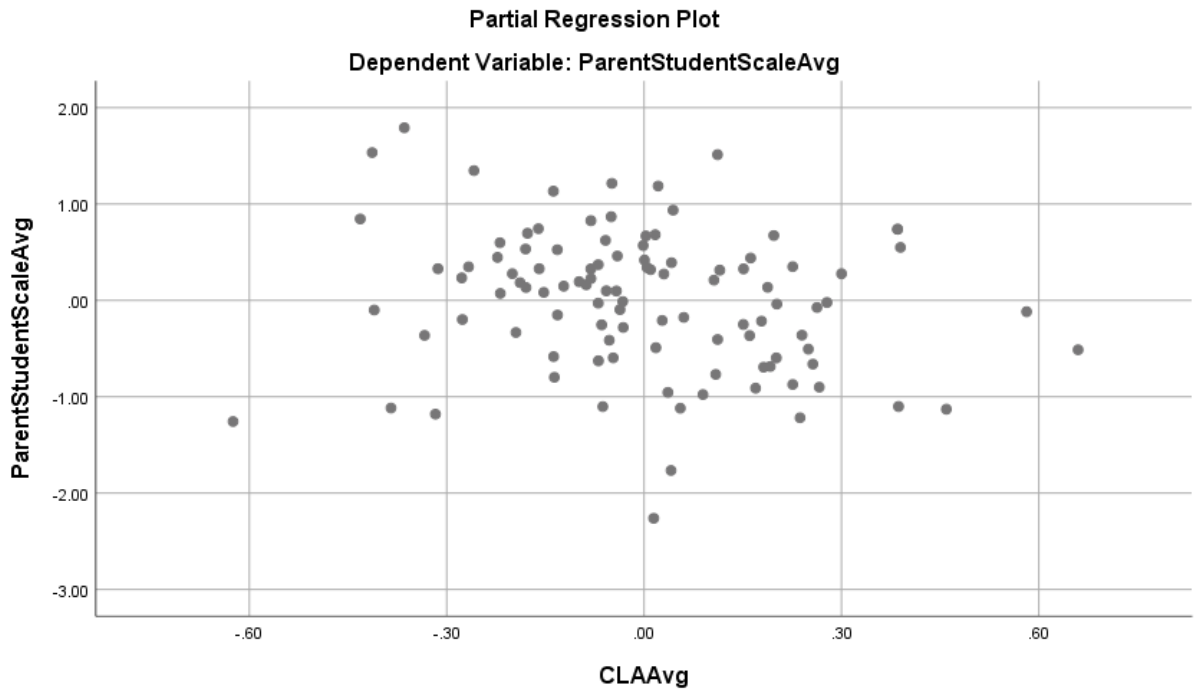

Figure F16. Partial regression plot stakeholders* and collective learning and application**.

Note. *Omnibus T Scale **PLCA-R

Figure F17. Partial regression plot stakeholders* and shared values and vision**.

Note. *Omnibus T Scale **PLCA-R

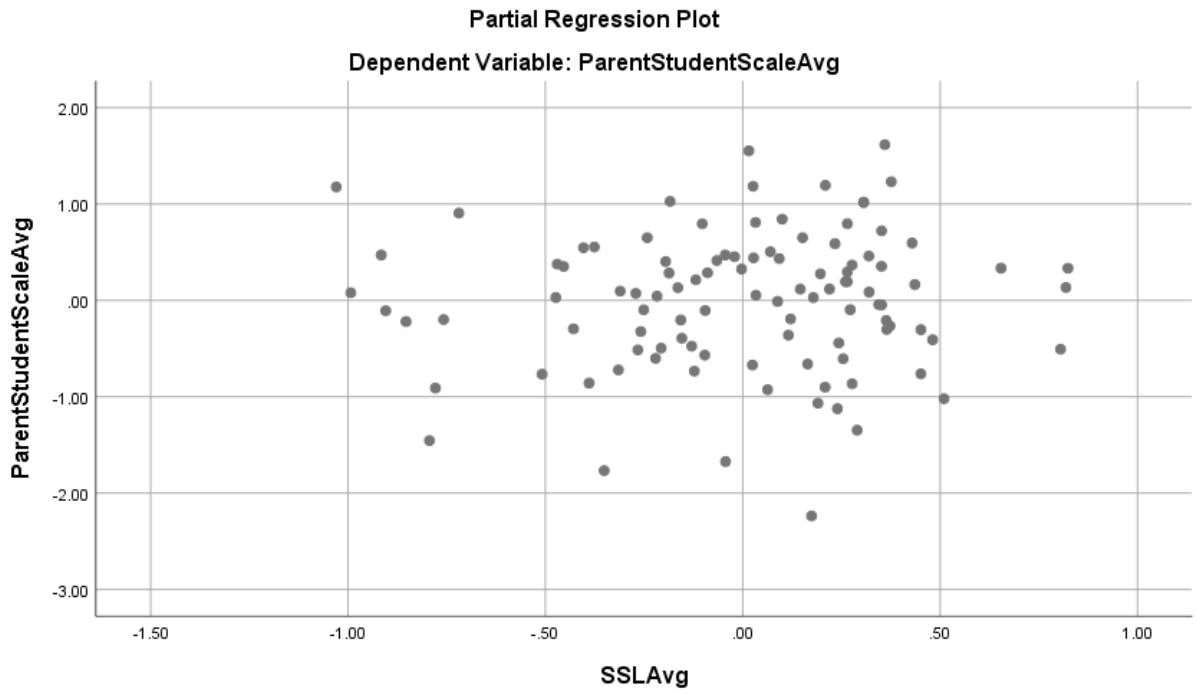

Figure F18. Partial regression plot stakeholders* and shared and supportive leadership**.

Note. *Omnibus T Scale **PLCA-R