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Professional Learning Community Team Functionality and Team Trust

Chris S. Wood

A dissertation submitted to the faculty of  
Brigham Young University  
in partial fulfillment of the requirements for the degree of

Doctor of Education

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## ABSTRACT

### Professional Learning Community Team Functionality and Team Trust

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Doctor of Education

In response to increasing demands placed on public education, professional learning communities (PLC) have emerged as a means of providing teachers with opportunities to collaborate together. Collaboration has been shown to improve teaching practices and lead to better student outcomes. Many collaborative teams, however, struggle to reach their collaborative potential. Trust has been shown to be an important factor contributing to the success of collaborative efforts. Few studies exist that empirically assess the relationship between team functionality and team trust. This study examines the relationship between these two constructs. A measurement tool was developed by the author to measure PLC team functionality based on five domains of functionality. Team trust was measured by a preexisting tool developed by Costa & Anderson (2010) based on four dimensions of trust. Multiple regression analyses were performed to assess the strength of the relationship between PLC team functionality and team trust. Control factors such as team stability, years of teaching, and principal support were included in the analysis. Findings showed a positive, significant relationship between the five domains of PLC team functionality and the four dimensions of team trust. While individual relationships between domains of functionality and dimensions of trust varied, between 46%-60% of variability in team functionality was explained by team trust. This study demonstrates the importance of trust in collaborative efforts of PLC teams as well as highlights a more complex relationship between the two constructs than previously understood in the literature.

Keywords: collaboration, trust, professional learning community, team

## ACKNOWLEDGMENTS

My experience in obtaining this degree has been dependent on the contributions of others. First, my learning was based on the studies and writings of scholars and teachers. The foundation of scholarship is the groundwork for the existence of educational institutions. I am deeply grateful to those who have committed so much to research and who have found creative ways to share their learnings.

I am also profoundly grateful for BYU as an institution that values improvement and intellectual growth. Being a part of a university that emphasizes faith and scholarship has been a blessing both spiritually and intellectually. It has also provided a blessing to my family who all feel the positive influence for good that BYU offers.

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The impact of this process was magnified from start to finish and beyond by patient and supportive companion, MaryAnne. From the beginning, the investment was mutual with both of us pulling weight in different ways but working toward the same end objective, to bless our family. My gratitude and love for her has been deepened by the selflessness she has demonstrated through these four years. Additionally, she showed great confidence in me that inspired me to do better than I ever would have done otherwise. She and my children have proven to be trustworthy collaborative team members.

Lastly, I express my gratitude to a loving Father and Savior. My efforts are based in the deep-rooted belief that there is purpose and meaning to my life and that the truest happiness is only to be found in striving to become more like Jesus Christ. Life, work, and improvement all have meaning in the knowledge that we are children of God with potential to become like him.

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## DESCRIPTION OF STRUCTURE AND CONTENT

This dissertation, *PLC Team Functionality and Team Trust*, is presented in the format of the hybrid dissertation. The hybrid format focuses on producing a journal-ready manuscript, which is considered by the dissertation committee to be ready for submission. Therefore, this dissertation is not divided into chapters as is typical in a traditional dissertation; rather, the manuscript focuses on the presentation of a scholarly article. This hybrid dissertation includes appended materials such as an extended review of literature (see Appendix A), a methods section with elaborated detail on the research approach used in the prospectus proposal (see Appendix B), and the measurement instruments used in this study (see Appendix C).



## Introduction

In this time where one can voyage across the earth in a matter of hours and information travels at nearly the speed of light, there is an enlarged environment to respond to as well as increased amounts of information to absorb. Organizations can no longer function in the traditional ways and compete with the rest of the world, which, in more and more cases, they must do. One scholar proposed that with the increased amount of knowledge flow and greater international competition, organizations must have more employees who are more capable of learning and adapting to new challenges (Clawson, 2009). The education organization is no exception to increased pressures and demands. With increasing numbers of students and higher standards of achievement than ever known, more is required of the United States education system than ever in its history (Dufour & Marzano, 2011).

Collaboration, Kouzes and Posner (2003) submit, is a “social imperative” in response to modern day organizational pressures (p. 22). Collaborative efforts have the potential to elevate ordinary people to extraordinary results (Fullan, 2010; Kouzes & Posner, 2003). Results from collaboration include benefits such as increased knowledge flow, shared expertise, creation of new knowledge, and change that has more staying power (Abrams, Cross, Lesser, & Levin, 2003; Bullough, 2007; Hargreaves, 1994; Moolenaar & Slegers, 2010). Teaching practices, Tschannen-Moran (2000) claims, will not rise to the level of changing expectations without greater opportunities for collaboration between teachers.

Accordingly, as the pressure on public education has increased, many schools have sought to facilitate collaborative efforts amongst school faculty in the development of professional learning communities (PLCs). One of the more prominent features of PLCs is that of collaborative teams. A main idea behind collaborative PLC teams is that teachers can achieve

more working collaboratively in groups than can be achieved with the more traditional isolated approach to teaching (Carroll, Fulton, & Doerr, 2010; Dufour & Marzano, 2011; Hadar & Brody, 2010; Hargreaves, 1994; Hipp, Bumpers-Huffman, Pankake, & Oliver, 2008; Stoll, Bolam, McMahon, Wallace, & Thomas, 2006). These collaborative teams seek to take advantage of the synergy that can be created between teachers as means to facilitate the creation of knowledge. Collaborative PLC teams seek to capitalize on such cognitive benefits by providing teachers the opportunity to learn together in an organized group where they are able to open their minds to new understanding and practice (Carroll et al., 2010; Du Chatenier, Verstegen, Biemans, Mulder, & Omta, 2009; Hargreaves, 1994; Hipp et al., 2008; Stoll et al., 2006; Walker, 1994).

Teachers who participate in collaborative PLC teams have been impacted in multiple ways. Studies have shown that such teachers are more likely to make changes in their preparation and are more apt to experiment with new teaching ideas which, in turn, have been shown to have a positive impact on student learning (Dufour & Marzano, 2011; Hadar & Brody, 2010; Hargreaves, 1994; Moolenaar & Slegers, 2010). One of the changes related to student achievement commonly found in classrooms of these teachers was increased student centered teaching (McLaughlin & Talbert, 2007; Vescio, Ross, & Adams, 2008). Researchers found that teachers were more able and prone to use student data to refine instruction (Gallimore, Ermeling, Saunders, & Goldenberg, 2009). Improved teacher moral has also been noted in the literature as a result of teachers involved in collaborative PLC teams (Carroll et al., 2010; Hipp et al., 2008; Hord, 1997, Moolenaar & Slegers, 2010). Additionally, where teachers are engaged in team learning and making changes to their teaching practices, students report greater interest in learning as well as show higher class attendance rates (Bolam et al, 2005; Hord, 1997).

However, not all collaborative teams live up to their potential. Some researchers have argued that while school leaders are active in organizing PLC teams, without proper development these teams are left to drift into mechanical operation that leaves them ineffective (Datnow, 2011; Dufour & Marzano, 2011; Hargreaves, 1994; Rasberry & Mahajan, 2008; Stoll & Seashore Louis, 2007). Fullan (2000) adds that schools implementing collaborative PLC teams can fall victim to merely restructuring which “by itself it makes no difference in the quality of teaching and learning” (p. 3). Collaborative teams can be organized and structured within a school, but they cannot be compelled to be innovative (Hargreaves, 1994). In their research on PLC teams, Little and Horn (2007) found that even within well-organized PLCs, teams that were engaged in meaningful interaction were not common. As can be assumed, collaborative PLC teams that are merely organized will not claim the potential benefits of collaboration.

There are several possible factors that could explain differences in the functionality and productivity of PLC teams. These factors may include differences in leadership, amount of resources and time, individual willingness to change, effectiveness of assessments, knowledge of what makes PLCs effective, or school and community culture (Bolam et al., 2005; Dufour, 2004). Additionally, trust has become a prominent factor when considering the functionality of PLCs (Bolam, 2008; Bolam et al., 2005; Hord, 1997; Kruse, Louis, & Bryk, 1994; Little & Horn, 2007; Wahlstrom & Louis, 2008). Trust has proven to be an important accelerant in collaborative interactions (Bryk & Schneider, 2003; Dirks, 1999; Little & Horn, 2007). Bryk, Camburn, and Seachore Louis (1999) observed that “[w]hen teachers trust and respect each other, a powerful social resource is available for supporting collaboration, reflective dialogue and deprivatization characteristics of professional community” (p. 767). Where collaborative teams

have more reliance on communication, cooperation, and risk taking, there must be more reliance on trust (Spector & Jones, 2004). Hence, differences in trust between PLC teams are likely to explain some of the differences in PLC team functionality.

While the need of trust in schools and PLCs has been strongly expressed (Cosner, 2009; Dirks & Ferrin, 2001; Evans, 1993; Moolenaar & Slegers, 2010; Tschannen-Moran, 2000; Tschannen-Moran & Hoy, 1998), empirical studies that help understand the relationship between PLC team functionality and team trust are inadequate. Trust has been mentioned as an important factor in collaborative PLC teams, but mostly in general or unclear ways. A few studies done with reference to trust and PLCs do exist but do not focus on the specific relationship between collaborative PLC team trust and team functionality. Lee, Zhonghua, and Hongbiao (2011), for example, specifically emphasized the importance of trust in the collaborative efforts of PLCs, but measure both collaboration and trust at the school level rather than at the team level. Similarly, Cranston (2011) referred to the impact of trust on collaboration and professional growth but, again, only with reference to entire schools. Costa (2003) conducted a study focusing on the relationship between the task performance of teams and trust, but studied work teams in social care institutions in the Netherlands rather than in PLCs in the education system. While Hallam, Dulaney, Hite, & Smith (2014) studied the relationship between teacher team collaboration and trust, theirs was a qualitative study done in one dysfunctional public school.

Though trust has been recognized as a potentially valuable element in relation to school level PLCs, this study specifically examines PLC functionality and trust at the team level to better understand their relationship. In doing so, this study not only considers the relationship between PLC functionality and trust in general, but gives specific insight into the relationship between the different domains of PLC team functionality and different dimensions of trust.

### **Collaborative PLC Team Functionality**

While much has been written in attempt to define PLCs, examining everything from district to team level, there is general consensus that PLCs include a focused effort to ensure student learning based on assessment, intervention, and, most important to this study, teacher team collaboration (Bolam et al., 2005; Bullough, 2007; Carroll et al., 2010; Du Chatenier et al., 2009; Dufour, 2004; Dufour & Marzano, 2011; Hargreaves, 2007; Hipp et al., 2008; Lambert, 1998; Robinson, 2009; Stoll et al., 2006; Stoll & Seashore Louis, 2007). There are many ways functionality of collaborative PLC teams may be considered based on such things as what types of assessments are in place, whether intervention structures exist, what curriculum is being followed, and so on. Different schools, districts, and states will vary in the standards used to assess PLC functionality.

Not surprisingly, different measurement tools have been developed to assess PLC implementation and success. The three tools considered for this study were the Formative Assessment of Collaborative Teams (FACT) tool (Taylor et al., 2014), the Professional Learning Communities Assessment (PLCA) (Olivier, 2009), and the Learning Community Culture Indicator (LCCI) (Stewart, 2009). None of these tools, however, could effectively fulfill the desired intent of this study. The FACT tool did not measure all that this study found relevant to PLC team functionality and was designed more as a practitioner instrument that required more time per evaluation than was within the scope of this study. The PLCA and LCCI tools measured many different school level aspects of PLCs such as shared power and intervention while this study focuses specifically on individual PLC team functionality. Though unable to fill the need of this study, all three tools were consulted and proved helpful in guiding efforts to create an appropriate measurement tool.

In addition to consulting these assessment tools, a review of the literature was conducted to seek out important domains relating to PLC team functionality. In doing so, five domains commonly arose in relation to collaborative PLC team functionality. These domains are common vision, critical/reflective discussion, change in thinking, experimentation with practice, and de-privatization (Rasberry & Mahajan, 2008; Bolam et al., 2005; Bryk et al., 1999). It should be noted that other factors connected to PLC functionality, such as leader support, shared power in policymaking, preventative actions, results orientation, etc. are not included in the final five domains for one of two reasons. First, much of the research surrounding PLC assessment is based on a school or district level view, while this study focuses exclusively on the team level functionality. Second, there are limitations of how many domains could be included and assessed in this study requiring some domains to be consolidated or even excluded.

Researchers repeatedly mention common vision in relation to successful PLCs (Bolam et al., 2005; Carroll et al., 2010; Dufour & Marzano, 2011; Hargreaves, 2007; Hipp et al., 2008; Hord, 1997; Huffman, 2003). Common vision has to do with individual's views and perceptions. It does not change easily or without effort but is shaped over time through an ongoing process (Bolam, 2008; Dufour & Eaker, 1998; Dufour & Marzano, 2011; Huffman, 2003). Common vision within a PLC is frequently mentioned in two regards; shared vision of the potential of students as learners and shared vision of collaborative work as a means to increase professional potential (Bolam et al., 2008; Carroll et al., 2010; Dufour, 2004; Hargreaves, 2007; Hord, 1997; Hughes & Kritsonis, 2007; Marzano, Waters, & McNulty, 2005; Vescio et al., 2008). Common vision refers to teachers coming together collaboratively with the common objective of improving student learning (Bolam, 2008). When teachers are convinced of the value of

working together to enhance the learning of students, the educational experience of students improves (Dufour & Marzano, 2011; Hughes & Kritsonis, 2007; Vescio et al., 2008).

The second domain relating to the functionality of collaborative PLC teams is critical, reflective discussion (Rasberry & Mahajan, 2008). This domain refers to conversation between teachers that is open, self-examining, and thoughtful (Bolam et al., 2005; Kruse et al., 1994; Rasberry & Mahajan, 2008; Stoll et al., 2006). As team members come together and interact in such discussions, they look within themselves to evaluate their current views and assumptions as well as reach out in dialogue with team members. Following a review of the literature of PLCs, Stoll et al. (2006) claimed that despite the fact that there is no universal definition of PLCs, “there appears to be broad international consensus” that it includes a group of people who are continually sharing and critically discussing teaching practice (p. 222). Teachers in such discussions should feel comfortable expressing new and differing viewpoints on discussion topics. Such reflection and dialogue allow teachers to come together, draw upon their previous experiences, and find solutions to difficult issues that hinder student success (Rasberry and Mahajan, 2008; Stoll et al., 2006).

Change in thinking is another domain considered significant in the functionality of a collaborative PLC team (Gray, Tarter, & Mitchell, 2011; Hadar & Brody, 2010; Hord, 1997; Lambert, 1998; Rasberry & Mahajan, 2008). As team members align in vision and engage with each other, new views and ideas are generated or more deeply understood (Hord, 1997; Lambert, 1998). Through meaningful interaction with team members, new understanding immerses, and previously held views shift as a culture of continual learning develops (Bryk & Schneider 2003; Hadar & Brody, 2010). Teachers whose minds have been opened to new understanding change their thinking and are better able to engage students in the same process (Hord, 1997). New

ideas foster excitement, further conversations, and open the door for teachers to design new practices for implementation (Lambert, 1998).

Experimentation with practice is another domain of PLC team functionality (Bolam et al., 2005; Rasberry & Mahajan, 2008; Robinson, 2009; Vescio et al., 2008). Experimentation takes teachers from theory to practice, from thinking to doing, from vision to reality (<http://www.allthingsplc.info/about>). While learning with colleagues is a valuable way of creating excitement for learning, experimentation with practice as described in this study largely happens when teachers are in the solitude of their own classrooms. Unless teachers are willing to go from learning with others and move toward trying new approaches in their classroom, they will not grow and develop (Walker, 1994). Such experimentation, according to Rasberry (2008) will “ignite further questions” and lead to improved practice (pg. 2). Educational scholar John Dewey (1965) similarly claimed that experimentation with new practice opens an important door of learning otherwise not available to teachers. Experimenting with new ideas, Vescio et al. (2008) reported, leads teachers to more student-centered practices that, in turn, lead to improved student learning.

The last domain of PLC team functionality is de-privatization. De-privatization includes teachers observing other teachers, having meaningful feedback discussions, and using student data in their discussions with other teachers (Bolam et al., 2005; Hord, 1997; McLaughlin & Talbert, 2007; Rasberry & Mahajan, 2008). Teachers who engage in the practice of observation learn from one another outside of team meetings (Rasberry and Mahajan, 2008). Teachers open up their classrooms to team members making themselves vulnerable to one another. Teachers who engage in deprivatization practices tend to have more conversations related to problem solving thus deepening relationships with team members (Fullan, 2007; Kruse et al., 1994).



Sharing data is also an important aspect of deprivatization. When data are analyzed collectively between team members, student performance improves (Dufour, 2004; Bolam et al., 2005). The dialogue between teachers becomes more serious and productive when data are involved in the discussion (Bolam et al., 2005). Data becomes an additional source of feedback to improve teacher and student performance (Visscher and Witziers, 2003). The use of data in interactions also opens teachers up to vulnerability with team members and, in the words of Visscher and Witziers (2003), takes teachers from a more “soft approach” toward improvement to a more challenging and fruitful way of learning (p. 798).

### **Defining Team Trust**

Trust scholars have repeatedly written that trust is varied in definition and complex in nature (Ben-Ner & Halldorsson, 2010; Bryk & Schneider, 2003; Burke, Sims, Lazzara, & Salas, 2007; Costa & Anderson, 2011; Tschannen-Moran & Hoy, 1998). Many definitions of trust refer to a willingness to become vulnerable (Ben-Ner & Halldorsson, 2010; Burke et al., 2007; Costa, 2003; Costa & Anderson, 2011; Dirks & Skarlicki, 2009; Gillespie, 2003; Hoy & Tschannen-Moran, 1999; Mayer, Davis, & Schoorman, 1995; Schoorman, Mayer, & Davis, 2007). Rousseau, Sitkin, Burt, and Camerer (1998) further clarify the definition of trust in stating that trust is the “intention to accept vulnerability based upon positive expectations of the intentions or behavior of another” (p. 395). Trust research frequently points to two factors that influence ones willingness to be vulnerable; first, propensity to trust on the side of the trustor and, second, trustworthiness on the side of the trustee (Ben-Ner & Halldorsson, 2010; Burke et al., 2007; Colquitt, Scott, & LePine, 2007; Costa & Anderson, 2011; Dirks & Ferrin, 2002; Gillespie, 2003; Hoy & Tschannen-Moran, 1999; Mayer et al., 1995; Schoorman et al., 2007; Tschannen-Moran & Hoy, 2000).

Propensity to trust refers to the trustor's disposition or willingness to trust based on such things as past experiences, personality, culture, etc. (Costa & Anderson, 2011; Mayer et al., 1995). Trustworthiness, on the other hand, has reference to the attributes of the party being trusted as perceived by the trustor. Scholars have defined trustworthiness using as many as 10 attributes and as few as 1. Three attributes frequently mentioned in the literature include competence, benevolence, and integrity (Burke et al., 2007; Butler, 1991; Mayer et al., 1995). Trust, then, can be characterized as the vulnerability one is willing to risk as a result of one's propensity to trust and the perceived trustworthiness of the trustee.

Costa and Anderson (2011) explain the trust literature in an additionally insightful way. They suggest that trust literature can be mostly separated into two categories, the psychological tradition and the behavioral tradition. The psychological tradition refers to those things that precede trust such as propensity to trust and perceived trustworthiness. The behavioral tradition has reference to the behaviors that result from trust, or the lack thereof, such as cooperative or monitoring behaviors (Costa & Anderson, 2011). Cooperative behaviors refer to positive actions between team members such as open communication and interdependence (Costa & Anderson, 2011; Gillespie, 2003; Louis, 2007). Monitoring behaviors are associated with negative actions such as checking on team member's progress or isolation that reveal a lack of trust (Burke et al., 2007; Costa & Anderson, 2011; Zand, 1972). The psychological, Costa and Anderson (2011) claim, leads to the behavioral. In developing a team trust measuring tool, Costa and Anderson (2011) concluded that trust in a group is reflected by the presence of propensity to trust and perceived trustworthiness of team members that will lead to cooperative behaviors as well as an absence of monitoring behaviors.

This study uses the measuring tool created by Costa and Anderson (2011) to measure the four dimensions of trust mentioned; propensity to trust, perceived trustworthiness, cooperative behaviors, and monitoring behaviors. As far as could be determined, this is the only research instrument in the literature that measures trust in teams. Many other instruments exist that measure trust in leaders or school trust, but none that specifically consider trust within a collaborative team. Additionally, this measuring tool is based on research that aligns with the trust research done in the field of education.

In summary, research on PLCs has indicated the importance of trust as a lubricant that allows different parties to work together more effectively (Cosner, 2009; Dirks & Ferrin, 2001; Evans, 1993; Moolenaar & Sleegers, 2010; M. Tschannen-Moran, 2000; Tschannen-Moran & Hoy, 1998). While research on school trust and the importance of trust between principals and teachers is growing, understanding of the relationship between PLC team functionality and team trust is lacking. This study hopes to bring more clarity to that relationship by specifically considering associations between the five domains of PLC team functionality mentioned above and the four dimensions of trust pointed out by Costa and Anderson (2011). This study has the potential to inform both educational leaders responsible for organizing and supporting collaborative PLC teams as well as teachers who participate in those teams. As more is understood about the relationship between team trust and PLC functionality, teachers and leaders will be able to more deliberately direct their efforts toward improved performance.

## Methods

### Sample

A survey study was conducted in a suburban/rural school district in the rocky mountain region. This district was established in the mid-1800s and currently consists of six secondary schools, nine elementary schools, and two pre-schools. There are approximately 8900 students and 490 teachers. The survey was sent to all teachers in the district participating in PLC teams which included 238 elementary teachers and 252 secondary teachers. Good response rates were achieved from both elementary and secondary teachers: 61% for elementary and 44% for secondary with an overall response rate of 52%.

A description of the teachers who responded to the survey is found in Table 1. Those who responded from the elementary grades are essentially evenly spread across the K-5 grade levels with 17% of the respondents teaching multiple grades. Secondary teachers who responded span the subjects taught; however, 54% of those responding taught math, English, or the sciences, with 27% coming from math departments. Elementary teachers that responded were fairly evenly distributed across the 5 year increments of teaching experience up to 20 years with 10% of the sample having 20-30 years of teaching experience and 12% of the sample having over 30 years of experience. Years of teaching experience among secondary teachers is similar to elementary teachers across the 5 year increments up to 20 years; however, 16% of the respondents had 20-25 years of teaching experience and only 8% had more than 25 years of experience. PLC characteristics were slightly different for elementary and secondary teachers. Among elementary teachers who responded only 6% reported having 1 year of PLC experience while 75% reported having 5 or more years of PLC experience. This seems to indicate that among elementary respondents PLC efforts and culture are quite familiar. Among secondary

Table 1

*Demographic Description of Survey Respondents*

Elementary		Secondary	
Grade level	N (% of sample)	Subject	N (% of sample)
Kindergarten	14 (10%)	Math	30 (27%)
First	20 (14%)	English	17 (15%)
Second	22 (15%)	Sciences	13 (12%)
Third	19 (13%)	Special Education	9 (8%)
Fourth	16 (11%)	Music & Art	8 (7%)
Fifth	19 (13%)	History	6 (5%)
Multiple grades	24 (17%)	Other	30 (27%)
TOTAL	134 (93%)	TOTAL	112 (100%)
Years teaching	N (% of sample)	Years teaching	N (% of sample)
1 – 5	27 (19%)	1 – 5	18 (16%)
6 – 10	27 (19%)	6 – 10	24 (21%)
11 – 15	26 (18%)	11 – 15	19 (17%)
16 – 20	32 (22%)	16 – 20	24 (21%)
21 – 25	10 (7%)	21 – 25	18 (16%)
26 – 30	4 (3%)	26 – 30	6 (5%)
30+	17 (12%)	30+	2 (2%)
	Mean (SD)		Mean (SD)
Years PLC experience	5.1 (1.5)	Years PLC experience	4.1 (2.1)
Size of team	4.4 (1.9)	Size of team	4.9 (2.2)
Years as a team	2.8 (1.5)	Years as a team	2.6 (1.7)

teachers, PLC experience was prevalent but not quite as widespread: 21% reported having only 1 year of PLC experience and 54% reported having 5 or more years.

Stability of the PLC team was measured by asking how long the majority of the team had worked together. Both types of teachers indicate a fairly high level of team stability with elementary teachers reporting a higher level of stability, which likely reflects their longer exposure to PLC efforts. 78% of the elementary teachers reported working together for 3 or more years and 63% of the secondary teachers reported working together for 3 or more years.

The size of PLC teams among secondary teachers is slightly larger than among elementary teachers with 49% of secondary teachers reporting they belonged to teams of 5 or more members and 32% of elementary teachers belonging to teams of that size. These differences in the size of PLC teams are reflective of the different ways in which secondary and elementary schools are generally structured (e.g., subject-specific departments vs. grade levels).

### **Measures**

Collaborative PLC team functionality was measured using an instrument developed and validated by the authors. To develop this instrument, a thorough review of the PLC literature was conducted which surfaced five relevant domains of PLC team functionality. Items for these five domains were generated drawing upon the literature and other PLC assessment instruments (FACT tool, 2014; LCCI 4.0, 2007; Olivier, 2009). A total of 40 items were written and evaluated for content relevance and appropriate wording. The instrument was evaluated for understanding and relevance through multiple cognitive interviews with teachers (Groves et al., 2004). Also, a pilot test of the instrument was conducted in three schools, two elementary and one secondary, and preliminary factor analyses were done using the 75 responses to assess construct validity. The final instrument has 25 items that are based on a 7-point Likert scale

(strongly agree-7, agree, somewhat agree, neither agree nor disagree, somewhat disagree, disagree, strongly disagree-1). Confirmatory factor analyses of the five-factor PLC functionality model were done using the 256 responses in this study. Model fit for the five factor functionality model was good:  $TLI = .918$ ,  $CFI = .926$  and  $RMSEA = .076$ . Therefore, these data are consistent with the claims that the instrument measures five distinct dimensions of PLC team functionality.

Team trust was measured using an instrument created and validated by Costa and Anderson (2010). They analyzed the validity of the instrument in five ways; exploratory factor analysis, internal homogeneity, confirmatory factor analysis, consensual and discriminant power, and construct validity (Costa and Anderson, 2010). Costa and Anderson (2010) write, “All of these psychometric analyses suggest that the final 21-item four-factor measure is a reliable and valid multi-dimensioned measure of trust at the team levels of analysis” (p. 147). This instrument uses a 7-point Likert scale of agreement identical to the one used in the PLC functionality instrument.

The items associated with each domain of PLC team functionality were averaged to produce a separate score in each domain for each respondent. The same process was done for the items associated with each dimension of trust. The resulting functionality and trust scores were analyzed using multiple regression models to explore and examine the relationships between trust and PLC functionality. Each domain of functionality was analyzed separately.

## Results

Simple descriptive statistics of the five domains of PLC functionality and the four dimensions of trust are presented in Table 2. These results indicate that on average, respondents report having a moderately high level of PLC functionality within their teams, common vision having the highest average level of functionality. Elementary and secondary teachers are similar in functionality levels with the exception of deprivatization and experimentation for which elementary teachers are significantly higher. Respondents also reported moderate levels of trust in all dimensions. Lower values in monitoring behaviors represent higher levels of trust. Reported trust levels are similar for elementary and secondary teachers.

Table 2.

*Descriptive Statistics of PLC Functionality and Trust for Elementary and Secondary Teachers*

	Elementary	Secondary	p-value for two
PLC functionality	mean (sd)	mean (sd)	sample t-test
Common vision	5.94 (0.97)	5.80 (0.86)	0.24
Critical discussion	5.66 (1.03)	5.65 (0.94)	0.91
Change in thinking	5.63 (1.02)	5.56 (0.97)	0.59
Experimentation	5.49 (1.02)	5.23 (0.97)	0.05
Deprivatization	5.55 (0.98)	5.17 (1.11)	0.005
Trust			
Individual propensity	5.65 (0.74)	5.53 (0.61)	0.21
Perceived trustworthiness	5.65 (1.11)	5.44 (0.99)	0.13
Cooperative behaviors	5.46 (1.02)	5.28 (0.76)	0.17
Monitoring behaviors	3.92 (1.11)	3.81 (1.08)	0.47

Multiple regression modeling was done to explore the relationships between trust and PLC functionality. Final regression models with estimated coefficients are presented in Table 3.



Several control variables that might also be associated with PLC functionality were included in the models; however none are significantly associated with functionality. On the other hand, each of the four dimensions of trust has a significant, positive relationship with each domain of PLC team functionality. Also, trust explains between 46% and 60% of the observed variability within the domains of PLC team functionality suggesting a very strong and important relationship. The significant differences between elementary and secondary teachers in reported levels of experimentation and deprivatization at the bivariate level are not evident at the multivariate level. This suggests that differences in reported trust levels explain the variability in experimentation and deprivatization, not whether teachers are at the elementary or secondary level.

It is noteworthy that all dimensions of trust are significantly associated with each domain of PLC functionality; however, the nature of these relationships differs across the domains. For example, within the domain of common vision, a team member's propensity to trust is most strongly associated with common vision and has an estimated coefficient (.472) more than twice the size of the other dimensions in this domain which are cooperative behaviors among team members (.218) and perceived trustworthiness of team members (.199). On the other hand, within the domain of critical and reflective dialogue, cooperative behaviors (.402) is equally as large and significant as propensity to trust (.441). Both of these dimensions are more than 2 ½ times as larger than perceived trustworthiness (.152) and monitoring behaviors (.128). Within the domain of deprivatization, perceived trustworthiness of team members (.316) and cooperative behaviors among team members (.306) are most important, while a team member's

propensity to trust (.228) is relatively less. Interestingly, the coefficient for monitoring behaviors among team members is smallest within each of the domains of PLC functionality; however, looking at its relationship across the domains of functionality it has the largest and most significant relationship with deprivatization of practice.

Table 3.

*PLC Functionality Multiple Regression Results with Team Trust and Control Variables*

	Vision	Discussion	Change of thinking	Experimentation	Deprivatization
CONTROL	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient
Years teaching experience	-.033	-.008	-.009	.035	-.001
Size of team	-.017	-.039	-.032	-.050	0.035
Years of PLC experience	-.009	.016	-.031	-.028	.027
Team stability	.015	-.006	.007	.011	-.006
Secondary schools	.006	.187	.045	-.149	-.083
<b>TRUST</b>					
Propensity to trust	.472***	.441***	.261*	.373**	.228
Perceived trustworthiness	.199*	.152	.240*	.215*	.316**
Cooperative behaviors	.218*	.402***	.314**	.230*	.306**
Monitoring behaviors	.100*	.128**	.143**	.167**	.194***
Model R <sup>2</sup>	.564	.599	.464	.455	.532

\*p < .05, \*\*p < .01, \*\*\*p < .001

## Discussion

The fact that all dimensions of trust are significantly related to all of the domains of PLC functionality assessed in this study and that they explain between 46% and 60% of the variability within these domains indicate that trust plays a prominent role in PLC functionality. The fact that the dimensions of trust have different relationships within the domains indicates that this relationship is complex and educators should recognize the multi-dimensioned nature of both trust and of PLC functionality.

The results of this study show that the relationships between team trust and PLC team functionality are positive and statistically significant even when control variables such as years of PLC experience and team stability (number of years most of the team has been together) are considered. These findings explain and expand upon the claims made in the literature regarding the positive relationship between PLC functionality and trust (Bolam, 2008; Bolam et al., 2005; Bryk et al., 1999; Bryk & Schneider, 2003; Hord, 1997; Kruse et al., 1994; Dirks, 1999; Little and Horn, 2007; Wahlstrom & Louis, 2008). With trust explaining between 46%-60% of variability of the functionality of PLC teams, this study offers empirical evidence that addresses Dirks (1999) concern that the relationship between trust and team functionality “rest mostly on implicit theories and conceptual literature” (p. 5). For collaboration efforts to be successful in educational settings, trust cannot be seen a luxury. These findings support the assertion that teachers must have trust in each other in order to have functionality as a team (Tschannen-Moran, 2000).

While a cause and effect relationship between team trust and team functionality cannot be determined from this study, the findings reveal important insights into the relationship between these constructs, and they indicate a more intricate and complex relationship than has previously

been considered or understood. Considering the results of the multiple regression models more closely, each dimension of trust demonstrates a unique relationship with the different domains of functionality. This study provides an understanding of the association between the two constructs that shifts from a general to a more specific detailed perspective. The unique relationships between each domain of functionality and the dimensions of team trust are discussed below.

Common vision in this study assesses the way teachers see the potential of students as well as the value of collaborating with other teachers. All dimensions of trust are significantly and positively associated with common vision, meaning, higher trust scores are associated with higher levels of common vision; however, the magnitude of these positive relationships are different. Of the four dimensions of team trust measured in this study, propensity to trust has the strongest relationship with common vision; in fact, it is more than two times larger than cooperative behaviors and perceived trustworthiness, and more than four times larger than monitoring behaviors.

As mentioned earlier, propensity to trust is characterized as a psychological dimension of trust that an individual develops over time from past experiences (Costa & Anderson, 2011; Mayer et al., 1995). Like propensity to trust, common vision as a domain of PLC functionality is psychological in nature being a view or perspective regarding student learning and team collaboration reached through many interactions over time (Dufour & Eaker, 1998; Dufour & Marzano, 2011; Huffman, 2003). The strong, positive relationship between these two constructs suggests that teachers who are more inclined to extend trust by their nature and past experience are also more optimistic about the potential capabilities of both students and colleagues.

Critical reflective discussion is the domain of functionality that assesses a team's ability to have meaningful group discussions about teaching practice. Here, again, all dimensions of trust are significantly and positively associated with critical reflective discussion but differ in the magnitude of their associations. Similar to common vision, propensity to trust has the largest association with critical reflective discussion; however, an equally strong relationship exists with cooperative behaviors among team members. Cooperative behaviors in this study measures behaviors such as going beyond minimum expectations, being willing to accept the influence of each other, and relying upon each other (Costa & Anderson, 2011; Gillespie, 2003; Louis, 2007). The strength of these two relationships suggest that both current team interactions and team members' individual disposition are important in explaining PLC team functionality in the domain of critical reflective discussion. Functionality in this domain has a strong relationship with both the psychological and the behavioral dimensions of trust. This finding aligns with Rasberry and Mahajan's (2008) claim that PLC team interactions include both self-examination (psychological) and reflective dialogue (behavioral). The relatively small associations between critical reflective discussion and perceived trustworthiness and monitoring behaviors suggest that team members are less concerned about these dimensions of trust during discussions. It is plausible that self-examination (Rasberry and Mahajan, 2008) as opposed to peer examination (Hord, 1997) is a more important component of critical reflective discussions during team meetings.

Change in thinking is the domain of functionality that assesses the extent to which new, creative, and original thinking about instruction results from team interactions. Among all dimensions of trust that positively relate to this domain of functionality, cooperative behaviors has the strongest association with changes in thinking. The strong relationship between change

in thinking and cooperative behaviors is consistent with Hadar and Brody (2010) who stated, “an expert in isolation has limited capacities...New information and ideas emanate...from interaction with others” (p. 1642). These findings further the idea that interactions foster new ways of thinking.

Unlike in the previously considered domains of PLC functionality, propensity to trust and perceived trustworthiness are quite similar in their relationships with change in thinking. This suggests that as teams innovate together, team members build confidence with each other in a way that reduces the importance of an individual’s previous experiences and increases the importance of how team members view each other. This is reasonable considering that changing one’s thinking about instructional practices and being open to new ideas signify a willingness to change and to be influenced by the collective thinking of the team. Therefore, individuals on the team might pay more attention to how they perceive the abilities, benevolence, and integrity of other team members. This finding is also consistent with Dirks and Skarlicki’s claim that individuals within a team are more likely to accept change where there is greater perceived trustworthiness (2009).

Experimentation with practice refers to the implementation of new ideas. This domain of functionality differs from all the others within this study in that it is the only domain that measures what the individual does rather than what the team does. Experimentation with practice, as measured in the survey, measures both what an individual gains from the team, as well as how the individual behaves outside of the team and within their own classrooms. Once a teacher walks away from the interaction with his/her team members, any experimentation largely takes place in isolation from other teachers. Therefore, it seems reasonable that propensity to trust which is an individual-based dimension of trust is most strongly associated with

experimentation in practice. The other dimensions of trust are significantly associated with this domain of functionality, but as these dimensions explicitly measure perceptions and actions of team members, they aren't as strongly associated with experimentation as propensity to trust.

Deprivatization of practice has reference to how teachers help each other outside of team meetings specifically with regards to observing one another in their classrooms, offering feedback on instruction, and sharing student test results in their discussions with each other. Compared to the other four domains of functionality, deprivatization of practice is the most invasive and has the potential to create the highest level of vulnerability among team members. It is sensible then that deprivatization of practice is most strongly associated with perceived trustworthiness of team members and cooperative behaviors of team members. Monitoring behaviors is positively and moderately related to deprivatization of practice indicating that in this relatively vulnerable domain of functionality, the higher the level of monitoring the higher the deprivatization. The willingness to deprivatize practice quite reasonably relates to a stronger sensitivity to perceived trustworthiness as well as the behavioral dimensions of trust. It also makes sense that those same circumstances would become relatively stronger than the influence of an individual's propensity to trust others. These relationships support Hord's (1997) observation that deprivatization requires a great deal of "mutual respect and trustworthiness" between team members (pg. 23).

Interesting insights emerge from these differing relationships. One insight stems from the relationships between the domains of functionality and perceived trustworthiness. Perceived trustworthiness is the way team members see one another with respect to their competence, integrity, and benevolence (Burke et al., 2007; Mayer et al., 1995). Though the relationships between perceived trustworthiness and the domains of functionality are statistically significant

and positive, it is surprising that perceived trustworthiness has weaker relationships than propensity to trust and cooperative behaviors particularly when considering that perceived trustworthiness has been noted in the literature as the most significant factor in the construct of trust (Costa, 2003; Mayer et al., 1995). This view of perceived trustworthiness could lead one to expect it to have a stronger relationship with PLC team functionality relative to the other dimensions of trust; however, perceived trustworthiness only has the strongest relationship with deprivatization of practice. Though the relationships between perceived trustworthiness and the domains of PLC team functionality is statistically significant, its relative weakness suggest that the trustworthiness of team members in PLC teams may not be under scrutiny as much as it has been noted in leader-follower relationships. This study looks exclusively at the relationship between team members rather than the relationship between followers and leaders. Perhaps the role of perceived trustworthiness shifts in a relationship with team members who are seen more as equals and posing less of a threat than relationships with leaders. The relative strength of the roles of propensity to trust and cooperative behaviors with PLC team functionality suggest a slight shift in the dynamics of trust within a team as opposed to a leader/follower relationship.

Another insight gained from this study is that different relationships exist between the domains of functionality and the different dimensions of trust. As noted, propensity to trust has a strong relationship with both common vision as well as critical reflective discussion. However, the relationship between propensity to trust and deprivatization is much less significant. Conversely, cooperative behaviors has a strong relationship with deprivatization and a seemingly weak relationship with common vision. These, along with the other altering relationships explored above, tell a very interesting story. When it comes to PLC team functionality, different domains of team functionality warrant a focus on different dimensions of team trust. Clearly this



study demonstrates that there is a strong relationship between team trust and PLC team functionality. However, it deepens the conversation by revealing a more elaborate relationship than previously understood. Different domains of functionality are affected uniquely by different dimensions of trust. Thinking of these constructs in this more involved way could enlighten a teacher or leader in their approach to the development of PLC teams. For example, if an administration wanted to implement deprivatization practices in their PLCs, they may emphasize the value of cooperative behaviors in their trainings as opposed to propensity to trust. These findings also advocate the study of these constructs in more detailed ways that could offer additional insights.

### **Conclusions**

It is generally agreed that meeting the needs of students in educational settings today is dependent on the collaborative efforts of teachers (Dufour & Marzano, 2011; Lee et al., 2011; Tschannen-Moran, 2000). The findings of this study strongly support the idea that team trust and team functionality have a significant, positive relationship. Though this conclusion is not surprising, this study offers empirical evidence with regards to something that has long been assumed but not well studied. Additionally, these findings show that different domains of functionality have stronger and weaker relationships with different dimensions of trust. This insight offers new ways of looking at the relationship between PLC team functionality and team trust. This study both affirms a strong relationship with PLC team functionality and trust as well as exposes a more complex relationship between these two constructs than previously evidenced or discussed in the literature.

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## APPENDIX A: REVIEW OF LITERATURE

In this time where one can voyage across the earth in a matter of hours and information travels at nearly the speed of light, there is an enlarged environment to respond to as well as increased amounts of information to absorb. Organizations can no longer function in the traditional ways and compete with the rest of the world which, in more and more cases, they must do. The education organization is no exception to increased pressures and demands. As Hord (1997) said, “Currently, the educational consumer is making demands ever more long and strong” (p. 12). In a similar vein, Dufour and Marzano (2011) added that with increasing numbers of students and higher standards of achievement than ever known, more is required of the United States education system than ever in its history.

One scholar proposed that with the increased amount of knowledge flow and greater international competition, organizations must have more employees who are more capable of learning and adapting to new challenges (Clawson, 2009). What does this mean for education? Clawson says, “this means creating a greater force of teachers who are proactive learners and leaders of their craft,” (2009, p. 54). One of the ways this occurs is through collaboration. As the pressure on schools increases, many schools have sought to facilitate collaborative efforts amongst school faculty and, accordingly, move away from the traditional isolation of teachers that has reigned for so many years (Dufour & Marzano, 2011; Hargreaves, 1994; Stoll, Bolam, McMahon, Wallace, & Thomas., 2006). Kouzes and Posner (2003) stated, “The winning strategies will be based upon the ‘we’ not ‘I’ philosophy. Collaboration is a social imperative. Without it people can’t get extraordinary things done in organizations” (p. 22). Similarly, Fullan (2010) wrote that collaboration “enables ordinary people to accomplish extraordinary things” (p. 72). Many benefits have resulted from a collaborative approach to education such as increased

knowledge flow, shared expertise, innovative creation of new knowledge, and change that has more staying power (Abrams et al., 2003; Bullough, 2007; Hargreaves, 1994; Moolenaar & Slegers, 2010).

It is in this light that we see the emergence of Professional Learning Communities (PLC) as a response to the need for schools to have greater collective and collaborative developments. According to Dufour and Marzano (2011),

The best strategy for improving schools and districts is developing the collective capacity of educators to function as members of a professional learning community—a concept based on the premise that if students are to learn at higher levels, processes must be in place to ensure the ongoing job-embedded learning of the adults who serve them. (p. 21)

In speaking of PLCs in relation to the modern world of knowledge and pressure on schools, Carroll, Fulton, and Doerr (2010) wrote:

Today's web of instant and nearly ubiquitous communication means that social learning skills are ever more possible and essential. Today's students are deeply immersed in these various and ever expanding learning environments. What does this mean for teachers? First, as learners themselves, they can and should be constantly learning with and from their knowledgeable colleagues. They can and should model for their students the collaborative learning and knowledge construction that is at the core of 21<sup>st</sup> century competencies. (p. 4)

PLCs have become the springboard of many schools across the world to progressively move toward a culture of working together in order to enhance the learning and capacity of teachers (Huffman, 2003; Little & Horn, 2007). Fullan (2007) went so far as to say that teachers will not

be able to really make a difference in schools “unless each and every teacher is learning every day” (p. 153).

A prominent feature of PLCs is that of collaborative teams. The basis of the collaborative PLC team is that teachers work together in an organized group where they are able to draw upon collective strength and open their minds to new understanding and practice (Carroll et al., 2010; Hargreaves, 1994; Hipp, Bumpers-Huffman, Pankake, & Oliver, 2008; Stoll, Bolam, McMahon, Wallace, & Thomas, 2006). These collaborative teams seek to take advantage of the synergy that can be created between teachers as means to facilitate the creation and sharing of knowledge. Du Chatenier, Verstegen, Biemans, Mulder, and Omta (2009) stated, “the idea behind the knowledge creation metaphor is that participation in social activities benefits cognitive processes” (p. 352). One teacher, for example, noted the impact of collaboration despite the fact that his PLC team was composed of only himself and one other teacher. He said: “We were both willing to share and collaborated to accomplish much more than if we worked alone...[which] made a bigger impact on student understanding and engagement” (Rasberry & Mahajan, 2008, p. 16). As he stated, teachers are able to generate ideas working in unison with other teachers that would otherwise be unavailable to them and, ultimately, to their students. As Carroll et al., (2010) reported in a synthesis of research findings,

The era of isolated teachers, working alone to meet the myriad needs of all their students is neither educationally effective nor economically viable in the 21<sup>st</sup> Century.... Freeing teachers from their isolation with productive collaboration is the goal of...professional learning communities. (p. 7).

Scholars have been very convincing in their arguments regarding the benefits that are available through PLCs and collaboration. There seems to be little question that PLCs hold great potential to respond to the current challenges of our education system.

For example, studies have shown that as teachers learn together in collaborative PLC teams, they have been more deliberate in trying new strategies in their classrooms that have demonstrated positive results in student learning (Dufour & Marzano, 2011; Hargreaves, 1994; Moolenaar & Slegers, 2010). In a literature review of empirical studies done in schools with strong implementation of collaborative PLC teams, teachers were found to be employing new ways to get students involved in the learning process as well as to have “increased the use of techniques such as added flexibility of classroom arrangements and changes in the pace of instruction to accommodate for varying levels of student content mastery” (Vescio, Ross, & Adams, 2008, p. 7). In their review of literature, Gallimore et al. (2009) found that teachers engaged in collaborative PLC teamwork increased in their ability to identify student needs as well as figure out solutions to classroom problems and take deliberate measures to respond to them. Another change teachers were more likely to make was to be more active in their use of student data as a means of evaluating teaching practice (Gallimore et al., 2009). Additionally, researchers found students in these classrooms to have greater interest in the subjects taught as well as better class attendance rates (Bolam et al., 2005; Hord, 1997).

Student learning was also influenced indirectly by collaborative PLC teams through their impact on teacher morale (Carroll et al., 2010; Hipp et al., 2008; Hord, 1997; Jones & George, 1998; Moolenaar & Slegers, 2010). Hipp et al. (2008), for example, did a study on schools which were actively engaged in collaborative efforts within the PLC model and quoted multiple teachers who referred to their school environment as being so positive that positions were

coveted around the district. “[O]nce you get in the school,” one teacher commented, “you don’t leave” (Hipp et al., 2008, p. 180). Kruse, Louis, and Bryk (1994) add that such teachers “enjoy much greater support from their colleagues...[and] feel more effective at their jobs” (pg. 3). One of the ways teacher support can be particularly helpful is in responding to the high attrition rate that exists among teachers. The National Commission on Teaching and America’s Future (NCTAF), as cited in Carroll et al. (2010), reported that teaching, as a profession, has an increasing turnover rate that has grown 40% between 1993 and 2009. With such turnover, how can teacher training and learning be expected to keep up with the needs of the school (Carroll et al., 2010). Collaborative PLC teams provide the opportunity to have more experienced teachers mentor and coach newer teachers through the challenging first years of a teaching career (Carroll et al., 2010). One can imagine the positive impact that can result in classrooms where teachers themselves are experiencing the thrill of learning together with their peers. When teachers are involved in collaborative learning efforts, as Hord writes, they are “well informed, professionally renewed, and inspired to inspire students” (Hord, 1997, p. 33).

Not all collaborative teams, however, are rising to this level of impact. Despite the potential for improving the moral, knowledge, practice, and ultimately student performance, collaborative teams cannot, in Walker’s words (1994) “just exist” (p. 39). It is not enough to put teachers together and expect magic to happen. Walker goes on to say:

Teams are being promoted, in many cases, as *the* way to make our schools “collaborative” and “responsive”. But is it really that simple? If teams are to become true forces for change as a form of restructuring, thinking must transcend the simplistic structures and mechanisms currently embedded in schools. It is easy to form so-called teams and then claim the school is structured “collaboratively”, but unless there are major

shifts in thinking, for example, about how school personnel are assessed, rewarded and supported, little real change will result. (p. 39)

Fullan (2000) states that “put in terms of the change process, there has been strong adoption and implementation, but not strong institutionalization” (p. 1). In other words, the structure may be in place, but the culture has not really changed.

Another potential pitfall of collaborative teams within PLCs, as Hargreaves (1994) called it, is contrived collegiality. He asserts that when PLCs are undeveloped, collaboration is compulsory and regulated rather than inspiring and innovative. In their research on PLC teams, Little and Horn (2007) write that “deep, sustained conversations among teachers about matters of teaching and learning remain uncommon, even among groups that might reasonably be seen as professional communities committed to instructional improvement” (p. 79). As can be surmised, collaborative PLC teams that are merely organized will not achieve the desired benefits.

In summary, as the world shrinks and the available knowledge expands, collaboration has become a critical factor in organizational progress. One of the prominent ways this has occurred in education is through the development collaborative PLC teams. Despite the potential these teams have to influence teachers’ capacity to improve their practice, many teams are failing to claim the benefits available. In this review of literature, I will examine the ideas behind collaborative PLC team functionality as well as team trust. I will then consider the potential relationship between the two constructs as well as the need for further research in this area.

### **Collaborative PLC Teams**

As PLCs have become widespread in public schools, the term “professional learning community” is being used more loosely to describe many different kinds of efforts (Rasberry &

Mahajan, 2008). Much has been written in attempt to describe PLCs, though, as Stoll et al. (2006) writes, “there is no universal definition of a professional learning community” (p. 222). Some have seen learning communities as those which get the outside community more involved with the school or the school more involved with the community (Hord, 1997). Others have highlighted the involvement of teachers in decision-making processes (Rasberry & Mahajan, 2008; Stoll et al., 2006). One prominent definition comes from Dufour (2004) which describes PLCs as a school that is committed to creating a collaborative culture based around the answers to these 4 questions: what do we expect students to learn, how will we know if they are learning, how will we respond if they don’t learn, and how will we respond if they already know it? Despite these differences, there is general consensus that PLCs include a focused effort to ensure student learning based on teacher collaboration, assessment, and intervention (Bolam et al., 2005; Bullough, 2007; Carroll et al., 2010; Du Chatenier et al., 2009; Dufour & Marzano, 2011; Hargreaves, 2007; Hipp et al., 2008; Lambert, 1998; Robinson, 2009; Stoll et al., 2006; Stoll & Seashore Louis, 2007).

Though some scholars refer specifically to collaborative PLC teams, most literature on this subject merely describes general school PLCs with only passing reference to the actual teams within those PLCs. Consequently, collaborative PLC teams, like the larger PLC organization within which they operate, are not universally defined. However, general PLC literature is rich with descriptions of what teachers that participate in collaborative PLC teams have done that help them to rise above and beyond traditional isolated teaching practices (Bolam et al., 2005). While different schools and districts will have varying curriculum, assessments, pacing, norms, etc., the focus of this work is specifically to look at the processes that lead teams to be more or less functional. In studying the PLC literature, five domains commonly arose in relation to

collaborative PLC team functionality which will be the basis of assessment in this study, namely, common vision, critical/reflective discussion, innovation, risk taking, and de-privatization.

**Common vision.** In researching factors effecting functionality of collaborative teams, common vision was not often mentioned specifically in reference to teamwork but rather in reference to the functionality of general school PLCs or PLC culture within a school. I was unable to ignore, however, the importance of common vision among members of a collaborative team even though it does not have a strong presence in the literature in direct connection with collaborative PLC teams. Being that collaborative PLC teams are considered a staple of PLCs in general and that common vision has been described as a critical factor with respect to the success of PLCs in schools, it would follow that the functionality of a collaborative PLC team is equally reliant on the common vision of its members. In the following paragraphs, common vision will be mentioned with reference, largely, to PLCs rather than collaborative PLC teams. Again, the intent is to extrapolate principles from PLC research and assume their applicability in collaborative PLC team functionality.

PLCs begin with common vision. It is difficult to have a collaborative community unless you are working toward the same goal. Huffman (2003) points out that establishing a PLC in a school requires a change in culture and “changing the culture in an organization is a difficult and time-consuming process that must have at its center the development and working knowledge of a vision shared by all stakeholders” (p. 22).

As has been noted in the literature, student learning must be at the heart of the common vision of a successful PLC (Bolam et al., 2005; Carroll et al., 2010; Dufour & Marzano, 2011; Hargreaves, 2007; Hipp et al., 2008; Hord, 1997; Huffman, 2003; Kruse et al., 1994; Stoll et al., 2006). Bolam (2008), for example, in a review of literature stated, “An effective professional



learning community has the capacity to promote and sustain the learning of all professionals in the school community *with the collective purpose of enhancing pupil learning*” (italics added, p. 164). In their review on the literature on the impact of PLCs, Vescio et al., (2008) found that one of the critical parts of functioning PLCs was a common view on children’s ability to learn. Similarly Dufour and Marzano (2011) write that “In addition to...pedagogical skills, effective teachers have high expectations for student achievement. They believe that the ability of students to learn is changeable rather than fixed, and they are able to foster the effort that leads to achievement” (p. 16-17). Teachers within a school and within a collaborative PLC teams must develop common vision that student learning is the central objective and student’s minds are expandable and capable of improvement.

In addressing the question of why teachers sometimes struggle to come to a collaborative vision of the potential and needs of students, Newman (1994) mentioned that divisions are often created from a “common tendency to attribute students’ difficulties largely to conditions beyond the school—especially the family, peers, and neighborhood” (p. 2). The tendency in such circumstances, he goes on to say, is for schools to develop generic slogans that wind up having little unifying power and fail to invite the collaborative synergy otherwise available. The more desirable alternative, Newman (1994) points out, is that staff members, while recognizing the reality of outside influences, work to collectively maximize their influence on the learning of their students regardless of the student’s social background. In a comparison between schools that worked toward common vision and collaborative practices versus schools that did not, Gallimore et al. (2009) found a marked increase in the tendency teachers who are not involved in such practices have to attribute student success to external factors such as student traits and socioeconomic status. Conversely, teachers who shared common vision and goals and worked

together were more capable of identifying solutions to those external challenges and facilitated improvements with those students (Gallimore et al., 2009). Their common vision of student potential led to increased influence on student achievement.

Similar to the common vision teachers must have with respect to student potential, common vision is also dependent on teacher's view of the value and importance of collaborative teamwork. Collaborative PLC team functionality is enhanced when teachers share the vision of the increased influence they can have as they work collectively with other teachers (Dufour & Marzano, 2011; Hughes & Kritsonis, 2007). As Dufour and Marzano (2011) claim, "School improvement means people improvement" which necessitates, "professional development strategies that are specifically designed *to develop the collective capacity of educators* to meet the needs of students" (italics added, p. 15, 21). Collective capacity development refers to increasing the vision and capacity of teachers to learn together. Teachers within a collaborative PLC team need to be convinced that working collectively with other teachers will enhance the quality of their teaching which, consequently, will improve the quality of student learning in their classrooms (Dufour & Marzano, 2011; Hughes & Kritsonis, 2007; Vescio et al., 2008). In a research study on PLCs, Grossman et al. (2001) described one teacher who was initially skeptical about the added commitment to a collaborative team. He writes:

At first ambivalent about his responsibility to other teachers (but never wavering in his commitment to students), he emerged as the group's intellectual lynchpin and spokesperson. For Dave, already deeply immersed in issues of subject matter and teaching, the group provided a training ground in which he came to see his own fate as a teacher as bound to the collective capability of his colleagues. (p. 996-997)

Ultimately, after personal experience with the benefits of a collaborative team, Dave gained a common vision with his colleagues and became the chair of his department's team.

Common vision, however, is not something that can be merely defined and forced upon others. Rather, it must be the consensus of the group and must be worked on over time (Dufour & Eaker, 1998; Dufour & Marzano, 2011; Huffman, 2003). In line with this, Dufour and Eaker (1998) make the point that genuinely shared vision is not a one and done thing, but rather a process. They state, "Building a shared vision is the ongoing, never-ending, daily challenge confronting all who hope to create learning communities" (Dufour & Eaker, 1998, p. 64). Teachers cannot be assigned a vision, but must be offered an environment where, as Bolam (2008) states in a review of literature, "teachers learn to teach in a community that enables them to *develop a vision* for their practice" (*italics added*, p. 164). Common vision, in this sense, becomes refined over time and more influential in a team's ability to work toward the ideals the vision encompasses.

**Critical, reflective discussion.** Building off a common vision, the second attribute relating to the functionality of collaborative PLC teams is discussion or conversation between teachers that is open, self-examining, and thoughtful (Bolam et al., 2005; Kruse et al., 1994; Rasberry & Mahajan, 2008; Stoll et al., 2006). As one pair of scholars puts it,

Professional learning communities in the educational setting can be defined as groups of individuals committed to continuous improvement through shared values and reflection.

In PLCs, teams are open to critical thinking, reflective dialogue, self-examination, and resolving issues that impede student success. (Rasberry & Mahajan, 2008, p. 2)

Shared values, as they wrote, promote reflection which lends itself to more open dialogue between team members.

In their review of literature, Stoll et al. (2006) examined literature from multiple countries that were making efforts to implement the idea of collaborative PLC teams in their education systems. In doing so, they concluded that a functional team included “a group of people sharing and critically interrogating their practice in an ongoing, reflective, collaborative, inclusive, learning-oriented, growth-promoting way” (p. 223). Collaborative PLC teams engage in conversations about problems that are not easily solved nor have prescribed answers (Stoll et al., 2006). Hord (1997) wrote that such teams are involved in reflective inquiry “in which staff conduct conversations about students and teaching and learning, identifying related issues and problems” (p. 18). Collaborative PLC team functionality is dependent on teachers coming together and engaging proactively in critical, reflective, discussion.

**Innovation.** One of the results of critical, reflective discussion is innovation (Gray, Tarter, & Mitchell, 2011; Hadar & Brody, 2010; Hord, 1997; Lambert, 1998; Rasberry & Mahajan, 2008). As reflective discussions take place between collaborative teachers who are centered on a common vision, ideas are generated and capacity to create and discover new knowledge is increased (Hord, 1997; Lambert, 1998). In the words of Hadar and Brody (2010), “one cannot learn in a vacuum, and an expert in isolation has limited capacities...New information and ideas emanate...from interaction with others. Moreover, collaboration creates a culture in which further learning is stimulated and supported” (p. 1642). Commenting on school staff who are collaboratively engaged in teamwork, Bullough (2007) said that such teachers are “engaged in processes that collectively seek *new knowledge*...and application of the learning to solutions that address student’s needs” (italics added, p. 177). Teacher’s creation of new knowledge, or innovation, is knowledge not previously held and therefore unable to be applied. However, Bryk and Schneider (2003) write, “if professional community in fact fosters instructional change, it

does so by creating an environment that supports learning through innovation and experimentation” (p. 771). Innovation is learning but, more importantly, innovation enables teachers to act in new ways.

**Risk taking.** Making changes in teaching practice involves risk (Bolam et al., 2005; Rasberry & Mahajan, 2008; Robinson, 2009; Vescio et al., 2008). While many benefits can result from getting together and sharing ideas and experiences with other teachers, it is not enough. If teachers within the team do not take additional steps of trying out new practices, making changes to their usual routine, in Walker’s (1994) words, “they are unlikely to perform effectively or to grow and develop” (p. 94). Risk is at the heart of change and change in practice is critical if there is going to be change in student learning. Vescio et al. (2008) found that one of the most notable attributes collaborative PLC team teachers exhibited was experimenting with new ideas that ultimately led them to more student-centered practices and more student-centered practices led to improved student learning (Vescio et al. (2008).

Experimentation, Rasberry and Mahajan (2008) say, is a key link in the cycle that starts with professional inquiry and, as a result of positive or negative experiences with new practices, leads to further understanding and inquiry. They go on to say, “experimentation is an important commodity to ensure success...When teachers feel comfortable taking risks, they are not fearful of repercussions and are willing to try new things” (p. 6, 15). Even early scholars such as John Dewey, as quoted in Gallimore et al. (2009), supported the idea that productive collaborative work in education relied on “intensive, focused opportunities to experiment with aspects of practice and then learn from that experience” (p. 538). As previously stated, a professional learning community is a community of professional learners which makes a collaborative PLC team a team of learners (Bolam, 2008; Bolam et al., 2005; Dufour & Marzano, 2011; Gallimore

et al., 2009; Olivier, 2009; Stoll et al., 2006). One of the great learning tools of teaching is experimentation and risk taking which will “ignite further questions” and additional learning (Rasberry, 2008, p. 2). Change in thinking, in other words, needs to be applied. Further fruits then come from examining the results of the application.

**De-privatization.** The next factor to consider in the process of collaborative PLC team functionality, to borrow a term from Kruse et al., (1994), is “de-privatization” (p. 4). From the literature, there emerged two forms of de-privatization, that of *practice* and of *results*.

The idea behind de-privatization of practice includes teachers observing other teachers and having meaningful feedback discussions based on teaching principles. Hord (1997) notes the following:

This practice is *not* evaluative but is part of the “peers helping peers” process. Such review is conducted regularly by teachers who visit each other’s classrooms to observe, script notes, and discuss observations with each other. The process is based on the desire for individual and community improvement and is enabled by the mutual respect and trustworthiness of staff members. (*italics added*, p. 23)

As Hord (1997) mentions, the process is not evaluative, meaning one teacher is not there to assess the quality of the teacher being observed. The success of the practice of observation and feedback relies heavily on the *mutual respect and trustworthiness* as mentioned. At the same time, however, Hord (1997) also mentions the need for teachers to be willing to accept feedback and discuss the reality of what may be happening, or not happening, in their classrooms.

Improvement must weigh heavier in a teacher’s mind than the opinion of their colleague (Hord, 1997).

Observations and feedback are productive for the teacher being observed as well as the one doing the observing. Rasberry and Mahajan (2008) state that, “Strategies for... collaboration include classroom observations and school-wide learning walks. Opening up classrooms can help teachers gain better perspective on their colleagues’ teaching styles” (p. 13). In addition, Kruse et al., (1994) points out that as “Teachers share, observe and discuss each other’s teaching methods and philosophies...teachers learn new ways to talk about what they do, and the discussions kindle new relationships between the participants” (p. 4). Functionality in collaborative PLC groups can either be enhanced or curbed by the ability and willingness teachers have to take mutual responsibility for one another’s success through observation and feedback practices (Fullan, 2007). Such mutual responsibility is one more tool of learning teachers can utilize to meet their goals of increasing learning among students.

De-privatization of results, on the other hand, refers to teachers’ use of student data in their discussions with other teachers (Bolam et al., 2005; McLaughlin & Talbert, 2007; Rasberry & Mahajan, 2008). As Bolam (2005) stated, “serious dialogue” must involve “information and data” if collective learning is going to help solve individual problems (p. 9). Similarly, Visscher and Witziers (2003) claim,

These [teams] consistently translate their shared vision and willingness to cooperate into a system of rules, agreements and goals regarding teaching and instruction, and evolve their professional activities around this by obtaining data on student performance, which in turn serves as a feedback mechanism for improving teaching and learning. This differs from a 'softer' approach stressing reflective dialogue, sharing materials, shared vision and the inner value of professional development only. (p. 798)

Student performance data are significant attributes of a productive collaborative conversation and deepen a team's ability to have the better discussions and make more deliberate and specific changes to improve learning.

### **Defining Trust**

The second construct to be defined in this work is trust. As has been mentioned repeatedly by scholars, trust is varied in definition and is complex in nature (Ben-Ner & Halldorsson, 2010; Bryk & Schneider, 2003; Burke, Sims, Lazzara, & Salas, 2007; Costa & Anderson, 2011; Tschannen-Moran & Hoy, 1998). With the complexity and variation of trust definitions and differing contexts that affect the meaning of trust, it can be problematic and potentially misleading for researchers to refer to trust in a way that assumes shared meaning by their readers (Rousseau; Sitkin, Burt, & Camerer, 1998). This work will, therefore, outline some of the prevalent definitions of trust as found in the literature as well as explain how trust will be defined in this research.

Scholars have pointed out that trust can be viewed in many ways. Burke et al. (2007) suggest that trust can be seen from “the team level (i.e., between team members), leadership level (i.e., between the team member and the leader), the organizational level (i.e., between the employees and the organization), and interorganizational level (i.e., between organizations) (p. 610)”. Additionally, trust has been described as being one directional or two directional and existing in varying degrees between shallow and deep (Sheppard & Sherman, 1998). Trust has also been seen differently depending on whether it is being viewed through the lenses of psychology, sociology, education, economics, etc. (Rousseau et al., 1998). Though trust was understood in its research infancy to be mainly based in social networks or institutions, with the general flattening of organizational structure interpersonal trust has received more attention



(Jones & George, 1998; Rousseau et al., 1998). In other words, where trust used to be extended to a leader, for example, because he or she was part of the trusted institution, today's organizational structure relies more on relationships and communication.

**Trust as vulnerability.** Considering the multiple perspectives through which trust can be considered, Rousseau et al. (1998), point out that one trust factor common across disciplines is vulnerability. Many definitions in the trust literature consider vulnerability to be at the core of trust (Ben-Ner & Halldorsson, 2010; Burke et al., 2007; Costa & Anderson, 2011; Costa, 2003; K. T. Dirks & Skarlicki, 2009; Gillespie, 2003; Hoy & Tschannen-Moran, 1999; Mayer, Davis, & Schoorman, 1995; Rousseau, et al., 1998; Schoorman, Mayer, & Davis, 2007; Sheppard & Sherman, 1998). One popularly held definition comes from Rousseau et al., (1998) who state that trust is “a psychological state comprising the intention to accept vulnerability based upon positive expectations of the intentions or behavior of another” (p. 395). Ben-Ner and Halldorsson (2010) explain that vulnerability is extended when “a person ‘A’ [believes] that other persons ‘B’ who are involved with a certain action will cooperate for A’s benefit and will not take advantage of A if an opportunity to do so arises” (p. 65). Vulnerability, Gillespie (2003) adds, depends on the existence of uncertainty that would place a particular party at risk of losing something valuable (Gillespie, 2003). Rousseau et al. (1998) refer to the term, “willingness to be vulnerable” as the most frequently used term in the literature to describe trust noting that, “other authors say the same thing, but with different words” (p. 394). Accordingly, this work will define trust as a willingness to be vulnerable.

Much of the trust literature also points to conditions that either lead to or result from trust, or, willingness to be vulnerable. Costa and Anderson (2011) combined many of these prevailing ideas by separating them into two categories, the psychological tradition and the behavioral

tradition. The psychological tradition, as Costa and Anderson (2011) explain, is “defined in terms of propensities, expectation, intentions, affects, and orientations towards beliefs or states of confidence in relation to others” (p. 123-124). Essentially, the psychological tradition refers to factors that precede the existence of trust. The behavioral tradition, on the other hand, refers to either the willingness, or lack thereof, to take risks (Costa & Anderson, 2010). This tradition has reference to behaviors that result from trust such as communication and cooperation (Burke et al., 2007) but can also be manifested in efforts to control or monitor (Costa & Anderson 2010).

**Psychological factors.** One prominent factor of the psychological tradition of trust refers to the characteristic of the trustor. In their literature review, Meyer et al. (1995) referred to this characteristic as a trustor’s propensity to trust. Many factors can impact one’s propensity to trust. Mayer et al. (1995), for example, mentions such things as past experiences, personality, and culture. Even characteristics such as birth order, age, gender, and values have been linked in the literature to propensity to trust (Ben-Ner & Halldorsson, 2010). Mayer et al. (1995) describe propensity to trust as stable across circumstances while other scholars define it as a changing quality depending on the context of any given situation (Sitkin & Pablo, 1992). Each, however, sees propensity to trust as a key factor affecting the trust between two parties. Gillespie et al. (2003) go so far as to say that propensity to trust is actually a greater predictor of overall trust than the trustworthiness of the other party, though they do acknowledge the importance of trustworthiness.

A second prominent psychological factor in the literature that leads to vulnerability is trustworthiness (Abrams et al., 2003; Butler, 1991; Dirks & Ferrin, 2001; Dirks & Skarlicki, 2009; Goddard, Salloum, & Berebitsky, 2009; Hoy & Tschannen-Moran, 1999; Moolenaar & Slegers, 2010; Rousseau et al., 1998). In Dirks and Skarlicki’s (2009) words, “Trustworthiness

concerns the perceived characteristics of the trustee that serve as the primary basis on which individuals are willing to accept vulnerability” (p. 137). When citing attributes that induce trustworthiness, other scholars have ranged everywhere from one characteristic (Strickland, 1958) to ten (Butler, 1991). In their review of literature, for example, Hoy and Tschannen-Moran (1999) concluded that there were five attributes that contributed to a party’s trustworthiness, namely, reliability, competence, openness, benevolence, and honesty (p. 187). Both Burke et al. (2007) and Mayer et al. (1995) argue that all of these factors can be adequately expressed in three characteristics; ability, benevolence, and integrity. Though there are multiple views regarding the factors that define trustworthiness, this work will assume the definition outlined by Costa and Anderson (2011) used in developing their team trust assessment. Deriving their three dimensions of trustworthiness from Cummings and Bromiley (1996), Costa and Anderson wrote,

trustworthiness of an individual or group can be determined, i.e., the belief that another person(s) or group (1) makes good-faith efforts to behave in accordance with any commitments both explicit or implicit, (2) is honest in whatever negotiations preceded such commitments, and (3) does not take excessive advantage when the opportunity is available. (p. 125)

Trustworthiness, then, refers to the attributes of the trustee that invoke a willingness of the trustor to place themselves in a position of vulnerability.

In short, scholars have come to the conclusion that willingness to be vulnerable is dependent on both the propensity to trust of the trustor and the trustworthiness of the trustee (Ben-Ner & Halldorsson, 2010; Burke et al., 2007; Colquitt, Scott, & LePine, 2007; Costa, 2003; Meyer & Zucher, 1989). As previously mentioned, trust has also been studied in relation to the behaviors

that it brings about. Costa and Anderson (2011) propose that the behavioral tradition of trust can be summarized into cooperative behaviors and monitoring behaviors which will be described in more detail below.

**Behavioral factors.** The behavioral factors refer to behaviors that are both constructive and destructive to trust, namely, cooperative and monitoring behaviors. Cooperative behaviors are constructive actions between parties such as personal involvement, sharing information, increased productivity, and relying on team members (Burke et al., 2007; Costa & Anderson, 2011; Costa, 2003; Gillespie, 2003; Louis, 2007; Smith & Barclay, 1997). Such behaviors “reflect the willingness to be vulnerable to others whose actions one does not control” (Costa and Anderson, 2010, p. 125). Burke et al. (2007) emphasized other cooperative behaviors that they referred to as proximal outcomes of trust. Proximal outcomes of trust, they suggest, refer to cooperative behaviors such as open communication, learning, and organizational citizenship behavior (OCB). Open communication refers to increased sharing of information and ideas. Learning has reference to the increased knowledge which results from the sharing of ideas as well as the innovation it facilitates. OCB is described as behavior “not prescribed by one’s job description” but goes beyond the minimum expectations to ensure success (Burke et al., 2007, p. 623).

Monitoring behaviors, conversely, are associated with a lack of trust that results in team members making efforts to ensure others are pulling their weight. These behaviors include such things as checking on the progress of another’s assignment or questioning the validity of someone’s word (Costa, 2003; Costa & Anderson, 2011; Smith & Barclay, 1997; Zand, 1972). These behaviors demonstrate an absence of trust and would exist in opposite proportion to cooperative behaviors (Costa and Anderson, 2011). Monitoring behaviors often lead individuals

to focus on and protect their own work in a way that takes away from cooperating with others (Costa & Anderson, 2011; McAllister, 1995).

Costa and Anderson (2011) developed a team trust assessment tool which functions based on the assumption that where there is more propensity to trust in the trustor, increased trustworthiness in the trustee, cooperative behaviors will be manifested while monitoring behaviors will be less visible. As a pattern is perpetuated within a team, a culture of trust is established. As mentioned above, this work defines trust as willingness to be vulnerable. However, being that vulnerability is not easily quantified or measured, team trust will be evaluated by measuring its psychological factors, propensity to trust and trustworthiness, and its behavioral factors, cooperative and monitoring behaviors.

### **Collaborative PLC Teams and Trust**

Having explored the constructs of collaborative PLC team functionality and trust, I turn to the potential relationship between the two. Researchers examining the general implementation of PLCs within schools consistently mention trust as a significant factor in their success (Bolam, 2008; Bolam et al., 2005; Hord, 1997; Kruse et al., 1994; Wahlstrom & Louis, 2008). Little and Horn (2007), for example, went so far as to say that “[t]he backbone of strong and sustaining PLCs is trust” (p. 187). Speaking of PLCs, Rasberry and Mahajah (2008) gave the following question and answer: “how can we make others more willing to share and more receptive to the idea of sharing? For starters, ... developing an atmosphere of trust and mutual respect” (p. 15). Trust researchers Bryk et al. (1999) added, “When teachers trust and respect each other, a powerful social resource is available for supporting collaboration, reflective dialogue, and deprivatization characteristics of professional community” (p. 767). Trust has become a strong

focal point with respect to the successful implementation of collaborative interaction among teachers.

To add a second witness, research of business organizations has noted trust to be a core value in the success of collaborative efforts of teams (Jones & George, 1998; Spector & Jones, 2004). Costa and Anderson (2003) pointed out the increased attention then being directed toward trust in teams: “Particularly at the level of the work group or team, interest in studying trust has grown considerably, as organizations have moved towards flatter and more team-based structures” (p. 120). As Jones and George (1998) state, flattening structures within organizations is “only likely to enhance cooperation and, performance... if trust exists in an organization” (p. 531). Zanini (2007) stated “Trust allows a reduction of formal, hierarchical control and the expansion of the possibilities of producing results” (p. 1). When there is more reliance on cooperation, higher performance, and quality communication, there is more reliance on trusting relationships (Spector & Jones, 2004). Additionally, Burke et al. (2007) asserts “Trust has been shown to have influences on processes such as communication, cooperation and information sharing...and improved team performance” (p. 607). In a similar vein, some researchers have described trust as an *accelerant* while others favored the word *lubricant* when referring to the impact trust has on team dynamic (Bryk & Schneider, 2003; Dirks, 1999; Little & Horn, 2007). These studies indicate there is a strong relationship between trust and principles of flattened organizations including teamwork.

However, while the need for trust in schools and PLCs has been demonstrated in general (Cosner, 2009; K. Dirks & Ferrin, 2001; Evans, 1993; Moolenaar & Slegers, 2010; Tschannen-Moran, 2000; Tschannen-Moran & Hoy, 1998), there is a gap in the literature respecting the relationship between trust and functionality of collaborative teams within PLCs. While there are

studies that include trust as an important factor in collaborative PLC teams, the majority describe trust in vague ways or are limited in their scope of understanding. In their extensive research into PLCs, Bolam et al. (2005), for example, mention trust as a necessary part of PLCs but neither define trust nor the type of relationship (principal to team leader, team leader to teacher, teacher to teacher, or group trust) to which they are referring. Though empirical studies were reviewed connecting trust to general PLC functionality, even those studies went no further than to quote teachers who attributed PLC success in part to trust. The studies neglected to define trust leaving the reader open to multiple interpretations of trust (Bolam et al., 2005). Similarly, Hord (1997) referred to the significance of trust in her research on PLCs and collaborative teams but cited no empirical studies and defined trust only loosely as a general feeling of warm relationships. Even in studies about collaborative teams in the business realm, DuChantener (2009) followed the same pattern above referring to the value of trust but without giving any reference to trust research or specifying any type of definition of trust.

That said, some research has been found more closely related to the relationship between trust and team functionality. Lee, Zhonghua, and Hongbiao (2011), for example, specifically emphasized the importance of trust in the collaborative efforts of PLCs but measures both collaboration and trust at the school level rather than at the team level. Similarly, Cranston (2011) referred to the impact of trust on collaboration and professional growth but, again, only considering the school rather than the collaborative team specifically. Costa (2003), while focusing on the relationship between the task performance of a team and trust, studied work teams in social care institutions in the Netherlands rather than within the education system. Additionally, Hallam, Dulaney, Hite, and Smith (2014) conducted a study looking at collaboration among teams relative to both team and school trust. While specific in its

assessment of both collaboration and trust, this was a qualitative study focusing specifically on a dysfunctional school to see what role trust played in its early establishment of collaborative teaming. From many studies examined with reference to PLCs and collaborative teams within those PLCs, the author primarily found general references to trust, and few empirical studies that specifically looked at trust as a factor in the functionality of collaborative PLC teams.

From the many studies examined regarding trust and PLCs, most references to trust were only general, and no empirical research was found that specifically looked at trust as a factor in the functionality of collaborative PLC teams. Though trust has been recognized as a potentially valuable element in relation to collaborative team functionality, it has only been given casual consideration. If trust is only dealt with generally in regards to PLC teams, it will not likely receive more than general attention in their development.



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## APPENDIX B: METHODS

This study seeks to assess the functionality of collaborative PLC teams as well as the trust that exists in those teams as perceived by members of these teams. The construct of collaborative PLC team functionality will be defined based on the five factors explained in the literature review above, namely, common vision, critical/reflective discussion, innovation, risk taking, and de-privatization. The second construct, team trust, will be defined based on four factors: propensity to trust, perceived trustworthiness, collaborative behaviors, and monitoring behaviors. The definitions of these factors are also given in more detail above. Ultimately, this research aims to answer the question, what relationship exists between collaborative PLC team functionality and team trust?

### **Measurement**

The study survey consists of three parts each aimed to assess different factors that will help answer the research question. The first part of the survey is a demographics assessment (see Appendix C). The purpose of this portion of the survey is to collect data that can be used to control for possible influences on collaborative PLC team functionality other than trust. These questions were self-generated then reviewed and edited. This portion of the survey includes questions about the teacher as well as their team such as how long the teacher has been working in collaborative PLC teams, what subject(s) the he or she teaches, how often the team meets, how many members are on the team, and how many team members regularly attend meetings. The response options to these questions include Likert Scale, multiple choice, and open answer. These data will strengthen the research findings by providing opportunity to explore the relationship between trust and functionality while controlling for additional factors that also may have a relationship with these constructs.

The second portion of the survey focuses on the collaborative PLC team functionality assessment (see Appendix C). In developing this assessment, a review of the PLC literature was conducted. The literature revealed five factors, as stated above, that were prevalently mentioned as indicators of success or the lack of success in school and district PLCs. These five factors became the basis for the final 25-question survey. Initially, however, this portion of the survey consisted of 18 questions. These questions were mostly self-generated, though other assessment tools were consulted for insights in the development of the questions (FACT tool, 2014; Stewart, 2009; Olivier, 2009). One survey expert and one content expert carefully evaluated the original 18 questions in the effort to align them with the content and cognitive survey standards described in Groves, Fowler, Couper, Lepkowski, Singer, Tourangeau (2004). The *cognitive standard* that focuses on a respondent's ability to understand the questions was further evaluated through multiple cognitive interviews that were performed with teachers (Groves et al., 2004, p. 251). In the end, over 40 questions were considered and evaluated in the process of creating the final 25 questions for this portion of the survey. Each question will be assessed using a 7-point Likert scale of agreement. Each of the five factors of PLC team functionality is represented by 4 to 6 questions.

To explore the validity of the construct structure of the PLC functionality portion of the survey, a pilot study was conducted in two elementary schools and one middle-school all located in suburban areas of Utah County. One elementary school consisted of 33 teachers and the other was comprised of 36 teachers. The middle school had 51 teachers. The opportunity to take the survey was extended to roughly 120 teachers, 84 of which responded. Surveys were completed using an online survey website called Qualtrics, which assured respondents complete anonymity. The responses to these questions were analyzed using exploratory factor analysis to determine

whether or not the questions designed to assess the same aspect of functionality were answered similarly, thus certifying the construct structure of the survey.

The exploratory factor analysis indicated that in the pilot sample, there was really only one dimension of functionality being measured since there was one dominant factor on which all items loaded. Without additional data sets of PLC functionality as measured by this survey, it isn't possible to determine whether or not the unidimensionality found in these results is idiosyncratic of the pilot data or represent the actual dimensionality of the construct as measured by this survey. Therefore, the factor structure of the 25 functionality items will be explored more thoroughly in the study data using both exploratory and confirmatory factor analyses.

The third portion of the survey measures team trust. These items were created and validated by authors Costa and Anderson [(2010), Appendix C]. Their study analyzed validity of their instrument in five ways; exploratory factor analysis, internal homogeneity, confirmatory factor analysis, consensual and discriminant power, and construct validity (Costa & Anderson, 2010). Costa and Anderson (2010) write, "All of these psychometric analyses suggest that the final 21-item four-factor measure is a reliable and valid multifaceted measure of trust at the team levels of analysis" (p. 147). They analyzed their data collectively as teams as well as teacher by teacher without aggregating data with other members of the same team. Both approaches affirmed the validity of the survey. This portion of the survey is structured based on four factors relating to team trust. The first three factors, propensity to trust, perceived trustworthiness, and cooperative behaviors are assessed with 6 questions each. The last factor, monitoring behaviors, is assessed with 3 questions. Like the previous portion of the survey, each question is assessed using a 7-point Likert scale of agreement. The factor structure of the team trust survey will be confirmed in the data collected in this study through confirmatory factor analysis.

## Representation and Sampling

The target population for the present study is teachers participating in collaborative PLC teams. The sampling frame is teachers participating in collaborative PLC teams in a suburban/rural school district in the rocky mountain region. This district was established in the mid-1800s and currently consists of six secondary schools, nine elementary schools, and two pre-schools. There are approximately 8900 students and 430 teachers. The student ethnic population is comprised of 86% Caucasian, 8% Hispanic, 3% American Indian, and multiple other ethnic minority groups which comprise the remaining 3%. In 2013 approximately 50% of students received free or reduced lunches given district wide, which is about 5% below the national average (<http://www.fns.usda.gov/pd/slsummar.htm>).

This district was chosen for multiple reasons. First, they have a solid foundation of 10 years of PLC implementation among their elementary schools. The elementary schools have been given one hour per week to meet as part of the work day. The secondary schools have been encouraged to meet regularly with teams for seven years; however, only four of the six secondary schools have done so, and only one of the four have time appropriated during the work day to meet with their teams. Approval for scheduled work time to meet in collaborative groups for the remaining three secondary schools has been proposed for the 2014-2015 school year. Another reason for doing research in this district is that the superintendent is committed to the vision behind collaborative PLC teams and has offered support for and interest in the outcome of this research.

All teachers in the district involved in collaborative teams will be invited to participate in the study. An email will be sent out by the district superintendent to the teachers. This email will consist of a cover letter from the superintendent explaining the purpose of the research and

encouraging them to participate by completing the survey. The email will also explain that all responses will be anonymous, and it will contain a link to an online survey that will be administered through Qualtrics. To increase the response rate, two follow-up emails will be sent out: the first will be sent one week after the initial email, and the second four days later. It is intended that data collection will take place within a two-week period.

### **Analysis Plan**

In developing this study, one of the questions that arose was whether the unit of analysis was teams or individuals. After careful consideration, it was determined that this study was not focusing on agreement between team members respecting the level of trust and collaborative PLC team functionality, rather it was focusing on individual team members' perceptions about team trust and team functionality. Consensus of team members with regard to the team trust or PLC functionality is not part of the argument presented in this study; therefore, the unit of analysis in this study will be the individual team member.

Analyses of the data will proceed as follows. First, the dimensionality of both the trust and functionality constructs will be determined through exploratory and confirmatory factor analyses. The results from these factor analyses will guide all subsequent analyses in the study. For example, if the confirmatory factor analyses of the PLC team functionality items indicate that there are five distinct dimensions of functionality, then all five dimensions will be included in subsequent analyses; however, if only three distinct dimensions are supported by the data, then these three dimensions will be included in subsequent analyses. This same process will be followed using the finding from the confirmatory factor analyses of the team trust items.

The second wave of analyses will consist of creating appropriate descriptive and summary statistics and graphs of the constructs in order to answer the first two research questions that ask

about the levels of trust and functionality in PLC teams. After these two constructs have been thoroughly explored and described, the final wave of analyses will consist of using multiple regression models to explore and examine the relationship between the two constructs. In all of these regression models, team functionality will be considered the outcome or 'dependent' variable with team trust being the primary explanatory variable. Several regression models will be constructed depending on the dimensionality of these two constructs. For example, if all five dimensions of team functionality and all four dimensions of team trust are confirmed, then a minimum of 20 different regression models will be considered to explore the relationship between these constructs. This method of analysis will help answer the third and main research question of this study that asks what is the nature of the relationship between team trust and team functionality.

Recognizing that team trust is only one of many possible variables that are associated with PLC team functionality, the relationship of several control variables will also be explored in the regression models. These control variables are measured in the demographics portion of the survey mentioned above (Appendix A) and include questions such as the amount of time the teacher has been working in collaborative PLC teams and how often the team meets. Inclusion of these control variables in the regression models will add a more complete and rich understanding of the relationship that exists between team trust and team functionality. Limitations of this study include the possible coverage error resulting from the limited reach of the sampling frame relative to the target population. Also, the secondary schools that do not have time appropriated for PLC team meetings will likely not have the same structure and outcome as those that are more formally organized. Because of this, these schools will be assessed for similarities and differences compared to the other schools in the study.

## APPENDIX C: MEASUREMENT INSTRUMENTS

## Demographic/informational questions

This survey is intended to examine collaborative PLC teams. A team will be defined as a formally organized (either on a district or school level) group of two or more teachers who, in the current school year, meet together on a regular basis to discuss teaching practice and/or student learning. If you belong to more than one team, please select the one that best fits this description as the basis for your responses to this survey.

There are two parts to the survey. This first demographics section should only take a few minutes to complete. The second section deals with collaborative PLC team functionality and should take between 5 and 10 minutes to complete.

1. What subject(s) do you teach?

\_\_\_\_\_

2. How many years have you been teaching? \_\_\_\_\_
3. How many members are on your team? \_\_\_\_\_
4. How many years of experience do you have working in formal, teacher teams?



5. Select the answer that best describes your current team:

A. all members are from the same school B. members are from different schools

6. Select the answer that best describes your current team:

A. Elementary school teachers B. Secondary school teachers

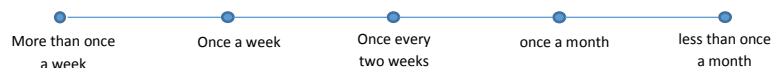
7. For how many years has the majority of your current team been meeting together?



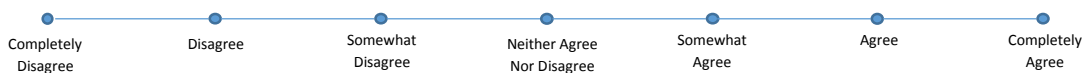
8. How many teachers regularly attend team meetings?



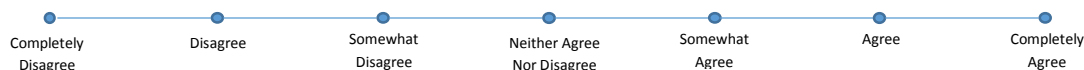
9. How often does your team meet?



10. My principal is supportive and encouraging of our collaborative PLC team efforts.



11. There is at least one member of our team who has a strong positive influence on our collaboration efforts.



### Collaborative PLC Team Functionality Survey

Please answer questions based on experiences from *the current academic year*.



#### Common Vision

1. Team members share the view that all students have the ability to increase in learning.
2. Team members feel accountable for the learning of their students
3. Team members share the view that student learning is the ultimate objective of team efforts.
4. Team members believe that collaborative team efforts enhance teacher performance.
5. Team members are confident they can learn from one another.
6. Team members see collaboration as an improvement to working alone.

#### Critical/Reflective Discussion

7. Team meetings promote open discussion between teachers.
8. Team meetings cause group members to examine their teaching practices.
9. Team meetings cause group members to examine their assumptions about student learning.
10. The culture in team meetings makes it easy for teachers to express differing opinions.

#### Change in Thinking

11. Team meetings often shed new light on previous understandings.
12. Team meetings foster creative and original thinking.
13. Team meetings lead to new instructional ideas.
14. Discussion topics often continue to be discussed outside of team meetings.
15. Ideas developed in team meetings generate excitement among team members.

#### Experimentation with Practice

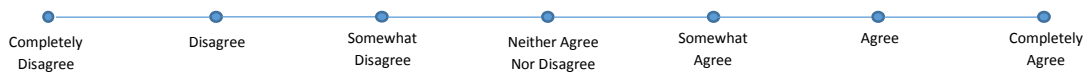
16. Team meetings motivate me to experiment with new practices in the classroom.
17. I draw upon things learned in team meetings to solve problems in my classroom.
18. I am more confident to try new approaches to teaching as a result of team meetings.
19. Team meetings have led me to rely less on lessons from previous years.



## De-privatization

20. Team members help each other improve their practice outside of team meetings.
21. Team members observe one another teaching.
22. Team members are open to receiving feedback about their practice from one another.
23. Team members discuss the results of their improvement efforts with each other.
24. Team members are open with each other about their successes and failures.
25. Team members discuss their student assessment data with each other.

### Team Trust Survey



### Propensity to trust

1. Most people in this team do not hesitate to help a person in need.
2. In this team most people speak out for what they believe in.
3. In this team most people stand behind their convictions.
4. The typical person in this team is sincerely concerned about the problems of others.
5. Most people will act as “Good Samaritans” if given the opportunity.
6. People usually tell the truth, even when they know they will be better off by lying.

### Perceived trustworthiness

7. In this team people can rely on each other.
8. We have complete confidence in each other’s ability to perform tasks.
9. In this team people will keep their word.
10. There are some hidden agendas in this team. (r)
11. Some people in this team often try to get out of previous commitments. (r)
12. In this team people look for each other’s interests honestly.

### Cooperative behaviors

13. In this team we work in a climate of cooperation.
14. In this team we discuss and deal with issues or problems openly.
15. While taking a decision we take each other’s opinion into consideration.
16. Some people hold back relevant information in this team. (r)
17. In this team people minimize what they tell about themselves. (r)
18. Most people in this team are open to advice and help from others.

### Monitoring behaviors

19. In this team people watch each other very closely.
20. In this team people check whether others keep their promises.
21. In this team most people tend to keep each other’s work under surveillance.