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An examination of the relationship between professional learning community variables and teacher self-efficacy

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An Examination of the Relationship between Professional Learning Community Variables and Teacher Self-Efficacy

by

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Author's Declaration of Originality

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Abstract

High levels of teacher self-efficacy have repeatedly been identified as a key attribute of effective teachers. The problems addressed by this study stem from the lack of research regarding the potential relationships between teachers' self-efficacy and professional learning community (PLC) variables. Uncovering these relationships could potentially have many implications for University curriculum and the planning of professional growth opportunities for teachers.

This study explored the predictive capacity of the six pillars of professional learning community in relation to participating Ontario teachers' self-efficacy, measured through their Teacher Sense of Efficacy Scores (TSES). Correlation analyses and multiple regression analyses suggested that professional learning community variables related significantly with levels of teacher self-efficacy. Shared and Supportive Leadership and Supportive Conditions: Structures appeared to be two components of effective PLCs that correlated significantly with teacher self-efficacy.

These results prompted additional, more focused exploration of the specific characteristics and conditions that exist within school PLCs that are associated with elevated teacher self-efficacy. Correlation analysis results were further considered in order to identify areas that required further examination. ANOVAs were conducted to explore the relationship between various PLC characteristics and conditions and teacher self-efficacy. In addition, a factor analysis pointed to three key factors that link professional learning communities to teacher self-efficacy.

The findings of this study suggest that implementing a shared leadership approach and embedding facilitative structures that promote collaborative learning could increase teacher self-

efficacy. In addition, administrators might consider providing teachers with the necessary supports so that they are empowered to work autonomously. Remaining vigilant in clearly focusing learning community meetings on the professional learning of the participants and incorporating coaching practices along with other structures to enrich teacher dialogue are also explored.

Dedication

This dissertation is lovingly dedicated to my husband, Chad Heaton and our new son, Eli. Chad, you believed in me enough for the two of us. Your encouragement fueled this work. You are the most brilliant and amazing man I will ever know. Thank you for your love and support.

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- I can do all things through Christ who strengthens me - (Philippians 4:13)

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Chapter I - Introduction

Overview of the Study

A high sense of teacher efficacy has been repeatedly linked to indicators of overall teacher effectiveness (Chaco'n, 2005; Henson, 2001; Ross & Bruce, 2007; cf. Tschannen Moran, Woolfolk Hoy, & Hoy, 1998). In fact, Henson (2001) suggested that a strong sense of efficacy is "perhaps one of the best documented attributes of effective teachers" (p. 404). Unfortunately, many elementary school teachers reportedly possess low self-efficacy (Bandura, 1997; Palmer, 2011). The research suggests that teachers could benefit from supports to help build and shape their self-efficacy (Bruce & Ross, 2008).

It is well documented that self-efficacy can be enhanced through targeted professional development strategies (Bruce & Ross, 2008; Bolinger, 1988; Robardey, Allard, & Brown, 1994). For example, strategies such as professional workshops (Fritz, Miller-Heyl, Kreutzer & MacPhee, 1995) and teacher mentoring (Bruce & Ross, 2008; Edwards, Green, Lyons, Rogers & Swords, 1998) can help to enhance teacher self-efficacy. Professional development through peer coaching has also been found to be an effective means to increase teacher efficacy (Bruce & Ross, 2008; Kohler, Ezell, & Paluselli, 1999; Licklider, 1995). Peer coaching allows fellow teachers to observe one another teach, establish goals, investigate and design strategies to implement goals, observe partners during revised teaching, and provide feedback.

PLCs share many characteristics with peer coaching models of staff development. Bruce and Ross (2008) highlight some of these shared characteristics when describing a few key characteristics of peer coaching such as opportunities to collaborate with colleagues and hear the input of peers, facilitating shared values, reflective dialogue, and shared decision making. These similarities suggest that learning communities might also have the potential to influence teacher

efficacy. Mitchell and Sackney (2000) noted that a learning community is one in which teachers reflect and learn collaboratively so that they may respond to the "mysteries, perplexities and problems of teaching and learning" (p. 5). This collaborative model operates on the principle that the individual pieces of an organization are not understood in isolation, but rather in the context of their relationships with each other and with other systems (Mitchell & Sackney, 2001; Senge, 1990).

Through a multitude of field-based studies and observations, Mitchell and Sackney (2001), Hord and Sommers (2008) and Dufour, Dufour, Eaker and Karhanek (2004) have identified learning communities as an effective means of supporting authentic ongoing teacher development and professional learning in schools. Through educators' participation in learning communities, participants have opportunities to develop skills and understanding related to the profession. Mitchell and Sackney suggested that the learning community setting creates an environment in which educators can develop their capacities and help colleagues build their own capacities by both leading and following one another in their learning journey.

By examining how involvement in learning communities relates to elementary teachers' self-efficacy, insights might be gained into whether learning communities function as appropriate supports for teachers. With this information, it may be possible to isolate factors associated with Professional Learning Communities (PLCs) and develop PLC models for teachers. These findings may also appeal to school boards that are selecting teachers and providing professional development support to help educators to improve in the craft. In addition, these findings may appeal to faculty members to support them in preparing pre-service teachers particularly as they focus on developing self-efficacy in beginning teachers since they may be in the forming stages with respect to their teacher self-efficacy.

Statement of the Problem

The problems addressed by this study stem from the lack of research regarding the potential correlations between teachers' self-efficacy and professional learning community variables. Such knowledge would be useful to staff development providers involved in planning and directing pre-service programs, professional development staff, policy makers, and teachers. Stakeholders and participants could potentially reevaluate the investments made into professional learning community experiences and consider alternate methods of supporting professional learning for teachers.

Research Purpose

This quantitative study has two main purposes. The first purpose is to investigate various 'Professional Learning Community' variables that are related to teacher self-efficacy levels of participating teachers employed in school boards in southwestern Ontario. The second purpose is to further analyze these teachers' responses to attempt to identify which specific characteristics and conditions, when present in a PLC, are associated with varying levels of teacher self-efficacy.

Chapter II – Review of the Literature

Many theories have been proposed to explain the outcomes associated with various levels of teacher self-efficacy. While the literature review will highlight many of the documented positive outcomes of teacher self-efficacy, this study centers upon professional learning community variables that contribute to the varying levels of a teacher's self-efficacy. This literature review will first explore the development of the concept of self-efficacy, its origins and its foundational principles. Secondly, the literature review will examine some relevant findings regarding self-efficacy in various contexts such as in business and sport to provide the reader with a more global understanding of the benefits of self-efficacy. Thirdly, teacher self-efficacy is defined and some of the associated benefits of teacher self-efficacy are highlighted. The fourth section of the literature review provides a brief history outlining the work of researchers who have developed methods and instruments designed to measure teacher self-efficacy. Since it has been documented that targeted professional development can have a positive impact on teacher self-efficacy, traditional and more modern methods of supporting professional learning are explored in the fifth section. The sixth section introduces the concept of the learning community as a form of improving organizations and the work of employees through a collaborative learning model. In the seventh section, PLCs are described as they manifest themselves in schools and finally the last section highlights the characteristics of effective professional learning communities in the educational context.

Self-Efficacy

Development of self-efficacy. In Bandura's (1977, 1986, 1997) social learning theory, self-efficacy was posited as a system of self-regulation, a key piece in behavioural change and cognitive development. Originally, Bandura (1977) defined self-efficacy as "the conviction that

one can successfully execute the behavior required to produce a given attainment" (p. 3). The author proposed that an internal system allows humans to influence their own thoughts, feelings, motivations and actions. This system interprets, regulates, and evaluates behaviour and shapes self-beliefs as it collects information from the interplay between the system and the external sources. The ways which individuals interpret the outcomes of their actions influences their environments and their self-efficacy, which shapes future performance. Tschannen-Moran, Woolfolk Hoy, and Hoy (1998) expanded on Bandura's definition of self-efficacy by describing it as a:

> … cognitive process in which people construct beliefs about the capacity to perform at a given level of attainment. These beliefs influence how much effort people put forth, how long they will persist in the face of obstacles, how resilient they are in dealing with failures, and how much stress or depression they experience in coping with demanding situations. (p. 203)

Bandura (1977, 1997) explored self-efficacy as an instrument useful in predicting behaviour and goal-setting tendencies. Bandura also defined self-efficacy as "beliefs in one's capabilities to organize and execute the courses of action required to produce given attainments", and pointed to the strength of self-efficacy as a determinant of individual behaviour since, by nature, self-efficacy is self-referent and task-specific (Bandura, 1997, p. 6).

Bandura (1997) described individuals' self-efficacy as shaped through four significant information sources: 1) mastery experiences, 2) vicarious experiences, or witnessing others' experiences, 3) social persuasion and 4) physiological and affective states. Mastery experiences are recognized as the most influential factor that shapes self-efficacy. When individuals perceive specific experiences as being successful, their efficacy beliefs become more positive, molding

their expectation that their performance will be proficient in the future. Vicarious experiences are those in which a developing skill is modeled by another person. Bandura (1977) found that the effect on the observer is strongly related to the degree to which the observer identifies with the model. When the observer identifies closely with the model, the effect on efficacy is stronger. If the model is viewed by the observer as possessing similar skill level as the observer, the model's success or failure will influence the efficacy beliefs of the observer. In other words, if the model succeeds, the observer will believe herself to be more capable of success. Conversely, if the model fails, the observer will believe herself to be less capable of success. Social persuasion is not as influential as mastery experiences and vicarious experiences. These experiences represent messages communicated to an individual that this person retains and identifies as powerful. Social persuasion can range from descriptive feedback on an individual's performance from an employer or coworker, to a "pep talk," to overhearing peers or media discussing the impact teachers are able to have on students.

Physiological and affective states basically refer to an individual's reactions in various situations and their perceptions of these responses. If, for example, individuals sense a negative physical response when approaching a task, such as delivering a speech, this has the potential to influence their self-beliefs. If an individual has low self-efficacy, he is likely to attribute this response to his perceived inadequacy, and will likely perform poorly. Alternatively, if he has high self-efficacy, he is likely to believe that the reaction is unrelated to his ability to deliver his speech, and it will therefore not impact the performance. Bandura (1977) also posits that individuals with high self-efficacy tend to persist in their behaviours regardless of their effectiveness which may mean that the individual might be persisting in ineffective practices.

Bandura (1997) proposes that these four sources are powerful vehicles that function to shape and determine an individual's level of self-efficacy.

Self-efficacy across contexts. Self-efficacy is an important construct across many disciplines and influences a myriad of decisions a person makes and actions an individual takes. With respect to its influence on individuals in the business sector, Chen, Greene and Crick (1998) concluded that business founders have significantly higher self-efficacy, particularly in the areas of innovativeness and risk-taking than their counterparts who occupy executive positions in corporations. These same researchers also found that business students with self-efficacy higher than their peers had more serious intentions of setting up their own businesses. Chen, Green, and Crick identified high self-efficacy as a distinct characteristic of the entrepreneur. Bradley and Roberts (2004) echoed the finding that business founders have higher self-efficacy than their counterparts as well as higher levels of job satisfaction. Entrepreneurs feel ownership of their goals and their capabilities to achieve those goals and are willing to creatively solve problems and anticipate opportunities. In conclusion, high levels of self-efficacy contribute to positive outcomes in various domains of individuals' lives.

The implications of self-efficacy extend into the domain of sports and physical activity. For example, indoor and outdoor rock climbers with higher levels of self-efficacy engage in high and medium risks while climbing, challenge themselves with more difficult climbs than other climbers with similar backgrounds and they frequently increase the level of climbing difficulty (Llewellyn, Sanchez, Asghar & Jones, 2008). In a quantitative study, Downey (2002) determined that there is a significant relationship between football players' practice self-efficacy and their subsequent game performance. Downey determined that higher levels of self-efficacy paired with deliberate practice contributed significantly to skill acquisition and transfer.

Teacher self-efficacy. Teacher efficacy is a type of self-efficacy. Self-efficacy impacts behaviour by influencing goals, outcome expectations, affective states, perceptions of obstacles or threats and opportunities (Bandura, 1997). When individuals believe that they will be successful on a given task or assignment, it appears that they internalize ambitious goals, work harder to realize them, persist when faced with obstacles, and develop coping skills and strategies to regulate their emotions. It is anticipated that these actions should yield greater success in accomplishing the given task or assignment. Tschannen-Moran and Woolfolk Hoy (2001) defined teacher self-efficacy as "a teacher's judgment of his or her capabilities to bring about desired outcomes of student engagement and learning, even among those students who may be difficult or unmotivated" (p. 783). Tchannen-Moran and Woolfolk Hoy have extensively researched teacher efficacy and they have identified teacher efficacy as "a simple idea with significant implications" (p.783). For the purpose of this study, and consistent with definitions offered by Tchannen-Moran and Woolfolk Hoy, teacher self-efficacy will be defined as a teacher's beliefs in his or her capacities to foster desirable outcomes for students. In the context of education, teachers who are highly efficacious believe that they have the capabilities to motivate students and work with students to achieve learning goals (Tschannen-Moran, Woolfolk Hoy & Hoy, 1998; Tschannen-Moran & Woolfolk Hoy, 2001; Woolfolk Hoy, 2004). A positive level of teacher self-efficacy has consistently been identified as a strong predictor of successful teacher outcomes (Chaco'n, 2005).

Teacher efficacy constitutes a set of beliefs that positively impact teacher performance (Mascall, 2003; Muijs & Reynolds, 2001; Ross, Bruce & Hoagboam-Gray, 2006; Ross & Regan, 1993), teacher motivation (Guskey, 1984; Midgley, Feldlaufer, & Eccles, 1989), and contributes to increased teacher retention (Ross, 1998). Highly efficacious teachers use effective classroom

management strategies to build self-regulation in students, instructional strategies and routines to meet the individual learning needs of all students, and through their classroom practice, supportively influence student perceptions of their own abilities (Ross, 1998; Woolfolk, Rosoff, and Hoy, 1990). Educators with positive teacher-efficacy are also prone to experiment with and confidently adopt new and innovative teaching practices to meet student needs (Allinder, 1994; Midgely, Feldlaufer & Eccles, 1989; Ross, 1992; Stein & Wang, 1988). Teachers with high teacher self-efficacy invest more into their planning (Allinder, 1994) and they believe that their work is strongly related to student achievement levels (Ashton & Webb, 1986).

Educators who possess positive teacher self-efficacy are more likely to perceive changes that they implement in their instructional approach will impact struggling students and as a result, they will persist longer than less efficacious colleagues when teaching these students (Gibson & Dembo, 1984; Soodak & Podell, 1994). These teachers are consequently less likely to make special education referrals for struggling students believing instead that they are capable of learning in the regular classroom with the appropriate supports from the teacher (Soodak & Podell, 1993). A teacher's self-efficacy has also been found to impact students' own sense of efficacy (Anderson, Greene, & Loewen, 1988), as well as students' self-esteem and their motivation levels (Midgley et al., 1989). While high teacher self-efficacy is important for all teachers, Woolfolk Hoy (2000) asserted that it is particularly crucial for beginning teachers. Woolfolk Hoy (2000) noted that in many cases, beginning teachers soon become overwhelmed by the multifaceted tasks of the profession, and their positive beliefs about their capabilities are quickly extinguished by the hectic realities present in schools. In fact, Woolfolk Hoy (2000) asserted that "self-efficacy may be most malleable early in learning, thus the first years of teaching could be critical to the long-term development of teacher self-efficacy" (p. 2).

Moreover, once established, self-efficacy appears to remain relatively unchanged (Woolfolk Hoy, 2000).

In an interview with Shaughnessy (as cited in Shaughnessy, 2004), Woolfolk Hoy concurred with the importance of self-efficacy, asserting that, "self-efficacy is the most useful self-schema for education because it relates to choices and actions that affect learning such as goal-setting, persistence, resilience, effort, and strategy" (p. 172). In addition, in this same interview, Woolfolk Hoy maintained that "self-efficacy provides a connecting thread through the work on attributions, self-regulation, and goal theory," which are "all important tools for understanding motivation and learning" (Shaughnessy, 2004, p. 175). While the positive impact of self-efficacy on teacher performance is well documented, research on teacher self-efficacy is relatively sparse in recent years.

Measuring teacher self-efficacy. Bandura (1997) advised that in order to properly measure teacher efficacy, it is mandatory to involve many different types of tasks or challenges as well as a broad range of response options. Consistent with this advice regarding 'broad range of response options', Woolfolk Hoy (2000) pointed out that "in order to be useful and generalizable, measures of teacher efficacy need to tap teachers' assessments of their competence across the wide range of activities and tasks they are asked to perform" (p. 9).

In the 1970s the Research and Development (RAND) organization conducted a research project from which the theoretical framework for teacher efficacy emerged. Student performance and motivation were theorized to act as main reinforcements for educators' actions and "teachers with a high level of efficacy believed that they could control, or at least strongly influence, student achievement and motivation" (Tschannen-Moran et al., 1998, p. 202). While attempts have been made to link teacher self-efficacy directly to student achievement, the

findings have been inconclusive since teacher self-efficacy is a self-referent construct that does not necessarily affect the behaviours of others. The RAND research was connected to self-efficacy, however the model that was used by this organization was primarily based on Rotter's locus of control theory (Rotter, 1966; Tschannen-Moran, et al., 1998; Tschannen-Moran & Woolfolk Hoy, 2001). In this work, RAND researchers examined whether teachers perceived that they have the ability to reach struggling students or whether these students' outcomes were dependent on external forces. Bandura's self-efficacy theory gained recognition in educational psychology and eventually became the prominent model in this field (Tschannen-Moran, 2008).

Gibson and Dembo (1984) were the first to introduce an instrument to measure Bandura's (1977, 1997) concept of self-efficacy as it relates to the teaching profession. Gibson and Dembo hypothesized that teachers with elevated teacher efficacy scores would hold students to high standards, implement strategies to promote student achievement, and invest more effort to help struggling or disengaged students. They claimed that two items targeted by RAND organization researchers, personal teaching efficacy (PTE) and general teaching efficacy (GTE), (Armor, Conroy-Oseguera, Coz, King McDonnell, Pascal, Pauley & Zellman 1976; Berman, McLaughlin, Bass, Pauly, & Zellman, 1977) corresponded to Bandura's self-efficacy theory and related work on outcome expectancy dimensions of social cognitive theory. GTE refers to the importance that educators attribute to factors external to the school in influencing student outcomes while PTE represents the practices and conditions that are at play within the school. In contrast to Rotter's (1966) Locus of Control Theory, Bandura theorized that an individual's motivation is shaped by his judgment of his capability to carry out a particular course of action and the individual's personal beliefs about the likely consequences of those actions.

Gibson and Dembo (1984), in an effort to delve deeper into Bandura's (1977) theory and improve on the validity and the reliability of the RAND researchers' work, developed from this two-item scale, a 30-item scale entitled Teacher Efficacy Scale (TES). The result of Gibson and Dembo's (1984) study was a 16-item measurement instrument called the Teaching Efficacy Scale (TES). This tool has a likert-type format and is characterized by its two essentially uncorrelated subscales. Woolfolk Hoy (2000) explained that further studies identified that the second dimension of efficacy truly did not represent outcome expectancy, as defined by Bandura (1986); rather it seemed to reflect a broad belief about the power of teaching in impacting struggling students. The term General Teacher Efficacy (GTE) was therefore assigned to this dimension. Teachers' sense of efficacy, however, appears to be more accurately measured through the second subscale, which has been labeled Personal Teacher Efficacy (PTE). While individuals might believe that teaching has the potential to impact students' learning in powerful ways, they may believe that they possess or lack the capabilities to affect their own students' learning. Despite the popularity of the TES, the instrument has been criticized for the ambiguity regarding the two sub-scales (Tschannen-Moran et al., 1998; Tschannen-Moran & Woolfolk Hoy, 2001). Tschannen-Moran and Woolfolk Hoy further developed the existing instruments and created the *Ohio State Teacher Efficacy Scale* (OSTES). Three independent studies were conducted by Tschannen-Moran and Woolfolk Hoy to test and refine what is now termed the Teacher Sense of Efficacy Scale (TSES). In Woolfolk Hoy's (n.d.) instrument TSES, the author refers simply to 'efficacy' or 'sense of efficacy', however, throughout this research the terms self-efficacy or teacher-efficacy will predominate. The TSES is the tool used in this study to measure teacher self-efficacy.

Professional Learning Community

From traditional professional development to professional learning. Over the course of the last twenty-five years, there has been a significant philosophical shift in the ways in which teachers are engaged in professional development (Hord & Sommers, 2008). Traditionally, teacher professional development was delivered in lecture-style environments, through courses or independent professional reading. These approaches aim to support teachers as they acquire the desired knowledge and skills. These traditional methods, however, have proven to be less effective because the learning is not embedded within the school context and the learning is rarely transferred into the actual classroom environment (Bush, 1984; Hord, 1997; Joyce & Showers, 1982). The tenets that define genuine professional learning grow out of the following limitations of traditional staff development: 1) teachers not being honoured in the ways in which they construct understanding, 2) professional development opportunities being designed outside of the school context, 3) educators' concerns and issues being ignored and 4) inappropriate staff development approaches used to influence change in schools. Professional learning, by contrast, engages teachers in authentic learning about their work, often through collaboration.

Ross and Bruce (2007) found that specific professional development pursuits correlated positively to increases in teacher efficacy. Ross and Bruce also found that there were improvements in both student and teacher outcomes when the four aforementioned tenets of professional learning were honoured. In Henson's (2001) year-long study conducted in an alternative high school in the southwestern United States, qualitative and quantitative measures were used to explore the effects of teachers' participation in a collaborative research project on their teacher self-efficacy. Henson's findings indicated growth in teacher self-efficacy between pre-tests and post-tests. In addition, the author concluded that a positive relationship between

collaboration and teacher self-efficacy appeared consistently throughout the data (Henson, 2001). In their field study, Bolinger (1988) and Robardey, Allard, and Brown (1994) concluded that raised levels of efficacy were sufficient proof that professional development programs affect change in teachers' perceived efficacy. Bolinger and Robardey, Allard and Brown claimed that professional learning has the potential to impact self-efficacy and has the greatest impact when it is embedded within an authentic context. As the teaching and learning arena grows more complex and continues to evolve at an increasing pace, educators require professional development that extends beyond simply acquiring new knowledge and skills (Darling Hammond & McLaughlin, 1995). Lieberman (1995) advocated that in order for teachers to engage in meaningful learning that impacts classroom practices and students, they require a wide array of learning opportunities that engage educators in "experiencing, creating and solving real problems using their own experiences and working together" (p. 1). Lieberman (2003) emphasized that to properly support teachers, they must be engaged in ongoing professional learning that honours their expertise and is embedded in their everyday work as opposed to traditional workshops or isolated training sessions.

Origins of learning communities. More than two decades ago, Senge (1990) suggested a revolutionary alternative to traditional organizational structures with the concepts introduced in his book *The Fifth Discipline: The Art and Practice of the Learning Organization*. In this work, Senge challenged companies to place context-rich, meaningful learning at the root of each endeavor to promote group problem-solving thereby creating more successful organizations. Uniting the individual components of the organization enabled what Senge termed 'Systems Thinking', which allowed all members to collaboratively investigate issues and solve problems that impact the organization's overall effectiveness. Companies and groups that have embraced

Senge's model believe that it is through this commitment to collegial problem-solving and fostering creative thinking that organizations will successfully pursue continuous improvement (Garvin, 1994). This collaborative model operated on the principle that the individual pieces of an organization are not understood in isolation, but rather in context of their relationships with each other and with other systems (Senge, 1990). Organizations that function in this way demonstrated an increased ability to manage ongoing change and to foster a highly committed workforce (Senge, 1990). Groups and businesses pursued organizational improvement by adopting Senge's concepts and "reshaped" themselves as 'professional learning communities' (Senge, 1990; 2000). Over the past twenty-five years, school systems have been exploring ways in which schools might also transform themselves via PLCs.

Professional learning communities in schools. Most of the research on teachers' staff development that has been published over the course of the last two decades is replete with the term "community." Phrases such as professional learning communities, teacher communities, discourse communities, communities in practice and communities of practice have appeared across published research works that are looking for the best methods to support school improvement initiatives (Hord & Sommers, 2008).

While one single commonly agreed upon definition of PLC does not exist, Dufour and Eaker (1998) proposed that in an educational context, a PLC is essentially "educators [creating] an environment that fosters mutual cooperation, emotional support, and personal growth as they work together to achieve what they cannot accomplish alone" (p. xii). Wenger, McDermott and Snyder (2002) also described these communities as "groups of people, who share a concern, a set of problems, or a passion about a topic, and who deepen their knowledge and expertise in this area by interacting on an ongoing basis" (p. 14). To build on these ideas, Hord (2004), who

spent over 25 years studying the change process in American schools and colleges, asserted that PLCs allow for schools to adopt a structure “for continuous improvement by building staff capacity for learning and change” (p. 14). Similarly, Hipp and Huffman (2010) suggested these learning communities comprise "professional educators working collectively and purposefully to create and sustain a culture of learning for all students and adults." (p. 12). Mitchell and Sackney (2000), who conducted multiple studies and observed PLCs in numerous Canadian schools, posited that a learning community is a community in which teachers reflect and learn collaboratively so that they may respond to the “mysteries, problems, and perplexities of teaching and learning” (p. 5).

The research exploring the impact of learning communities on school culture suggests that practices that foster sharing, reflecting and taking risks have resulted in successful team collaboration, when the appropriate supports are in place (Toole & Louis, 2002). One main reason learning communities are created is to pursue school improvement by fostering and promoting a collaborative culture or team approach to better teaching and learning within a school. When teachers are provided with opportunities to review teaching practices together and provide constructive professional feedback to one another, they were more apt to collaborate regularly (Lieberman, 2003; Whitford & Fisher, 2003; Wood, 2003; Yendol-Silva, 2003). When examining one elementary school, Berry, Johnson, and Montgomery (2005) found that teachers felt supported through a learning community structure that provided opportunities for them to reflect on their practice through collaborative designs such as sharing their lessons and student work through systematic means.

Other studies focused on the impact of learning communities on teacher collaboration and school culture. Supovitz (2002) compared a team-based teacher community to a team that did

not function in this way. He used 33 items that were categorized into five indicators of school culture. Supovitz found "strong and persistent evidence" indicating that teachers who were collaborating in teams, "felt more involved in a variety of school decisions" (p. 1604). Phillips (2003) examined the learning that arose from funded opportunities provided through reform initiatives. He observed teachers collaboratively observing peers while teaching, videotaping and debriefing lessons, engaging in a great deal of professional dialogue and participating in book studies. Across these studies, educators claimed to experience a more collaborative school culture resulting from the creation of structures that had potential to build teacher teams.

Transforming or improving teaching practices is a key goal of many school-based learning communities. Vescio, Ross, and Adams (2008) reviewed 11 studies to examine the effectiveness of PLCs. Their findings suggested "few studies move beyond self-reports of positive impact" (p. 80), however there was evidence of change in instructional practices as a result of school-based learning communities. In a study by Hollins, McIntyre, DeBose, Hollins, and Towner (2004) researchers found that educators who collaborated to enhance the literacy skills of African American students, became so motivated that they sought external research on practices that respect cultural diversity. Berry et al., (2005) observed that teachers in a learning community sought out external support and novel ideas and also attempted to find new strategies and practices to respond to teacher-identified teaching and learning dilemmas.

Fullan (2006) cautioned that it is common for PLCs to be operating on a superficial level and reminded school staff that without the necessary investment from staff, the community's efforts are unlikely to impact student learning. Six case studies (Berry et al., 2005; Hollins et al., 2004; Strahan, 2003; Supovitz, 2003; Supovitz & Christman, 2003) examined the relationship between educators collaborating in learning communities and improvements in student learning.

In all of these case studies, there was evidence of changes in instructional practices resulting in improvement in student learning as a result of the work of the learning communities established through government funding within the schools. In the study conducted by Berry, Johnson, and Montgomery (2005), an elementary school's progress was measured over the course of four years. During the four-year period, student performance improved from 50% of students performing at grade level to 80% of students achieving at grade level. Phillips (2003) noted the same kind of drastic increase in student achievement over a three-year period in a study of a middle school learning community focused on supporting underachieving students. In fact, this school's scores soared from 50% of students achieving at grade level in the 1999-2000 academic year to a 90% success rate. Supovitz and Christman concluded in both of their study sites, "there was evidence to suggest that those communities that did engage in structured, sustained, and supported instructional discussions and that investigated the relationships between instructional practices and student work produce significant gains in student learning" (p. 5). In schools where teachers adopted a focus but did not engage in collaborative work, similar improvements were not apparent (Toole & Louis, 2002). Toole and Louis (2002) concluded that "professional learning communities can generally lead to improved school functioning in most settings" (p. 274). Mitchell and Sackney (2009) suggested that learning communities can prove to be effective when they are authentic and focused on teaching and learning. However, Mitchell and Sackney pointed out that in many cases, PLCs are inauthentic or poorly focused and as a result, those communities have "remarkably little impact on the ways in which teachers teach, students learn, or leaders lead" (p. 12). After many observations across numerous settings, Mitchell and Sackney concluded that the deep, rich authentic learning promised by learning community discourse was evident only in a small number of schools.

While a main characteristic of the learning community is that it fosters shared leadership, the purpose and perception of PLCs varies across contexts. PLCs can be created or developed for a myriad of reasons. Some examples are that a teacher might initiate team meetings to brainstorm new strategies to reach a struggling student, or an administrator might ask teachers to collaborate in an inquiry project to explore school-based bullying, or a board might want school-based teams to explore methods of implementing three-part mathematics lessons. In some scenarios, the agenda of the learning community is 'hi-jacked' by administration or board officials. In these cases, political priorities such as standardized classrooms and lessons become the focus of discussion. When the learning community agenda is designed to respond to administrator needs as opposed to the authentic learning needs of teachers, the PLC can function to disempower and undermine teachers' professionalism, leaving educators feeling demoralized. In learning communities that are effectively facilitated, authentic teacher concerns or "compelling disturbances" (Mitchell & Sackney, 2000) that teachers actually encounter in their daily practice drive the work of these collaborative teams. When these practical questions or wonderings guide the work of the PLC, educators are provided the necessary freedom to direct their own learning and can anchor their learning in their real-life experiences, hear their concerns validated by peers, explore possible solutions, actually test hypotheses and work towards improved practices in very concrete ways. This is one of the many factors that shape teachers' learning community experiences. It is evident that the term PLC can broadly describe a myriad of configurations and that many factors can contribute to shape the learning community environment and experiences for participants. In other words, while all of the scenarios described above may be labeled or viewed as the work of the PLC, it is evident that various

factors contribute in each situation that shape different PLC experiences for participants across contexts.

Based on an amalgam of the various definitions available in the literature, a working definition of the term 'learning communities' has been developed by the researcher for this work. For the purpose of this study, the following definition will be used to define learning communities: a group of teachers who come together (through face-to-face interactions, phone conversations, interactions facilitated through digital media, or a combination of any of these) to learn collaboratively about issues as they relate to their daily work. This collaborative model enables teachers to improve in their work as professionals and ultimately to enhance student outcomes.

Characteristics of PLCs. While PLCs are complex and evolve in different ways across contexts, they seem to build upon two major assumptions (Buysse, Sparkman & Wesley, 2003; Hord, 2009). The first assumption is that knowledge is situated in the daily lived experiences of teachers and best understood through critical reflection with others who share the same experience (Buysse et al., 2003). The second assumption is that professional knowledge and skill will develop by actively engaging teachers in learning communities, and as a result, will improve student learning (Hord, 2009). Hord (1997) identified the following five components as foundational in fostering effective learning communities (Hord later identified six components due to the expansion of the Supportive Conditions component into two categories Supportive Conditions: Relationships and Supportive Conditions: Structures):

- Shared and Supportive Leadership
- Shared Values and Vision
- Collective Learning and the Application of that Learning

- Shared Personal Practice
- Supportive Conditions

Shared and supportive leadership. Shared and supportive leadership enables the teachers and the principal to stake a collective ownership of the PLC. Hord (1997) suggested that when PLCs are authentically shared it fosters a collective approach to school improvement. In addition, sharing the ownership cultivates leadership skills in the members of the PLC as they engage by voicing their beliefs and sharing their classroom experiences in a flexible, dynamic environment that fosters risk-taking (Blase, Blase, Anderson, & Dungan, 1995). Hord pointed out that the principal remains key in fostering the shared leadership structure. A school that embodies this trait consists of teams of teachers learning together and actively engaging in decisions about the operation of the school (Hord, 1997). Hord's work also emphasized the need for the principal to "let go of the power and his/her own sense of omnipotence and thereby shar[e] the leadership of the school" (p. 17). This approach calls for a restructuring of schools into decentralized organizations in which teachers' input helps to direct the daily operations of the school, and the principal joins educators as they collectively learn and dialogue in the PLC to enhance their school by improving student learning (Blase et al., 1995; Hord, 1997; Senge, 1990). The literature described principals who seek out and strategically highlight teacher expertise in key areas to improve teaching and learning in schools (Marks & Printy, 2003). In addition, Marks and Printy (2003) explained that the principal is responsible for transforming school culture and for collaborating with teachers to support them as they refine their instructional practices as members of the PLC.

Shared vision and values. Across the literature pertaining to PLCs, much attention has been given to the idea that a common direction and set of norms facilitate the work of effective

PLC teams. The common mission, vision, values, and goals established by the group should guide and direct the work of PLCs. Theorists such as Dufour and Eaker (1998), Elmore (2000), and Hord (1997; 2004), argued that time spent in PLCs allow teachers to evaluate the ways in which their own instructional purposes are aligned with system goals. They further posited that teachers who collaborate in building the vision for the school feel more connected and are more willing to work in teams to accomplish collective goals together. Decisions about teaching and learning are guided by the shared values and vision and they "support the norms of behaviour" (Morrissey, 2000). Senge (2000) suggested that "the discipline of shared vision is the set of tools and techniques for bringing disparate aspirations into alignment around the things people have in common…" (p. 72). The shared vision then becomes the foundational, normative piece upon which the team can build and grow together, over time. For this reason, Senge warned that a vision created by a leader will not be sustained. It is critical that the items that are explored are driven by teachers and arise from the mysteries that present themselves in their work as educators. Crafting a collective vision facilitates the forward momentum of the team and drives the efforts of the PLC.

Collective learning and the application of that learning. This category encompasses teachers' collaboration with a focus on learning to improve their own practices. Borko (2004) pointed out that meaningful changes connected to student outcomes can sprout and be nurtured as a result of professionals' learning through conversations in PLCs. Ongoing reflective dialogue between colleagues that help professionals connect research and context-rich experiences can engage teachers by developing their pedagogical skills (Sparks, 2005). In environments that are reflective of Collective Learning and Its Application, colleagues share information and members seek additional knowledge, strategies, and skills to improve their

practices (Hipp & Huffman, 2003). In addition, the members of this community value collaboration as a means of planning and solving problems (Hipp & Huffman, 2003).

Shared personal practice. Elmore (2000) asserts that "schools and school systems that are improving directly and explicitly confront the issue of isolation" (p. 32) by promoting collaborative practices and embedding opportunities for professionals to discuss their work. Teachers who observe colleagues to improve their own instruction, by gaining additional strategies and insights and providing feedback so that the learning is reciprocal, are sharing their personal practices and deprivatizing their practices (Hipp & Huffman, 2003). Darling-Hammond (1998) reported that educators who collaboratively examine teaching practices are more effective at fostering higher-order thinking skills and supporting a variety of learners in the classroom. It is through Shared Personal Practice that teachers are most clearly able to understand and implement changes that can be made in their classrooms pertaining to instructional practices.

Supportive conditions (both structures and relationships). Structures that support the shared vision and values of the school and the PLC are critical to the quality of classroom teaching. Eastwood and Louis (1992) claimed that the supportive structures are "the single most important factor" to enhancing schools and that they must be "the first order of business" for those committed to school improvement (p. 215). Hord (1997) distinguished further between two types of supportive conditions: relationships and structures. Allocation of time, dimensions of the school, proximity of teachers, digital or face-to-face interactions, communication systems, and staff development process are some examples of structural components. Supportive relationships comprise elements such as respect, trust, norms of continuous learning and improvement, risk taking, and positive teacher attitudes (Hipp & Huffman, 2003). By creating

supportive conditions, it is possible to foster the growth and sustainability of a learning community.

Stoll, Bolam, McMahon, Wallace, and Thomas (2006) confirmed the elements present on Hord's list and suggest three significant additions: inclusive school-wide membership, mutual trust, and affiliations that seek learning from external sources. Little (1993) and McLaughlin and Talbert (2001) identified the characteristics present on Hord's list but also suggest reflective dialogue, de-privatization of practice, professional growth as well as mutual support as critical components in fostering school-based learning communities. While some researchers have begun to explore other possible PLC characteristics, this study focuses on the six components identified by Hord (1997) and widely supported throughout the majority of the aforementioned literature.

Theoretical Framework

Social cognitive theory. Bandura's Social Cognitive Theory (1977, 1997), upon which the concept of self-efficacy is situated, provided a foundational theoretical framework for this study. Social Cognitive Theory is the study of how and why people behave in the manner that they do. Social Cognitive Theory posits that an individual's knowledge attainment is directly connected to observing others within the social contexts, such as during social interactions, experiences, and through their responses to outside media influences. In other words, one of the most significant concepts in social cognitive theory is that an individual's behaviours and responses in most situations are shaped by the actions that she has observed in others. These actions are observed in both natural and social environments. These observations are remembered by the observer and influence social behaviors and cognitive processes such as developing self-beliefs or self-efficacy. According to Bandura's theory, individuals who have

observed a successful other will be influenced by these peers and the observers will in turn tend to develop the belief that they are also capable of performing well and are more likely to accept difficult tasks instead of avoiding these tasks. An underlying principle embedded in this theory is that three factors: environment, people, and behaviour are constantly influencing each other. It is important to note that within this model, an individual is able to self-monitor and self-regulate his behaviour. As Pajares (2002) points out,

> From this theoretical perspective, human functioning is viewed as the product of a dynamic interplay of personal, behavioural, and environmental influences. For example, how people interpret the results of their own behaviour informs and alters their environment and the personal factors they possess which, in turn, inform and alter subsequent behaviour. (Social Cognitive Theory, para. 2)

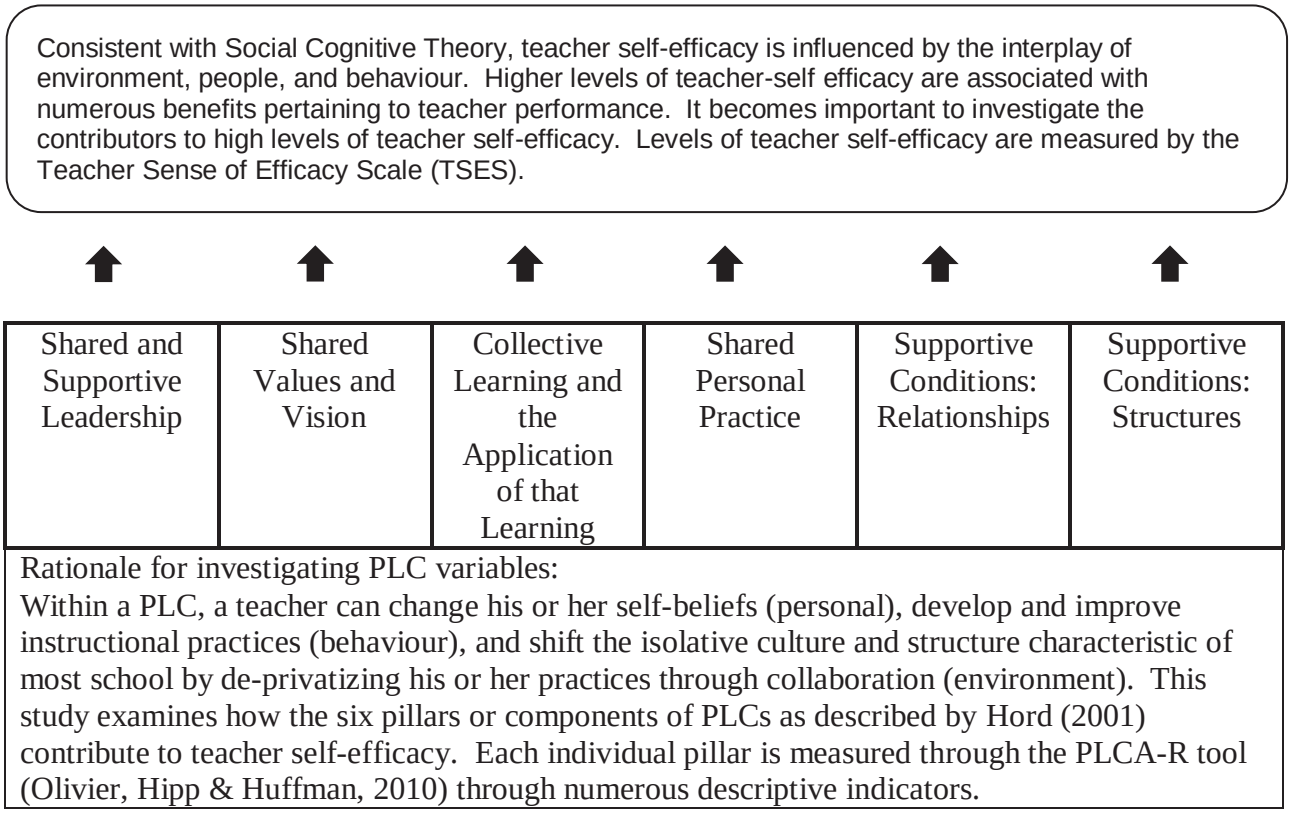
Social cognitive theory highlights that a human is capable of entertaining the idea of taking on certain behaviours, predicting the consequences of those actions, learning from others' behaviours, and self-monitoring through the process of self-reflection. This theory also maintains a heavy reliance on the notion that individuals self-regulate by learning from the interplay of people, behaviour, and environment, and by selecting actions that they predict will lead to given outcomes. The idea that individuals can self-regulate implies that humans have foresight and that their actions are purposive. These concepts pave the way for self-efficacy. Bandura (1997) highlights that if an individual believes that she has the capabilities to take specific actions, she will be more likely to take part in these purposive actions. Educators' inclinations to experiment with teaching strategies and ideas, particularly practices that are difficult to implement, depend on expectations regarding their ability to effectively implement the teaching practices (Bruce & Ross, 2008). Teachers who believe they have the capacity to

improve student learning are disposed to implement challenging strategies to attain their goals with students. In a similar way, teachers learn behaviours from the colleagues that surround them and this shapes their own beliefs about their teaching capabilities and ultimately influences their actions. Since self-efficacy is developed from external experiences and self-perception, it is a critical component of social cognitive theory.

Conceptual framework. Deconstructing the concept of self-efficacy requires an analysis of the various factors that influence an individual's experiences with and perceptions of people, behaviour, and environment. In order to develop a better understanding of the dependent variable, teacher self-efficacy, it is essential to carefully examine the interplay of people, behaviour, and environment that exist within a school which influence an individual's belief system. In other words, if the goal is to examine teacher self-efficacy and the factors affecting teacher self-efficacy, it is necessary to examine the teacher's professional learning experiences. The PLC encompasses influences that could impact teacher self-efficacy such as the people, environment, and behaviours that surround a teacher at school. The conceptual framework of this study presents, through the lens of social cognitive theory, the six components or pillars of professional learning communities examined in this study as they relate to the dependent variable.

Figure 1: Conceptual Framework of the Study

Conceptual Framework



Research Questions

The theoretical, conceptual, and empirical analyses presented in this body of literature identify some relationships between teacher self-efficacy and a number of possible variables and teacher self-efficacy. It would be meaningful to identify 'Professional Learning Community' variables that may account for some of the variances in the levels of teacher self-efficacy since teacher self-efficacy is linked to improved teacher performance. It is conceivable that factors such as demographic characteristics and teaching experiences could impact the self-efficacy of participants. Relevant data with respect to professional learning community experiences, demographic data and teaching experiences were collected from participants' to allow for further

investigation into possible associations and relationships if warranted. Based on the stated problem, the purpose and the literature, the series of research questions listed below is a logical outcome and contributes to the development of additional understandings in the area professional learning communities as they relate to teacher self-efficacy.

1. Do the 'Professional Learning Community' (as described by Hord, 2001) variables correlate with teacher self-efficacy?
2. Which of the 'Professional Learning Community' variables (as described by Hord, 2001) are (most) accountable for teacher self-efficacy?
3. How are groupings of characteristics and conditions identified in the 'Professional Learning Community' variables (as described by Hord, 2001) and teachers' 'Professional Learning Community experiences' (as identified through a researcher-created tool) associated with teacher self-efficacy? (This question explores the relationships between specific descriptive characteristics of the learning community and various levels of teacher self-efficacy.)

Hypotheses

Based on the literature reviewed and the informed conjecture, it was reasonable to generate the following hypotheses concerning the correlations and predictive variables with respect to the Teacher Sense of Efficacy Scale (TSES) scores. In addition, it was reasonable to generate the hypotheses related to the third research question based on the literature reviewed and the lived experience of the researcher.

Hypothesis pertaining to research question one. It is hypothesized that the 'Professional Learning Community' variables will correlate with teacher self-efficacy. It is hypothesized that Shared and Supportive Leadership will correlate most strongly with teacher

self-efficacy. It is also hypothesized that Supportive Conditions: Structures will correlate strongly with teacher self-efficacy. This hypothesis aligns with Stegall's (2011) finding that of all the professional learning community components, Shared and Supportive Leadership correlated most with teacher self-efficacy. Stegall also found a strong correlation between the presence of structures in schools that facilitate professional learning and teacher self-efficacy.

Hypotheses pertaining to research question two.

It is hypothesized that Shared and Supportive Leadership and Supportive Conditions: Structures will be most accountable for teacher self-efficacy. These components are anticipated to be most accountable since Stegall's (2011) findings identified these components as instrumental in shaping teachers' self-efficacy as discussed above.

Hypotheses pertaining to research question three.

The literature surrounding these specific professional learning community conditions and characteristics is very scarce. These hypotheses are therefore based on the lived experience of the researcher.

1. In relation to levels of TSES, it is hypothesized that a stronger relationship will exist in participants who meet face-to-face than those who participants use other methods to meet. This hypothesis was made because it is assumed that when individuals meet face to face they are more likely to be affected by the personal, behavioural, and environmental influences. Participants are immersed in the environment, visual cues and influences are present, and the participant is more likely to interact or feel pressure to interact instead of multi-task or lose focus due to external distractions that might present themselves when an individual is on the phone at home or using other forms of media.

2. In relation to TSES, it is hypothesized that a stronger relationship will exist when members of the group generate momentum so that the group continues to move towards its goals than when the momentum is generated by any individual or group people that may be perceived as external to the group. Pink (2009) suggests that individuals who are self-directed in their work demonstrate higher levels of motivation, job satisfaction and productivity than their counterparts. When learning community participants guide their own learning, it is hypothesized that they will exhibit higher levels of teacher self-efficacy.
3. In relation to TSES, it is hypothesized that a stronger relationship will exist when participants identify that facilitative structures are present, such as, time is built into the school schedule for collaboration than when participants indicate that the schedule does not allow for any additional collaborative time for teachers. This hypothesis is based on the researcher's lived experience and published work by Mitchell and Castle (2005) which identified the presence of structures such as embedded professional learning time as instrumental to the success of learning communities.
4. Based on the lived experience of the researcher and relevant literature, it is hypothesized that teachers who described the learning community as having 'Supportive Structures: Conditions' and who indicated 'Shared and Supportive Leadership' was present will have higher TSES scores than participants who did not indicate that these components were particularly relevant to the learning community. In a related study, Stegall (2011) identified these components as components that are linked to increased levels of teacher self-efficacy.

Chapter III – Methodology

This chapter outlines the research design that was employed in the present study and includes a description of the procedures. Included in these procedures are sampling, instrumentation, data collection, and data analysis. The purpose of this study is to examine teacher self-efficacy and professional learning community variables that correlate with teacher self-efficacy, the predictive power of these variables with respect to teacher self-efficacy, as well as uncover any professional learning community characteristics and conditions that are associated with teacher self-efficacy. The study employed an online survey methodology in an effort to produce findings arising from the sample that may be generalizable to the population of teachers in other schools participating in the southwestern Ontario school context. The findings may also serve as a catalyst for future research.

Participants

Nine school boards were invited to participate in this study. Each board had a separate application process that was specific to their school board. School board research committees then reviewed the appropriate applications. Two boards elected not to participate due to their commitment to existing research projects and two boards expressed interest after the target deadline. The participation of these two school boards was not required since data from the desired number of teachers had already been collected. Five southwestern Ontario school boards participated in this study. Four participating school boards forwarded invitations to participate to an email folder available to teachers within the board. In a school board's general email, messages are accessible to all elementary teachers in that specific board, however the emails do not appear directly in teachers' email inboxes, instead they can be accessed by selecting a separate icon that is visible within the email desktop. In order to read about events and

opportunities, teachers were required to access this separate folder. One participating school board forwarded the invitation to participate to school principals and asked them to consider sending out to the teachers within their school via school-specific email conferences. A school-specific email folder is separate from the participants' email inbox. It is an electronic email folder that is found within all teachers' email accounts but this folder must be accessed by selecting the school icon instead of the personal email inbox. The messages that appear within the school email conference are geared at the teachers who work within that school and are only accessible to those teachers.

Teachers who participated in the study within these five participating school boards constituted the sample. It was possible to address the research questions through the collection and analysis of the survey data collected through five questionnaires (described more fully below). Teachers were asked to respond to questions regarding demographics, teaching experiences, a professional learning community questionnaire (PLCA-R) and professional learning community experiences. A total of 202 elementary teachers from these school boards participated in this study. There were approximately 121 usable surveys, this number varied slightly from question to question since some participants elected to provide no answer to some of the questions. Of the participants who disclosed their sex, 84% reported that they were female and 16% reported that they were male. Approximately 21% of the participants reported having five years or less experience as professional educators, 34% of the participants reported having between six and ten years of experience as professional educators, and 45% of the participants reported having more than ten years of experience as professional educators.

Instruments

Before the commencement of this study a pilot-test was conducted for all of the questionnaires used in this study. Pilot participants' responses and feedback to these instruments were collected on the three researcher-created questionnaires (Demographic, Teaching Experiences and Professional Learning Community Experiences), the PLCA-R (Olivier, Hipp & Huffman, 2010) tool and the TSES (Woolfolk Hoy, n.d.). The purpose of the pilot-test was mainly to clarify questions and to help anticipate concerns that teachers might have when responding to the questionnaires. In addition, some tools were developed by the researcher and the researcher wanted feedback from teachers regarding clarity and input pertaining to teacher perceptions of the questions.

Fifteen educators from the Greater Essex County District School Board participated in the pilot-test. An email was sent to potential participants and questionnaires were distributed to individuals who were willing to participate. In addition to the questionnaires, a chart, designed by the researcher to collect various types of feedback, was sent to participants. Participants recorded notes, comments, concerns and corrections with the help of this chart. All of the feedback was gathered and participants' responses were compared to determine which questions caused concern for individuals. A tally was created and questions that more than one individual identified as worrisome were reconsidered based on the written feedback of the participants. A table was compiled to summarize all of the feedback provided by participants along with the actions taken by the researcher and the rationale for those choices. Some minor changes were made to clarify questions that appeared on the original tools since participants identified some questions as ambiguous. Data were collected in relation to variables examined in this study as well as some demographic and teaching experiences data to allow for further investigation if

warranted. Once the five questionnaires were refined, they were used to collect the data for this study. These instruments were electronically distributed. Each instrument is described below.

'Demographic' and 'teaching experiences' questionnaires. Two researcher-created tools, the 'Demographic' and the 'Teaching Experiences' questionnaires were used to allow for further investigation into demographic factors if the participant responses warranted this exploration. The demographic data collected included sex, age, ethnicity, marital status, number of children, and whether the participant lived in the geographical region from which the school drew its students (see Appendix A). The teaching experiences data included number of years of professional teaching experience, number of years at current school, number of years of work experience, amount of time spent working as an occasional teacher, and whether the participant considered teaching his or her first career (see Appendix B). The 'Professional Learning Community' variables were measured through the "Professional Learning Community Assessment – Revised" (Olivier, Hipp & Huffman, 2009) which is described below.

Professional learning community assessment – revised. The Professional Learning Community Assessment-Revised (PLCA-R) was initially developed by Olivier, Hipp, and Huffman in 2003 and was later refined and revised by Olivier, Hipp, and Huffman. The authors granted permission for this instrument to be used in this study (Appendix C). The Professional Learning Community Assessment-Revised utilized a four-point, forced Likert scale ranging from one which represented 'Strongly Disagree' to four which represented 'Strongly Agree'. Olivier, Hipp and Huffman (2010) refined this PLC measure by incorporating seven new statements directly addressing the utilization of data as a school level practice. This tool was used to measure the degree to which the school operates as a learning community. The PLCA-R is a 52 statement questionnaire, subdivided into the components of Professional Learning Community

(as described by Hord, 2001) (see Appendix D). Each PLC component is described through specific indicators of the component. The researcher has included additional examples to clarify some of the questions that participants identified as 'vague' during the pilot-test of the tools. The Shared and Supportive Leadership (Hord, 2001) dimension consists of 11 statements, however during the pilot study conducted prior to beginning this study, some teachers identified one indicator as confusing and indicated that there were two different ideas present in one indicator. These teachers requested that this statement be divided into two separate statements so that the two components could be assessed separately. The original statement was "The principal shares responsibilities and rewards for innovative actions." For the purpose of this study, this statement was severed to represent the two ideas separately. First, "The principal shares responsibility by being open and encouraging when teachers want to coordinate school wide events, share recent learning with staff or wish to take on additional responsibilities (e.g. teacher wishes to begin a book club, principal and teacher go to a workshop and they work together to present ideas back to staff, etc.)". Second, "The principal shares rewards for innovative actions by acknowledging staff that have taken on additional responsibilities or tried new approaches or strategies in their classroom." This is the only indicator that was divided within the questionnaire (see Appendix D).

This change caused the Shared and Supportive Leadership dimension to consist of 12 statements. The questionnaire used in this study ultimately included 53 statements as a result of this change. In the dimensions of Shared Values and Vision there are nine statements, Collective Learning and Application consists of ten statements, Shared Personal Practice includes seven statements, Supportive Conditions (Relationships) consists of five statements and Supportive Conditions (Structures) consists of ten statements. The descriptive statistics pertaining to the six

dimensions highlight the strengths and weaknesses of the Professional Learning Community components or pillars in a school context. Reliability of the measuring instrument was tested by using Cronbach's alpha (Olivier, Hipp & Huffman, 2010). This procedure is commonly used to check the internal consistency of an instrument or its parts (Fraenkel & Wallen, 2003). Cronbach's alpha has a maximum value of 1 if the test items are all the same and a minimum value of 0 if none of the test items are related to another. The PLCA-R tool's internal consistency was tested resulting in the Cronbach alpha reliability coefficients for factored subscales of .94 for Shared and Supportive Leadership; .92 for Shared Values and Vision; .91 for Collective Learning and Application; .87 for Shared Personal Practice; .82 for Supportive Conditions-Relationships; .88 for Supportive Conditions-Structures; and a .97 one-factor solution (n=1209). The assessment tool has also been tested for construct validity (expert study and factor analysis) and has yielded satisfactory internal consistency for reliability (Olivier, Hipp & Huffman, 2010).

Teacher sense of efficacy scale. The Teacher Sense of Efficacy Scale (TSES) is also referred to as the Ohio State Teacher Sense of Efficacy Scale (OSTES) because its original authors developed it while working at Ohio State University. Teacher self-efficacy was measured through a 24-item instrument identified as the long form of the Teachers' Sense of Efficacy Scale (TSES) (Woolfolk Hoy & Tschannen-Moran, n.d) (see Appendix E). The authors granted permission for this instrument to be used in this study (Appendix F). The TSES includes three sub-scales, efficacy for instructional strategies, efficacy for classroom management, and efficacy for student engagement. While there are three sub-scales measured through the TSES tool, the total average TSES score was used in this study. This study focuses on improving overall teacher performance and overall teacher self-efficacy as opposed to specific types of

teacher tasks and specific teacher self-efficacy (teacher self-efficacy in instructional strategies, teacher self-efficacy in classroom management, and teacher self-efficacy in student engagement). Woolfolk Hoy and Tschannen-Moran (2001) indicated that the range of the questions within the tool reflects the broad range of tasks faced by teachers. An average TSES score reflects both the range of teacher tasks as well as the overall teacher self-efficacy, which relates most to the purpose of this study.

Bandura's labels were borrowed for the TSES items. In other words, each item is measured using the scale Bandura employed in a previous unpublished instrument. When developing the TSES, Woolfolk Hoy and Tschannen-Moran used Bandura's 9-point scale annotated with the following descriptors: "nothing, very little, some influence, quite a bit, a great deal" evenly distributed along the scale but not strictly tied to one point. When determining the construct validity of the TSES, Tschannen-Moran and Woolfolk Hoy (2001) reported that the TSES tool had construct validity established by factor analysis and reliability. The construct validity of the TSES was determined in one study that asked participants to complete three assessments of teacher self-efficacy (Tschannen-Moran & Woolfolk Hoy, 2001). By assessing the correlation of this tool and other existing measures of teacher efficacy, such as Gibson and Dembo's TES, Hoy and Woolfolk's instrument (1993), and the Rand Item assessment, Tschannen-Moran and Hoy (2001) determined that the TSES had construct validity. The Cronbach alpha coefficients for the three TSES subscales were computed for instruction (.91), management (0.90) and engagement (0.87). Overall, the TSES was reliable since the Cronbach alpha coefficient for the instrument was computed 0.94. In their work, Tschannen-Moran and Hoy concluded that the TSES "could be considered reasonably valid and reliable," and added that it "should prove to be a useful tool for researchers interested in exploring the construct of

teacher efficacy" (p. 801). Tschannen-Moran and Woolfolk Hoy (2001) also pointed out that "positive correlations with other instruments that measure personal teaching efficacy provide evidence for construct validity" (p. 801). Throughout this study this tool is referred to as the 'TSES' or 'Teacher Sense of Efficacy Scale.'

'Professional learning community experiences' questionnaire. The third researcher-created tool, 'Professional Learning Community Experiences' questionnaire was also employed to collect additional information and details regarding the practical aspects of teachers' actual learning communities. Information collected through this tool includes whether participants believe themselves to be involved in a learning community, most common method of meeting, most effective method of meeting, frequency of meetings, organizational characteristics, individual or group responsible for initiating the learning community's collaboration, individual or group that determines content or direction of meetings, individual or group responsible for continuing the meetings, structures to support meetings, and participants' perceived function of the learning community (see Appendix G).

Procedure

At the beginning of the data gathering procedure, appropriate ethics approval was obtained from the Ethics Review Board of the University of Windsor (see Appendix H). Upon receiving this approval, specific procedures were addressed with each school board to invite the nine school boards to participate in the study. Five school boards granted approval by the data collection start date. Invitations were forwarded by Internet by each participating school board to invite teachers to participate in this study (see Appendices I – K). Participants were informed of the voluntary nature of their participation, their right to withdraw from the study, and the confidentiality of their responses. As previously mentioned, three electronic researcher-created

questionnaires were used. The demographic questionnaire was used to collect basic demographic data, ('Demographic' questionnaire). The teaching experiences questionnaire was used to collect information regarding teachers' actual teaching experiences ('Teaching Experiences' questionnaire). The 'Professional Learning Community Experiences' questionnaire was used to collect data related to the characteristics of teachers' actual learning communities ('Professional Learning Community Experiences' questionnaire). In addition, electronic versions of two pre-existing, field-tested instruments that have been widely used to measure the components of the participants' professional learning community ('Professional Learning Community Assessment – Revised' (Olivier, Hipp & Huffman, 2010), and to collect data concerning the Teacher Sense of Efficacy Scores (TSES) were used in this study. Data were gathered from 202 elementary teachers across the five school boards. This data collection procedure enabled the collection of data that could be used to document differences in TSES that may be associated with 'Professional Learning Community' components and 'Professional Learning Community' experiences as well the data could be further explored if warranted for other factors related to 'demographic' variables, and 'teaching experiences' variables.

Chapter IV - Results

The results section presents findings as they pertain to each of the research questions. In addition to the discussion of statistically significant findings, 'potentially meaningful' indicators were also identified. In line with the ideas of Rosnow and Rosenthal (1998) and the practices of Rideout, Roland, Salinitri and Frey (2010), regarding the inclusion of non-significant trends with an alpha of less than .10, these findings were mentioned to identify areas where future research may be warranted. These findings were flagged as 'potentially meaningful' because the alpha score in relation to teacher self-efficacy was greater than .05 and less than 0.1). These findings are discussed briefly in this section and further addressed in the section that explores areas for future research. They were identified as 'potentially meaningful' to denote that they should be considered or possibly addressed in future studies. The relatively small sample size leaves the possibility that these findings might emerge as significant in future studies that include larger numbers of participants. As such it was believed that these findings may warrant additional investigation in future research.

In order to address the research questions, three phases of data analysis were conducted. Firstly, Pearson Product Moment correlation coefficients were computed in relation to the variables to address research question one. To answer the second research question, a series of Multiple Regression Analyses were conducted with respect to the primary 'Professional Learning Community' variables and the indicators that make up these primary variables with TSES scores as the dependent variable. To answer the third research question, indicators within the variable clusters that correlated significantly with TSES were further explored through factor analysis. To continue this exploration of the groupings of characteristics and conditions, independent samples t-tests were conducted with the variables in the 'Professional Learning

Community' and 'professional learning community experiences' that were linked to teacher self-efficacy in significant ways. In addition, multiple regression analyses were used to examine the ways in which variables that correlated with TSES accounted for the variance in teacher self-efficacy.

Results for Research Question One

Research question one. *Do the primary 'Professional Learning Community' variables (as described by Hord, 2001) correlate with teacher self-efficacy?*

Pearson product moment correlational analyses. First, Pearson Product Moment Correlational Analyses between the primary 'Professional Learning Community' variables and the TSES scores were computed, in order to examine the relationship between the six PLC components within the cluster and the TSES scores (see Table 1).

As previously mentioned, the 'Professional Learning Community' variable cluster includes six primary variables, representing the six PLC components described by Hord (2001). The PLCA-R measures these six components (or primary variables) through indicators which are categorized to describe each component. Since the six components are the primary variables that are being investigated, each item on the instrument has also been conceptualized as an indicator of these six variables. In other words, each of the six 'Professional Learning Community' components is measured through participants' ratings of their perception of the presence of these categorized indicators in the school PLC. A mean score for participants' responses to the indicators in each of the components has been calculated to represent participants' level of agreement indicating the degree to which the component is present in the PLC. The dependent variable was the TSES scores. The mean teacher self-efficacy scores were averaged for each level of agreement (strongly agree, agree, disagree, or strongly disagree) indicating the degree to

which a particular component was present in a professional learning community within participants' schools. The mean teacher self-efficacy scores pertaining to the presence of the individual 'Professional Learning Community' components within participants' school are presented under the mean heading in Table 1. Table 1 illustrates the Pearson Product Moment Correlation Coefficients for the six components of the 'Professional Learning Community' variable cluster.

Table 1. Pearson Product Moment Correlation Coefficients and the Mean TSES Scores of Participants in each Category of Agreement with 'Professional Learning Community' Components

	CORRELATION COEFFICIENT	*CATEGORY*	*NUMBER OF PARTICIPANTS*	*MEAN TSES*	*STANDARD DEVIATION*
Shared and Supportive Leadership	*.206**	*Strongly Disagree*	*2*	*6.3750*	*2.71058*
		Disagree	*17*	*7.4877*	*.78577*
		Agree	*71*	*7.4495*	*.67557*
		Strongly Agree	*24*	*7.8073*	*.80883*
Shared Vision and Values	*.004*	*Strongly Disagree*	*2*	*8.0833*	*.94281*
		Disagree	*18*	*7.6759*	*.80104*
		Agree	*70*	*7.4095*	*.69036*
		Strongly Agree	*26*	*7.5657*	*1.06791*
Collective Learning and Application	*.140*	*Strongly Disagree*	*1*	*6.7500*	*.*
		Disagree	*14*	*7.8155*	*.76459*
		Agree	*75*	*7.3294*	*.77381*
		Strongly Agree	*26*	*7.9183*	*.76554*
Shared Personal Practice	*.173*	*Strongly Disagree*	*0*		*.*
		Disagree	*33*	*7.4760*	*.91560*
		Agree	*29*	*7.4265*	*.70993*
		Strongly Agree	*16*	*8.1875*	*.64424*
Supportive Conditions: Relationships	*.067*	*Strongly Disagree*	*0*		
		Disagree	*18*	*7.5764*	*.99870*
		Agree	*78*	*7.4103*	*.74002*
		Strongly Agree	*25*	*7.7900*	*.83597*
Supportive Conditions: Structures	*.241***	*Strongly Disagree*	*1*	*7.4583*	
		Disagree	*18*	*7.1759*	*1.08018*
		Agree	*92*	*7.5168*	*.73970*
		Strongly Agree	*10*	*8.0958*	*.63557*

** Correlation is significant at the 0.01 level (2-tailed)
* Correlation is significant at the 0.05 level (2-tailed)

There were significant positive correlations between TSES and 'Professional Learning Community' primary variables. The positive correlation between the primary variable, Shared and Supportive Leadership and TSES indicates that teachers who described the culture of their learning community as one in which the leadership is shared between administration and staff (mean = 7.5117, SD = .80883) have higher teacher self-efficacy than teachers who did not

describe their learning community in this way (r = .241, p = .05). The positive correlation between the primary variable, Supportive Conditions: Structures and TSES indicates that teachers who described their learning community as one that is facilitated by structures such as designated time to work with their teaching team or indicated that resource people are available to support teachers (mean = 7.5134, SD = .80988) have higher teacher self-efficacy than teachers who did not report having supportive structures in place to support the professional learning community (r = .206, p = .05).

Results for Research Question Two

Research question two. Which primary 'Professional Learning Community' variables (as described by Hord, 2001) are (most) accountable for teacher self-efficacy?

Multiple regression analyses. Secondly, a series of Multiple Regression Analyses were conducted with respect to the six primary 'Professional Learning Community' variables with the TSES scores as the dependent variables. The R square coefficients indicated strength of the variable with respect to explained variance, and by comparison the most predictive variable cluster for TSES scores. The entire 'Professional Learning Community' variable cluster was significant in predicting the TSES scores of the participants (r = .119, F (121) = 2.174, p = .05). The 'Professional Learning Community' variable cluster appeared to account for 11.9% of the variance in the TSES scores of elementary teachers.

Multiple Regression Analyses were conducted using the Enter method in relation to each of the six primary variables in the cluster arising from the analysis pertaining to question two to determine which independent variables contributed significantly to the TSES scores. The Enter method was employed in order to allow all primary variables to be considered simultaneously with respect to teacher self-efficacy as opposed to the variables being considered in a particular

order. This method was appropriate because the researcher was not investigating a model and there was no reason to assume that one particular primary variable was more significant than another. This method is useful when entering all variables simultaneously without an established order or hierarchy in terms of the importance of the variables. Standardized Beta scores and t scores are reported in Table 2.

Table 2. Beta Coefficients for the Multiple Regression Analysis Utilizing the 'Professional Learning Community' Primary Variables

Variable	Standardized Coefficients Beta	T	Sig.
Shared and Supportive Leadership	.226	1.455	.149
Shared Vision and Values	-.349	-2.031	.045
Collective Learning and Application	.334	1.567	.120
Shared Personal Practice	.042	.329	.743
Supportive Conditions: Relationships	-.306	-1.819	.072
Supportive Conditions: Structures	.170	1.227	.223

One of the primary variables in the 'Professional Learning Community' cluster was identified as a predictor of teacher self-efficacy, the Shared Vision and Values primary variable. The Shared Vision and Values primary variable was a negative predictor of the TSES scores of the participants (*Beta = -.349*). These findings suggest that the more participants described their learning community as being guided by a direction and vision the less likely they were of exhibiting high TSES scores. Conversely, participants who felt that they did not have to adhere to specific values or commit to a specific vision exhibited higher levels of teacher self-efficacy.

A second primary variable, Supportive Conditions: Relationships was 'potentially meaningful' in terms of acting as a negative predictor of TSES scores (*Beta = -306*). This finding suggests a possible trend, that teachers who sense that there is a large emphasis on creating a team and nurturing caring relationships have lower TSES scores than teachers who described their schools as focusing less on building relationships.

Results for Research Question Three

Research question three. How are the groupings of characteristics and conditions identified in the Professional Learning Community experiences associated with teacher self-efficacy?

Introduction to results for research question three. In order to address the research question, that is, to gain a clearer understanding of the characteristics and conditions identified in the 'professional learning community experiences' of respondents that were associated with teacher self-efficacy, data collected were analyzed using multiple regression and multivariate analyses. In order to examine PLC conditions and characteristics associated with teacher self-efficacy, data analyses were conducted in relation to each variable cluster as well as each question pertaining to professional learning communities. The 'Professional Learning Community' variables (as described by Hord, 2002) were explored using the Enter method. In addition, the 'Professional Learning Community' indicators (Olivier et al., 2010) found within each primary variable were explored as well as the nine researcher-created 'professional learning community experiences' questions.

A series of independent t-tests were also conducted with respect to the 'professional learning community experiences' data and TSES scores. Once the data were categorized in a manner that facilitated accurate analysis, hypotheses pertaining to questions that correlated significantly with TSES scores were tested. The r^2 coefficients indicated the most predictive categories and conditions within the 'professional learning community experience' with respect to TSES scores. It was necessary to consider a variety of categories and conditions in order to determine those that were predictors of teacher self-efficacy scores.

'Professional Learning Community' indicators. Pearson Product Moment Correlational Analyses between the indicators that described the primary 'Professional Learning Community' variables in relation to the TSES scores were computed, in order to examine the relationship between each indicator and the TSES scores (see Table 3).

Table 3 illustrates the Pearson Product Moment Correlation Coefficients for the TSES scores and the primary variables as well as the indicators of the primary variables in the 'Professional Learning Community' cluster.

Table 3. Pearson Product Moment Correlation Coefficients for the TSES Scores and the Primary Variables and Indicators in the 'Professional Learning Community' Cluster

	CORR COEF	*CATEGORY*	*N*	*CORR COEF*	*Sig*
Shared and Supportive Leadership	*.206**	Staff involved in decision making re: most school issues.	*121*	*.209**	*.021*
		Principal welcomes input from staff and considers their feedback when making decisions.	*121*	*.151*	*.099*
		Staff have access to key information.	*119*	*.327***	*.000*
		Principal is proactive and addresses supports needed.	*121*	*.148*	*.106*
		Opportunities are provided for staff to initiate change	*121*	*.233***	*.010*
		Principal shares responsibility by being open and encouraging to staff who wish to initiate/lead activities.	*120*	*.152*	*.098*
		Principal shares rewards for innovative actions of others.	*121*	*.070*	*.446*
		Principal is democratic, sharing power and authority.	*119*	*.138*	*.134*
		Leadership is promoted and nurtured among staff	*121*	*.102*	*.263*
		Decision-making takes place through committees and communication occurs across grade/subject divisions.	*121*	*.167*	*.067*
		Stakeholders share ownership for students' learning.	*121*	*.148*	*.104*
		Staff use multiple sources of data to inform teaching.	*119*	*.060*	*.519*
Shared Vision and Values	*.004*	A collaborative process exists to develop shared values.	*121*	*.014*	*.882*
		Shared values guide decisions about teaching/learning.	*120*	*-.020*	*.828*
		Staff members share visions for school improvement that have unwavering focus on student learning.	*120*	*-.062*	*.501*
		Decisions made with school's vision and values.	*121*	*-.032*	*.725*
		Collective process exists to develop shared vision.	*121*	*.093*	*.311*
		School goals focus on student learning beyond test scores.	*121*	*.063*	*.490*
		Policies and programs align to school's vision.	*121*	*-.022*	*.809*
		Stakeholders are involved in creating high expectations that serve to increase student achievement.	*120*	*.098*	*.289*
		Data used to prioritize actions to reach a shared vision.	*120*	*.004*	*.967*
Collective Learning and Application	*.140*	Staff members collaboratively seek knowledge, skills and strategies and apply this new learning to their work.	*121*	*.140*	*.124*
		Staff relationships reflect commitment to school improvement.	*120*	*.071*	*.443*
		Staff members collaborate to search for solutions to diverse student needs.	*121*	*-.013*	*.888*
		Opportunities and structures exist for collective learning through dialogue.	*121*	*260***	*.004*
		Staff members engage in dialogue that reflects a respect for diverse ideas that lead to continuous inquiry.	*120*	*.160*	*.080*

		School-based professional development focuses on teaching and learning.	*120*	*.189**	*.039*
		School staff and stakeholders learn together and apply new knowledge to solve problems.	*121*	*.194**	*.033*
		Staff members are committed to programs that enhance learning.	*118*	*-.036*	*.701*
		Staff collaboratively analyze multiple sources of data to assess the effectiveness of instructional practices.	*121*	*.083*	*.367*
		Staff collaboratively analyze students work to improve teaching and learning.	*121*	*.032*	*.725*
Shared Personal Practice	*.173*	Opportunities exist for staff to observe peers and offer encouragement.	*120*	*.126*	*.169*
		Staff members provide feedback to peers related to instructional practices.	*119*	*.194**	*.034*
		Staff members informally share ideas and suggestions for improving student learning.	*119*	*.058*	*.529*
		Staff collaboratively review student work to share and improve instructional practices.	*121*	*.079*	*.391*
		Opportunities exist for coaching and mentoring.	*121*	*.252***	*.005*
		Opportunities exist for individuals and teams of teachers to apply learning and share the results.	*121*	*.234***	*.010*
		Staff members regularly share student work to guide overall school improvement.	*121*	*.073*	*.423*
Supporting Conditions: Relationships	*.067*	Caring relationships exist among staff and students that are built on trust and respect.	*121*	*.023*	*.800*
		A culture of trust exists for taking risks.	*121*	*.008*	*.933*
		Outstanding achievement is recognized and celebrated.	*121*	*.058*	*.531*
		Staff and stakeholders exhibit a sustained and unified effort to embed change into the culture of the school.	*121*	*.102*	*.264*
		Staff relationships support honest and respectful examination of data to enhance teaching/learning.	*121*	*.051*	*.581*
Supportive Conditions: Structures	*.241***	Time is provided to facilitate collaborative work.	*121*	*.215**	*.018*
		School schedule promotes collective learning and shared practices.	*121*	*.188**	*.039*
		Finances are available for professional development.	*121*	*.078*	*.395*
		Technology and Instructional Materials are available.	*121*	*.282***	*.002*
		Resource people provide expertise and support for continuous learning.	*121*	*.250***	*.006*
		School facility is clean, attractive and inviting.	*121*	*.157*	*.086*
		Physical proximity and layout of classrooms allows for ease in collaborating with colleagues.	*121*	*.055*	*.546*
		Communication systems promote flow information to staff.	*121*	*.022*	*.814*
		Communication systems promote a flow of information across entire school community.	*121*	*.081*	*.376*
		Data are organized and made available to staff.	*121*	*.156*	*.087*

** Correlation is significant at the 0.01 level (2-tailed)

* Correlation is significant at the 0.05 level (2-tailed)

There were 13 significant positive correlations between TSES and individual 'Professional Learning Community' indicators within the six major variables. There were also five 'potentially meaningful' correlations that are also noted in the appropriate sections to identify these items as areas for further study.

Shared and supportive leadership. The primary variable Shared and Supportive Leadership was identified in the first research question as having a positive correlation with

TSES scores. There were three positive correlations between specific Shared and Supportive Leadership indicators and TSES scores. The Shared and Supportive Leadership variable was measured through twelve descriptive indicators. The first significant positive correlation between an indicator in the Shared and Supportive Leadership indicators and teacher self-efficacy (r = .209, $p < .05$) was "Staff members are consistently involved in discussing and making decisions about most school issues (e.g. supports for at risk students, increasing parental involvement, recent incidents of bullying, etc.)." This positive correlation indicates that teachers who identified that they had a voice in school decisions and opportunities existed for them to direct the actions towards solving school issues had higher teacher self-efficacy (mean = 7.5811 , SD = .77655) than teachers who did not describe their learning community in this way (mean = 7.2989, SD= .88795).

The second indicator within the Shared and Supportive Leadership variable cluster that was significant in relation to TSES scores was "Staff members have accessibility to key information" (e.g. student data, etc.)" (r = .327, $p < .01$). This finding suggests that when teachers feel they have access to the information they require, they tend to have higher teacher self-efficacy (mean = 7.5641, SD = .76452) than teachers who feel they do not have access to key information (mean = 7.0545, SD = 1.04892).

The third indicator within the Shared and Supportive Leadership variable cluster that correlated significantly with teacher self-efficacy was "Opportunities are provided for staff members to initiate change" (r = .233, $p < .01$). This finding indicates teachers who felt that they had opportunities to innovate and inspire change in their schools had higher teacher self-efficacy scores (mean = 7.6178, SD = .73747) than teachers who did not perceive there to be opportunities to initiate change (mean = 7.1825, SD = .94566).

There were two 'potentially meaningful' correlations in the Shared and Supportive Leadership variable cluster as well. The first indicator in the Shared and Supportive Leadership variable cluster was "The principal shares responsibility by being open and encouraging when teachers want to coordinate school wide events, share recent learning with staff or wish to take on additional responsibilities (e.g. teacher wishes to begin a book club, principal and teacher go to a workshop and they work together to present ideas back to staff, etc.)" (r = .152, p = .098). This positive correlation indicates that teachers who identified that the administrator was open and encouraging when teachers want to take risks and grow professionally exhibited higher levels of teacher self-efficacy (mean = 7.5556, SD = 1.13120) than those who identified that they were not supported by the administrator in this way (mean = 7.5029, SD = .74998).

The second indicator that was 'potentially meaningful' was "Decision making takes place through committees and through communication across grade and subject areas (e.g. collecting input/feedback from grade level or division teams to determine school improvement focus)" (r = .167, p = .067). This positive correlation indicates that teachers who indicated there was a system through which they could express their opinions tend to have higher levels of teacher self-efficacy (mean = 7.5455, SD = .76160) than teachers who do not identify with this indicator (mean = 7.3693, SD = 1.00727).

Collective learning and application. There were three positive correlations between Collective Learning and Application indicators and TSES scores. In addition, there was one 'potentially meaningful' relationship between a fourth Collective Learning and Application indicator and TSES scores.

The first indicator within the Collective Learning and Application variable cluster that was statistically significant with respect to teacher efficacy was "A variety of structures exist for

collective learning through dialogue" (r = .260, p = .004). This finding suggests that teachers who have structures in place to support their professional learning with peers have higher teacher efficacy (mean = 7.5540, SD = .75534) than teachers who indicated that they do not have those opportunities or structures to support their learning (mean = 7.3903, SD = .96052).

The second indicator within the Collective Learning and Application variable that was statistically significant with respect teacher efficacy was "School-based professional development focuses on teaching and learning" (r = .189, p = .039). This finding suggests that teachers indicated that their work revolving around teaching and learning was central in professional development at the school level had higher teacher self-efficacy (mean = 7.5477, SD = .76620) than teachers who did not feel that the professional development was linked to their work within the classroom (mean = 7.2941, SD = 1.05630).

The third significant positive correlation was between the following indicator "School staff members and stakeholders learn together and apply new knowledge to solve problems" and teacher self-efficacy (r = .194, p = .033). This finding suggests that teachers who collaborate and apply their learning to solve problems have higher teacher self-efficacy (mean = 7.5897, SD = .77825) than teachers who do not learn together and apply their learning in the same way (mean = 7.3333, SD = .86471).

There was one 'potentially meaningful' association between a Collective Learning and Application indicator and TSES (r = .160, p = .08) as well. There was a 'potentially meaningful' association between this indicator, "Staff members engage in dialogue that reflects a respect for the diverse ideas that lead to continued inquiry" and teacher self-efficacy. This association suggests that teachers who engage in conversations that welcome different ideas that lead to

continued inquiry tend to have higher levels of teacher self-efficacy (mean = 7.5400, SD = .77721) than peers who do not engage in these dialogues (mean = 7.3790, SD = .97529).

Shared personal practice. There were three significant correlations between the Shared Personal Practice indicators and TSES scores. The first indicator within the Shared Personal Practice variable that had a positive correlation with teacher self-efficacy was "Staff members provide feedback to peers related to instructional practices" (r = .194, p = .034). This correlation indicates that teachers who receive specific professional feedback from colleagues pertaining to teaching have higher teacher self-efficacy (mean = 7.6934, SD = .72773) than those who do not receive this type of feedback (mean = 7.3927, SD = .85138). The second positive correlation with teacher self-efficacy was "opportunities exist for coaching and mentoring" (r = .252, p = .005) which indicates that teachers who have the opportunity to work with professional colleagues for coaching and mentoring purposes have higher teacher self-efficacy scores (mean = 7.5852, SD = .72826) than teachers who do not have opportunities to work with coaches or mentors (mean = 7.2958, SD = 1.00152). The third positive correlation in the Shared Personal Practice indicators with teacher self-efficacy was (r = .234, n= 121, p = .01). "Individuals and teams have the opportunity to apply learning and share the results of their practices (e.g. teachers have opportunities to try some of the strategies that they are learning about and connect with others to share their progress and problem-solve any difficulties, etc.)" which indicates that teachers who have the opportunity to apply their professional learning and communicate about these experiences with colleagues have higher teacher self-efficacy scores (mean = 8.0712, SD = .70212) than teachers who have fewer chances to apply their learning or to connect with other teachers about these experiences (mean = 7.3754, SD = .77767).

Supportive conditions: structures. There were four positive correlations between Supportive Conditions: Structures indicators and TSES scores and two 'potentially meaningful' associations between Supportive Conditions: Structures indicators and TSES scores. The first positive correlation in the Supportive Conditions: Structures group of indicators was (r = .215, n= 121, p = .018) "Time is provided to facilitate collaborative work" which indicates that teachers who had time built into their schedules to meet and work together, had higher teacher self-efficacy scores (mean = 2.76, SD = .815) than teachers who were not provided with collaborative time. The second positive correlation in the Supportive Conditions: Structures indicators was "The school schedule promotes collective learning and shared practice" (r = .188, n= 121, p = .039) which indicates that teachers who identify that the timetable facilitates their work with colleagues have higher teacher self-efficacy scores (mean = 7.6147, SD = .75264) than teachers who do not have collaborative time built into their school schedule (mean = 7.3958, SD = 86354).

The third positive correlation in the Supportive Conditions: Structures indicators was "Appropriate technology and instructional materials are available to staff" (r = .282, n= 121, p = .002) which indicates teachers who felt they had access to appropriate technology and instructional resources had higher teacher self-efficacy scores (mean = 7.6411, SD = .74687) than teachers who did not feel they had access to the appropriate materials (mean = 7.1730, SD = .88248). The fourth positive correlation in the Supportive Conditions: Structures group of indicators was "Resource people provide expertise and support for continuous learning" (r = .250, p = .006) which indicates that teachers who feel they have knowledgeable others around them to provide expertise to support their learning have higher teacher self-efficacy scores (mean

= 7.5770, SD = .76468) than teachers who do not have this same support from staff (mean = 7.2428, SD = .95128).

There were two 'potentially meaningful' associations between the group of indicators in the Supportive Conditions: Structures and teacher self-efficacy as well. The first indicator was "The school facility is clean, attractive and inviting" (r = .157, p = .086). This indicator indicates that teachers who view their school environment as professional and inviting tend to have higher levels of teacher self-efficacy (mean = 7.5598, SD = .83536) than teachers who did not identify with this indicator (mean = 7.3519, SD = .70449). The second indicator that was 'potentially meaningful' was "Data are organized and made available to provide easy access to staff members" (r = .156, p = .087) which indicates that teachers who identified that data was organized and accessible to staff tend to have higher levels of teacher self-efficacy (mean = 7.5843, SD = .76229) than teachers who did not identify with this indicator (mean = 7.3164, SD = .90423).

Multiple regression. In order to explore the ways in which these variables work together to impact teacher self-efficacy, multiple regression analyses were conducted using the variables that correlated in a significant way with TSES. As previously stated, the Enter method was employed. These variables are the PLC indicators that have been previously identified and discussed in this section (excluding the 'potentially meaningful' variables) and the dependent variable was teacher self-efficacy. These 13 variables appeared to account for 19.9% of the variance in the TSES scores of participants (see Table 4 for Beta values).

Table 4. Beta Coefficients for the Multiple Regression Analysis Utilizing All Indicators that Correlated Significantly with Teacher Self-Efficacy

Indicators/Variables	Standardized Coefficients Beta	T	Sig.
Appropriate technology and instructional material are available to staff.	.125	1.165	.247
School staff members and stakeholders learn together and apply new knowledge to solve problems.	.058	.511	.610
Opportunities exist for coaching and mentoring.	.108	.868	.387
Resource people provide expertise and support for continuous learning.	.118	1.154	.251
Staff members are consistently involved in discussing and making decisions about most school issues (e.g. supports for at risk students, increasing parental involvement, recent incidents of bullying, etc.)	-.020	-.146	.884
Staff members provide feedback to peers related to instructional practices.	.036	.309	.758
Time is provided to facilitate collaborative work.	.032	.225	.822
Staff members have accessibility to key information (e.g. student discipline data, student learning data, etc.)	.239	2.079	.040
School-based professional development focuses on teaching and learning.	-.031	-.251	.803
Individuals and teams have the opportunity to apply learning and share the results of their practices (teachers have opportunities to try some of the strategies they are learning about and connect with other to share their progress and problem-solve).	.002	.018	.986
Opportunities are provided for staff members to initiate change.	-.013	-.095	.924
The school schedule promotes collective learning and shared practice	-.042	-.289	.773
A variety of opportunities and structures exist for collective learning through dialogue	.057	.355	.723

Professional learning community experiences. After the correlational analyses were complete, a series of independent t-tests were conducted with respect to the 'Professional Learning Community' experiences responses. The 'Professional Learning Community Experiences' questionnaire was intended to collect additional details regarding teachers' professional learning experiences such as the frequency of learning community meetings and who initiated the learning community meetings. The 'Professional Learning Community Experiences' questions were designed to uncover the practical conditions that shape the interactions and procedures that guide the work of PLCs. The questions were designed to collect data regarding (1) the most common method of interaction, (2) the method of interaction that generated momentum for the group, (3) the frequency of interaction, (4) the structures that facilitate the work of the team (e.g. embedded PLC time), (5) the organization of the PLC (e.g. grade level, area of interest, etc.), (6) the person(s) responsible for initiating the work of the

team, (7) the person(s) responsible for designing the agenda and generating momentum, and (8) the teacher's perception of the function of the PLC. Participants' responses to two of the eight questions yielded significant correlational relationships with respect to teacher self-efficacy. The two questions that yielded significant results included "In this learning community, who helps keep the momentum so that the group continues to move towards its goals and continues to meet?" and "For you what is the primary function of the learning community that you identified as most influential? Or why do you believe that this learning community has had the most influence on you as a professional educator?" Further investigation was conducted using these two researcher-created questions as starting points. These findings are presented in this section then further discussed in the following section.

Independent t-tests. The following question "In this learning community, who helps keep the momentum so that the group continues to move towards its goals and continues to meet?" was examined with respect to teacher self-efficacy. Independent samples t-tests were conducted using the responses re-categorized into two groups and as a result, new variable were constructed. The question "In this learning community, who helps keep the momentum so that the group continues to move towards its goals and continues to meet?" originally provided participants with eight options for their responses: 1) one teacher-leader, 2) a different teacher leader than identified in question 19 (informal group leader), 3) most or all teachers involved, 4) administration, 5) instructional coach, 6) one teacher and administration, 7) teachers and administration, 8) unsure. This independent t-test was conducted to compare the TSES of participants that identified that they attributed the momentum within the learning community to different sources with respect to their teacher self-efficacy. Participants provided a myriad of responses. Participants' responses indicated that there were two main groups. These two groups

were recoded into new variables and a t-test was conducted to compare the two groups. The first group consisted of participants who selected either 3) most or all teachers involved, 4) administration, or 6) one teacher and administration while the other group selected any other response (other than "8) unsure", which was eliminated).

Teachers who viewed the momentum within the learning community as generated by 1) one teacher-leader, 2) a different teacher leader than identified in question 19 (informal group leader), 5) instructional coach, 7) teachers and administration (mean = 7.7304, SD = .85202) had higher levels of teacher self-efficacy than did participants who viewed the momentum within the learning community generated by most or all of the PLC group, the administration or one teacher paired with the administration (mean = 7.3554, SD = .69957), t(119) = 2.574, p = .011.

An independent t-test was also conducted on the following question "For you what is the primary function of the learning community that you identified as most influential? Or why do you believe that this learning community has had the most influence on you as a professional educator?" This independent samples t-test was conducted to compare teacher self-efficacy in participants that viewed the primary function or outcome of the professional learning community as being professional growth based or thinking/learning based and the participants that viewed the primary function of the learning community as a means to share resources, share the workload or to socialize. There was a significant difference in the teacher self-efficacy scores of teachers who viewed the primary purpose of their learning community as being learning or professional growth based (mean = 7.7583, SD = .72380) and participants who viewed the primary purpose or outcome of the professional learning community interactions as having an alternate purpose, such as sharing or socializing (mean = 7.3684, SD = .82754), t (102) = 1.132, p = .008. These results suggest that participants who view the focus of their learning community

as being driven by professional goals or student learning related outcomes have higher levels of teacher self-efficacy than participants who view the purpose as a means of sharing or socializing.

Factor analysis. Factor analysis essentially condenses information to explain the variation between several variables using fewer newly identified variables (factors). This process provides a means of defining the *substantive content* or the *meaning of the factors* by "identifying groups of items that co-vary with one another and appear to define meaningful underlying latent variables" (DeVellis, 2012, p. 117). Principal axis factor analysis (PAF) was conducted using the 13 indicators that correlated with TSES. The PAF was conducted to determine whether the 13 indicators could be regrouped into fewer variables. The retained factors were rotated to simple structure using the oblique rotation algorithm, Promax (Fabrigar, Wegener, MacCallum & Strahan, 1999; Russell, 2002). PAF examines common variance, which is necessary when the intent is to identify underlying constructs. PAF with squared multiple correlations (SMC) as the initial estimate of communality, provides more accurate results in terms of the population factor loadings over principal components analysis (Russell, 2002; Widaman, 1993). A promax oblique rotation was applied because Hord (2002) proposed that the six components of professional learning community are interrelated systems that work together but still retain a level of independence. The oblique promax rotation (k = 4) with Kaiser normalization was selected because any factors were hypothesized to be positively correlated.

Hair, Anderson, Tatham and Black (1998) pointed out that factor loadings greater than +/-.30 are considered to be adequate, loadings of +/-.40 are considered important, and loadings of +/- .50 or greater are considered to be practically significant. The data were selected using the basic assumptions underlying factor analysis, specifically the factorability of the data. A data set is considered factorable if a considerable number of meaningful interrelationships exist among

the items (usually Pearson's correlation coefficient of .3 or greater). The Kaiser-Meyer-Olkin index of sampling adequacy was .868, indicating that the data represented a homogenous group of variables suitable for factor analysis. Bartlett's test of sphericity was significant for the sample x^2 (78, N=136) = 732.982, $p < .001$, which indicated that the set of correlations in the correlation matrix was significantly different from zero and suitable for factor analysis. Table 5 displays the factor matrix coefficients and communalities for the promax oblique rotation for the 13 variables. The extracted communality indicated the portion of each item's variance that can be explained by the retained factors. Items with high values are well represented while an item with a low communality (e.g. .2 or less than 20%) (Fullagar, 1986) suggests that the item has little in common with the other items, and is not particularly important to the analysis. As is evident from Table 5, the final communalities were examined for the 13 variables and the range was noted. Communalities ranged from .199 to .718. Extractions of communalities of .70 and above suggested a high probability of replication of the results. Some items were mentioned but not considered particularly important based on failure to load on principle components (lower than .20).

Factor extraction. The decision regarding the number of factors to retain was mainly based on the Kaiser's criterion (Gorsuch, 1983) in conjunction with the theoretical plausibility (Fabrigar et al., 1999). Kaiser's criterion suggests that only factors which account for more variance than a single variable should be extracted since the objective of factor analysis is to account for as much variance as possible in a set of items. For this reason, factors with eigenvalues greater than 1 were analyzed using the correlation matrix since the variables are standardized which means each variable has a variance of 1, and the total variance is equal to 13. Accordingly, three factors emerged with eigenvalues ranging from approximately 8 % to 43 %

which explained approximately 60 % of the total variance (Table 5). The first factor accounts for the largest amount of variance, and successive factors account for progressively smaller amounts of variance.

Table 5. Percentage of Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Factor	Total	% of variance	Cumulative %	Total	% of variance	Cumulative %
1	5.535	42.574	42.574	5.070	38.999	38.999
2	1.222	9.401	51.975	.787	6.052	45.051
3	1.050	8.077	60.052	.585	4.581	49.632

The final 3-factor solution. The final factor solution contained three factors extracted by principal axis factor analysis (PAF), and was obliquely rotated to simple structure with the promax algorithm (kappa = 4). The percentage of variance explained by each rotated factor (Table 5) was calculated using Cattell's formula (Barrett & Kline, 1980; Cattell, 1978). The variance explained by each rotated factor is equal to the sum of the product of the structure loadings and pattern coefficients for all variables. This 3-factor solution explained approximately 60% of the total variance. A widely used and practical criterion for determining the acceptability of a factor solution is that the solution should explain at least 50% of the total variance and close to 100% (usually not less than 80% of the common variance) (Floyd & Widaman, 1985). For this study, the primary goal was to begin to explore possible factors underlying the common variance of the set of variables (Tinsley & Tinsley, 1987).

Interpretation and naming of the factors. Interpretation and naming for the factors (following oblique rotation) were based primarily on the factor pattern matrix coefficients (Table 6). The pattern matrix coefficients reflect the relative and independent contribution of each factor to the variance of the item on which it loads (Russell, 2002).

Table 6. Factor Matrix Coefficients and Communalities for the Promax Oblique Rotation of the 13 Indicators

Indicators	Factor 1	Factor 2	Factor 3
The school schedule promotes collective learning and shared practice.	**.883**	-.181	.144
Time is provided to facilitate collaborative work.	**.815**	-.086	.048
A variety of opportunities and structures exist for collective learning through dialogue.	**.571**	.366	-.055
Staff members provide feedback to peers related to instructional practices.	**.503**	.020	.134
School staff members and stakeholders learn together and apply new knowledge to solve problems.	**.472**	.344	-.310
Staff members have accessibility to key information (e.g. student discipline data, student learning data, etc.).	-.236	**.776**	.077
Opportunities are provided for staff members to initiate change.	.095	**.625**	.158
School-based professional development focuses on teaching and learning.	.054	**.620**	.094
Staff members are consistently involved in discussing and making decisions about most school issues (e.g. supports for at risk students, increasing parental involvement, recent incidents of bullying, etc.).	.241	**.523**	-.058
Appropriate technology and instructional material are available to staff.	.101	**.389**	.065
Resource people provide expertise and support for continuous learning.	.129	**.238**	.168
Opportunities exist for coaching and mentoring.	.057	.015	**.814**
Individuals and teams have the opportunity to apply learning and share the results of their practices (teachers have opportunities to try some of the strategies they are learning about and connect with others to share their progress and problem-solve).	.007	.270	**.508**

Factor # 1 ((Structures and opportunities for collaborative learning). This factor (1-5 in Table 6) accounted for the largest proportion of 39% of the common variance. The indicators clustered into this factor depict beliefs mainly revolving around the structures and opportunities provided for and utilized by staff to learn collaboratively to enable teachers to refine their instructional practices. Five items loaded on this factor, with factor loadings ranging between .47 and .88. This factor was labeled Structures and Opportunities for Collaborative Learning.

Factor one was named Structures and Opportunities for Collaborative Learning because it pertains to the facilitative structures and opportunities that are available to support teachers' to learn together. This factor contains the indicators 'The school schedule promotes collective learning and shared practice.' (.883), 'Time is provided to facilitate collaborative work.' (.815), 'A variety of opportunities and structures exist for collective learning through dialogue.' (.571), 'Staff members provide feedback to peers related to instructional practices.' (.503), and 'School

staff members and stakeholders learn together and apply new knowledge to solve problems.' (472), these are listed in order of their listing on this factor. These items reflect the structural supports evident in the timetabling of the school, as well as actual structures to support dialogue, and the basic provision of structured opportunities for teachers to learn through rich collaborative discussion focused on their daily practices.

There are two key components to this finding. The first relates to the presence of facilitating structures to support teacher learning and the second is specific to the type of collaborative learning taking place through these structures.

Factor # 2 (Empowerment to work autonomously). This factor consists of six items (6 – 11 in Table 6) and explained approximately 6% of the common variance. The items clustered into this factor pertain to teachers' perceptions of the degree to which they are honoured as professionals and are given opportunities and resources that enable them to work autonomously. Six items loaded on this factor, with factor loadings ranging between .238 and .776. It is noteworthy that the relatively low loadings of these indicators, 'Resource people provide expertise and support for continuous learning.' (.238) and 'Appropriate technology and instructional materials are available to staff.' (.389) suggest that these two items are less important to the analysis. The factor was labeled 'Empowerment to Work Autonomously' since the indicators that loaded on more heavily pertained mainly to the credence and trust afforded to teachers to be self-directed in their work than the resources or tools provided to the staff.

Factor two was named Empowerment to Work Autonomously because it pertains to the respect, control and resources afforded to teachers to facilitate their work to direct themselves effectively and autonomously as educators. This factor contains the indicators 'Staff members have accessibility to key information (e.g. student discipline data, student learning data, etc.).'

(.776), ‘Opportunities are provided for staff members to initiate change.’ (.625), ‘School-based professional development focuses on teaching and learning.’ (.620), ‘Staff members are consistently involved in discussing and making decisions about most school issues (e.g. supports for at risk students, increasing parental involvement, recent incidents of bullying, etc.).’ (.523), ‘Appropriate technology and instructional materials are available to staff’ (.389), and ‘Resource people provide expertise and support for continuous learning.’ (.238), these are listed in order of their loading on this factor.

Factor # 3 (Coaching Practices). This factor consists of two items (12 – 13 in Table 6), and explained the smallest amount of common variance (approximately 5%), however, is substantive and interpretable. The items clustered into this factor pertain to teachers’ opportunities related to coaching, mentoring, and sharing their classroom-based learning with colleagues. Two items loaded on this factor ranging from .508 to .814. This factor was labeled ‘Coaching Practices’.

Factor three was named Coaching Practices because it pertains to the opportunities that are available for teachers to act as mentors and learn from the coaching practices of others. This factor contains the indicators ‘Opportunities exist for coaching and mentoring.’ (.814), and ‘Individuals and teams have the opportunity to apply learning and share the results of their practices (teachers have opportunities to try some of the strategies they are learning about and connect with others to share their progress and problem-solve.’ These items reflect the existence of coaching and mentoring opportunities to support growth through collaboratively learning from the everyday experiences of teachers.

Summary

In summary, Hypothesis 1 was supported since the entire PLC variable cluster correlated positively with teacher self-efficacy. Hypothesis 2 was also supported in that the 'Professional Learning Community' variable cluster did in fact contain two primary variables that correlated positively with teacher self-efficacy: Shared and Supportive Leadership and Supportive Conditions: Structures. Hypothesis 3 was not supported in that neither Supportive Conditions: Structures nor Shared and Supportive Leadership were identified as predictors of teacher self-efficacy. Instead, Shared Vision and Values was identified as a negative predictor of TSES scores. It was not hypothesized that any of these independent variables would be negative predictors of TSES scores.

Hypotheses for the third research question were that participants who meet face-to-face with the learning community have higher levels of teacher self-efficacy than teachers who meet using other methods. This hypothesis remains an item for future research since the responses to this question were not fairly distributed. It was also hypothesized that structures, such as time scheduled into the work day to facilitate collaborative learning time would correlate positively with teacher self-efficacy scores. This hypothesis was supported. In addition, it was hypothesized that higher teacher self-efficacy levels would be evident when momentum is generated by participants who are perceived as core members of the group as opposed to members who might be construed as external to the learning community. As a result of the analyses of the 'Professional Learning Community' experiences responses, it was determined that the way that momentum is generated within a PLC is significantly related to TSES however this topic also requires further investigation. Another finding that emerged was that members

who identified the focus of the PLC meetings is learning, exhibited significantly higher levels of TSES.

To further analyze the relationship between the ‘Professional Learning Community’ indicators that correlated significantly and TSES, a factor analysis was conducted. The final factor solution contained three factors, they were named Structures and Opportunities for Collaborative Learning, Empowerment to Work Autonomously, and Coaching Practices due to the characteristics that were shared within each grouping of indicators.

Chapter V – Discussion, Analyses, and Implications

This chapter includes a summary of the key findings and relates these findings to the research literature. In addition, this chapter includes a discussion and analysis of findings, implications, limitations of the study, recommendations to possible stakeholders, and suggested areas for further research and conclusions.

The study arose from an interest about professional learning community factors that impact teacher self-efficacy. Henson's (2001) findings identified the growth in teacher self-efficacy as a result of specific professional development pursuits. In addition, he concluded that a positive relationship between collaboration and teacher self-efficacy appeared consistently throughout the data. Other related research has long supported the positive influence of teacher teams working together to improve instruction. "There is no limit to what the average person can accomplish if thoroughly involved… this can most effectively be tapped when people are gathered in human scale groupings – that is teams, or more precisely, self-managing teams" (Peters, 1987, p. 282). Dufour (1991) stressed that while teacher teams have the power to improve instruction and impact major change in schools, if teachers do not possess positive beliefs regarding their capabilities in the classroom, any amount or form of professional development is unlikely to produce meaningful results. Exploring ways to enhance teacher efficacy could enrich teaching practices.

This study addressed three major research questions pertaining to professional learning community variables as they related to teacher self-efficacy. First, a main focus was to determine which primary 'Professional Learning Community' variables correlated with teacher self-efficacy. A second main purpose was to determine which primary 'Professional Learning Community' variable was most predictive of teacher self-efficacy. Third, the objective was to

explore groupings of characteristics and conditions of professional learning communities that were linked to higher levels of teacher self-efficacy. Since the third research question was informed by the results of the other research questions, the discussion and analyses mainly focus on the characteristics and conditions of professional learning communities that were linked to higher levels of teacher self-efficacy. These findings continued to resurface throughout the data analyses and they emerged as themes. Key themes emerged from the analyses.

In the following section the study's findings are analyzed. The discussion, analyses and implications highlight several themes: Shared Leadership Approach (which arose from the correlation analyses and elements of the PAF), Structures and Opportunities for Collaborative Learning (which arose from the correlation analyses and the PAF - this element is divided into two topics and discussed as Embedded Facilitative Structures and Structures that Promote an Environment of Collaborative Learning), Empowerment to Work Autonomously (which arose from the PAF), Coaching Practices (which arose from the PAF), and Communities with a Focus on Learning (which arose from the Independent t-test conducted on the PLC experiences data).

Shared Leadership Approach

Shared and Supportive Leadership describes the degree to which administrators support teachers by providing key information, sharing ownership in various decision making scenarios, and providing teachers with opportunities to share their opinions when making decisions or initiating changes. Lambert (2002) suggested this shared work between principals and teachers, could be accomplished with each party accomplishing separate tasks but complementary roles. In a related study of four American schools, Stegall (2011) similarly found that the strongest relationships existed between Shared and Supportive Leadership and each of the three sub-categories of teacher self-efficacy that are measured through the TSES when compared to any of

the other five components measured through the PLCA-R. Based on this work, teacher self-efficacy and the Shared and Supportive Leadership within a school appear to be closely linked. The finding that a significant relationship exists between the leadership approach of the administration and the teacher self-efficacy of the educators on staff suggests this is an important area of focus.

The positive correlation between Shared and Supportive Leadership and TSES indicates that the way in which school leaders carry out their work can have significant effects on teacher self-efficacy. When studying leadership patterns in organizations, Leithwood and colleagues (2004; 2007) determined that shared leadership approaches were more likely to produce enhanced organizational outcomes. Shared and Supportive Leadership is not a new concept in the domain of school leadership. However, Seashore Louis, Leithwood, Mascall, and Anderson (2010) pointed out, "what constitutes and promotes the distribution or sharing of leadership remains unclear." Likewise, Mitchell and Castle (2005) found that the Ontario school principals who were studied expressed that "unclear or contradictory directions" resulted in "fragmented leadership" and leadership sharing sometimes caused confusion (p. 429).

While the theory of Shared Leadership has been explored extensively, the actual practical behaviours associated with Shared Leadership are left relatively unaddressed throughout the literature. For instance, a study conducted by the University of Washington described Shared Leadership as "orchestral leaders" that are experts at encouraging the group to create a beautiful sound while helping the soloists to excel. Hoerr (1996) described that through shared and supportive leadership in the school, all staff grow professionally and learn to view the staff as "all playing on the same team and working toward the same goal: a better school" (p. 381). These metaphors provide a holistic sense of the importance of shared and supportive leadership

in schools but do not clarify for principals any actionable items on which they can act in order to enhance their leadership practices.

When attempting to clarify the meaning, Prestine (1993) explained that the conventional model that "teachers teach, students learn, and administrators manage is completely altered . . . [There is] no longer a hierarchy of who knows more than someone else, but rather the need for everyone to contribute" (p. 393). To provide a somewhat less abstract description, Prestine also listed three capacities that administrators who share leadership might demonstrate, a willingness to share authority, the capacity to facilitate the work of staff, and the ability to participate without dominating. To add to these ideas, Kleine-Kracht (1993) explained that both teachers and principals should engage in "questioning, investigating, and seeking solutions" (p. 393) for school improvement. These definitions align with the 'instructional leader' described in the work of Mitchell and Castle (2005). This type of leader guides teachers in a "process of critical inquiry, collective reflection and problem solving" (p. 412).

Practical implications. While a growing body of research continues to tout the positive effects of shared leadership on organizational change, a wide range of practices continue across schools (Harris, 2007). Principals are often conflicted in their roles (Mitchell & Castle, 2005). "On the one hand, these principals expressed a desire to establish school cultures that would give teachers the freedom to serve children's needs as they saw fit; on the other hand, they wanted to direct activities to ensure that certain plans of action were put into practice in specific ways" (Mitchell & Castle, 2005, p. 418). This tension indicated that more support is needed in order for many administrators to become effective instructional leaders in their schools. If school boards and administrators are looking to pursue Shared and Supportive Leadership it may be necessary to identify and provide training to help develop the specific knowledge, skills, and

behaviours conducive to successfully promoting and facilitating inquiry-based environments. In addition, based on a large-scale study, the Wallace Foundation (2012) suggested paying special attention to clearly defining the role of the principal and vice-principal, providing high-quality professional development opportunities for administrators to build the needed leadership capacities, selectively hiring school leaders, and evaluating administrators against the behaviours that are most closely tied to success and providing the needed support embedded in their daily practice.

Structures and Opportunities for Collaborative Learning.

The factor that was named 'Structures and Opportunities for Collaborative Learning' consisted of two significant elements. One element is that the learning opportunities are facilitated through the presence of supportive structures. This theme related to embedded facilitative structures surfaced more than once in the analysis. The second element is the actual collaborative learning that is promoted through the existence of the structures. In order to dissect this factor with clarity, the two elements are discussed separately.

Embedded Facilitative Structures. The indicators in the PLCA-R that are related to this component refer to the degree to which structures exist within the school to facilitate the work of the professional learning community. Structures refer to elements such as physical layout, provision of collaborative time, and resources that are available in the form of school data, expert personnel, financial and technology supports to enhance teaching and learning in the school. The finding that the presence of structures and opportunities for collaborative learning was linked to high levels of teacher self-efficacy suggests that these structures are instrumental in supporting effective teaching in schools. Stegall (2011) also found significant relationships existed between Supportive Conditions: Structures and increased TSES levels. When studying

effective instructional leadership, Mitchell and Castle (2005) similarly identified the critical importance for school leaders to intentionally embed enabling or supportive structures to facilitate the work of teachers.

Senge (1990) advocated for learning to be situated within the very structure of the organization. By providing supportive structures to enable the work of teachers, clear messages are evident to teachers that their work is valued and that learning communities are genuinely supported by the administration. In other words, the investments in these structures are concrete representations that demonstrate that teachers are supported by the school board, principal and/or other teachers. Mitchell and Castle (2005) compared the simple existence of these structures that enable and support teachers in their professional development to the necessary structures that are in place to support student learning. Just like the much needed structures such as timetables and curricula that operate to direct the school experiences of students, similar structures are also necessary to support the learning of the professionals in the school (Mitchell & Castle 2005). Mitchell and Castle and Gronn (2000) also asserted that close attention and significant investment of resources should be made to create and sustain facilitative structures like those listed above to improve teaching and learning in the school.

Hoy and Sweetland (2000) explained that the structures that facilitate the work of the learning community can be situated along a continuum of enabling to hindering. Dufour (2007) addressed this same issue, suggesting that schools need to strike a balance between a "tightness and looseness." Hindering structures tend to be more rigid, controlling and typically guided by strict rules (Hoy & Sweetland, 2000). Hoy and Sweetland identified these structures as often providing fertile ground to enable weaker teachers to enhance their instructional practices. However, rigid structures and mandatory meetings with few opportunities for choice and

ownership do not always inspire change in actual classroom practices for teachers. Hoy and Sweetland explained that enabling structures, by contrast, are guided by more lenient rules, encourage collaboration and provide many opportunities for teachers to direct their own learning. In either scenario, structures appear to be instrumental at both the organizational level and in guiding the work of the learning communities that meet.

Structures that Promote an Environment of Collaborative Learning.

The second constituent of this finding relates to the type of learning that is facilitated through these structures. The indicators describe an environment of collective learning, collaborative work, and shared practice. In this arena, members can apply their learning, share specific feedback with peers related to their actual daily instructional practices and learn through problem-solving. Teachers who characterized their learning community in this way exhibited higher TSES than other teachers. This finding links well with the finding that learning-based PLCs are associated with higher levels of TSES. The high-yield collaborative learning evident in Little's (1990) "Joint Work" and Reeves (2010) "Deep Implementation" requires that teachers move beyond superficial conversation or meetings that review business items and actually "dig-into" collaborative learning that is cognitively demanding and utilizes many of the faculties Bloom (1956) refers to when he described higher-level thinking. Rosenholtz (1989) illustrated a similar vision of learning enriched environments in which standard practice is that teachers share their craft to learn together, they analyze and evaluate instructional practices, and openly discuss student data. While these types of learning communities require more effort on the part of members and administrators, teachers who experienced these PLCs exhibited increased levels of teacher self-efficacy.

Practical implications. Stegall (2011) also posited the importance of building PLC structures and other related supports to facilitate collaborative work. Stegall claimed that when the appropriate structures are provided to facilitate teachers' work, teachers exhibit higher levels of teacher self-efficacy. DuFour (2007) advised that if principals promote a learning communities approach, then they are obligated to create structures to facilitate meaningful teacher collaboration. Dufour (2007) suggested the following guidelines for principals looking to embed facilitative structures:

- Schedule collaborative teacher time during the contractual day
- Establish specific priorities for collaborative work of teachers
- Ensure that teams have the appropriate knowledge base available to make decisions
- Provide differentiated training for teams
- Make templates and models accessible to teams to support their work
- Provide clear expectations for teams to use to assess the quality of their work

Learning communities have the potential to thrive when administrators devote attention to ongoing, sustained support by focusing on these elements. School principals studied by Mitchell and Castle (2005) identified that these enabling structures helped to focus "teacher talk" and as a result raised the level of academic discourse in the school (p. 472). In addition, administrators would do well to remain connected to the actual teaching and learning that is taking place in the school and to understand the learning goals of the professionals so that they might anticipate supports and intervene in strategic ways.

Tylus (2009) pointed out that in addition to structures at the organizational level, "critical to the successful implementation of a professional learning community was the understanding and establishment of group structures" (p. 40). Stegall (2011) pointed out that the very

"structure of the meeting is important" (p. 93). This emphasis on structures for facilitating the collaborative work of teams ignited an interest in studying the phenomenon and developing support materials for practitioners. Strategies for team facilitators were highlighted in numerous resources including those that examined structures for book studies (Jolly, 2008), leading collaborative inquiry (Donohoo, 2013), and guiding groups through protocols to enrich their meetings (Easton, 2009; Jolly, 2008). It is important to create structures or supports such as utilizing discussion protocols to guide teachers in rich dialogue or when providing meaningful feedback to one another. Protocols are powerful designs that enable teachers to move into deeper levels of reflection compelling them to engage in higher levels of thinking and learning than would naturally arise from a typical conversation between professionals (Easton, 2009). Structures such as these enable teachers to have the opportunities to collaborate and to delve into their collective learning. As administrators and teachers begin to facilitate their own learning and the learning of their colleagues, it may be beneficial to investigate protocols to act as vehicles for collaborative dialogue and facilitators' resources to enrich the learning experiences of staff (Easton, 2009). In addition, it may be beneficial for school boards to consider investing in training to help learning community members and administrators develop facilitative leadership skills, for instance, enhance their questioning techniques and knowledge of discussion protocols, since these skills have been identified as valuable to the work of successful learning communities (Stoll et al., 2006).

Coaching Practices

Participants who identified that coaching and mentoring opportunities and structures were available to them exhibited increased levels of teacher self-efficacy. Stegall (2011) claimed that educators "need to implement new skills and strategies with frequent coaching to ensure mastery

of the skill" (p. 22). Darling-Hammond (1995) emphasized that teacher training and opportunities for educators to practice new learning are often absent. In other words, teachers typically have limited opportunities and experience reflecting on the effectiveness of instructional practices, and receiving descriptive feedback from colleagues. Coaching is a process which involves implementing new strategies, receiving or offering ongoing support and coaching, and problem-solving (Ingvarson, Kleinhenz, Beavis, Barwick, Carthy, & Wilkinson, 2005). This high-yield form of professional development allowed educators to "deprivatise their practice and gain feedback about their teaching from colleagues" (Ingvarson et al., 2005, p.16).

Tschannen-Moran and Mcmaster (2009) also identified coaching-type opportunities as the professional development arrangement that yields the highest levels of teacher self-efficacy. Stegall (2011) pointed out that this type of collaborative work allows for "an authentic mastery experience in the teacher's own classroom, along with supportive, specific feedback and coaching" (p. 49) and asserted that these experiences greatly impact teachers' confidence and effectiveness with respect to teaching and learning practices. PLCs, particularly those with coaching opportunities, can act as a platform for individuals to learn collaboratively as they discuss the actual classroom experiences of peers as well as receive and provide specific feedback and insights pertaining to instructional experiences.

Practical implications. Coaching has been identified as a high-yield method of supporting educators in improving their instructional practices. Joyce and Showers (1988) demonstrated that teachers who worked with coaches demonstrated improvement in the implementation of instructional strategies and overall job performance. Smith (1999) shed light on the rise of school-based action-orientated 'peer support groups' as a form of professional development. Smith defined these communities of teachers as self-critical and open to growth

and learning through self-review. Smith's observations are reminiscent of Rosenholtz's (1989) teacher teams. These highly effective learning communities encompass teachers who learn together, analyze and evaluate their teaching, review student data, and collaboratively reflect upon their learning (Rosenholtz, 1989). The common characteristic described in these learning communities is an element of collaborative reflection. Collaborative reflection, when embedded in the work of learning communities, was identified by Beatty (2000) as a powerful mechanism for teacher growth. It is through coaching and mentoring practices that collaborative reflection is facilitated within the learning community. Teacher communities, however, require supports to move to this level of collaboration and facilitation. West-Burnham and O'Sullivan (1998) emphasized the need for highly-developed personal and interpersonal skills, and respect, trust and a sense of equality between members. School boards and schools might consider specific training to develop personal and interpersonal capacities coupled with high-quality facilitation are essential to support these groups as they grow to this level of proficiency.

Communities with Learning as a Primary Focus

Teachers who identified the purpose of the learning community as focused upon their professional learning outcomes have higher levels of teacher self-efficacy than participants who viewed the purpose as a means of sharing or socializing. This finding aligns with Little's (1990) Four Fold Taxonomy that is designed to assess team collaboration.

Little (1990) asserted that the lowest level of collaboration is "Storytelling and Scanning for Ideas" which describes a form of collaboration in which participants exchange stories and form friendships but the conversation does not generally lead participants to consider changes in their own current practices. Little suggested "Aid and Assistance" as the next level of collaboration, which involves participants requesting support and the members of the group

simply providing advice for that individual. Learning in this scenario is not viewed as a collaborative venture to get to a collective understanding on topics revolving around teaching and learning. Instead, an individual seeks advice and opinions from others regarding obstacles or concerns regarding issues as they pertain to teaching practices. The third level of collaboration, termed "In Sharing" suggests that team members are collaborating by sharing aspects of their instructional practice and teaching philosophy with peers such as exchanging teaching methods, ideas, and opinions (Little, 1990). The highest level of teacher collaboration described by Little bears the name "Joint Work." This type of collaboration involves participants raising issues for analysis and debate to assist the individuals and the team in arriving at new levels of understanding (Little, 1990). Little's work suggests that effective collaboration that leads to high-quality outcomes requires active participants who are invested in their own learning and the learning of other group members.

The finding that learning-based PLCs are linked to higher levels of teacher self-efficacy and that sharing and socializing are linked to lower levels of teacher self-efficacy aligns well with Little's (1990) findings. Even components of Bloom's (1956) 'Taxonomy of Higher Order Thinking' are evident in Little's description of "Joint Work" which suggests that the highest level of collaboration requires a deeper focus on higher level learning tasks such as analyzing, debating, and critiquing. Teachers who described the actual learning itself as the main focus of their learning community exhibited higher levels of teacher self-efficacy.

Practical implications. The results of this study suggested that participants who viewed the purpose of the learning community as focused on their professional learning outcomes had higher levels of teacher self-efficacy than participants who viewed the purpose as a means of sharing or socializing. This finding pertaining to the link between collaborative higher level

thinking and increased levels of teacher self-efficacy is particularly relevant to learning community members, administrators, or coaches that take on the role of facilitating the work of the PLC team.

Strategies that help participants to focus the collaborative work on the professional learning goals of the community members could prove particularly useful. For instance, one strategy might be focusing the learning by establishing goals and articulating the purpose of the PLC's learning for teachers and students. When the team meets again, the facilitator might elect to refocus the dialogue by explicitly stating the team's predetermined purpose for the time together as well as the non-purpose. The practice of clearly outlining the purpose and non-purpose of meetings was suggested by Killion (2008), the Senior Advisor of Learning Forward during a workshop geared towards facilitators. Facilitators have reported finding it particularly useful to highlight both the student learning goal and the professional learning goal based on the question of inquiry. By articulating the professional learning goal at the beginning of the dialogue, the team is able to clear the way for focused learning time and the rigorous work of the team.

In addition, it is possible to elevate the level of professional dialogue and intentionally push thinking through open ended questions and prompts to support rich discussion and learning (Walsh & Sattes, 2010). Protocols are sets of steps or processes that help to guide the dialogue of a collaborative team. Implementing appropriate protocols can lead members to deeper levels of learning (Easton, 2009). Weinbaum and colleagues (2004), acknowledged that "while it may feel somewhat awkward at first to use a protocol to structure a conversation, participants quickly realize that without an explicit structure, conversations about teaching and learning tend to drift, go in many directions at once, or become so abstract that they are unlikely to lead to any useful

learning" (p.47). Easton (2009) argued that protocols promote inquiry since they allow participants to "take a balcony view" of an issue. Protocols, when facilitated well, have the power to protect the participants and yet move the group into deep, focused dialogue (Easton, 2009). Easton acknowledged that these structures guide the conversation often resulting in teachers' challenging their own beliefs and often exposing (usually privately) underlying personal assumptions or learning needs that still exist.

Easton (2009) suggested that facilitators implement protocols within learning community meetings, but also advocated for the careful planning and strategic use of high-level questions. Easton differentiated between three essential types of questions to effectively focus the learning and to smoothly navigate through the protocol with a team. Easton referred to focusing questions, clarifying questions and probing questions. Allen and Blythe (2004) highlighted the key features of probing questions

- Are open-ended and allow for multiple responses
- Elicit contemplation
- Invite participants to consider other perspectives
- Help presenter to further explore and address her own question
- Are often brief (but weighty). (p. 71)

To support learning communities in moving towards implementing purposeful protocols and asking high-quality questions it is important to develop facilitative leadership skills. School boards and schools might consider investing in training and resources to foster these skills in learning community members.

Empowerment to Work Autonomously

The term teacher autonomy has been defined as a generalized right to freedom from control (Benson, 2000), or the power afforded to teachers to participate in self-directed teaching (Little, 1995). The factor named Empowerment to Work Autonomously reflects indicators that demonstrate that teachers are respected and that required resources are available to facilitate their work. Reeves (2010) explained that teachers are able to "maximize their influence only when they are supported by school and system leaders who give them the time, the professional learning opportunities, and the respect that are essential for effective teaching" (p. 70). Federici and Skaalvik (2011) determined that when principals exhibited supportiveness, they fostered autonomy and produced teachers with heightened levels of teacher self-efficacy. This finding is further supported by Pink (2009) who argued that employees across organizations demonstrated that they were highly motivated when they had the opportunity to work autonomously. Rosenholtz (1989) identified autonomy as a lack of intrusion or freedom from intrusion when it comes to determine one's own pathway. In addition, Rosenholtz suggested teachers should have extensive discretion in instructional matters.

Practical implications. Principals interested in empowering teachers to work autonomously are obliged to create conditions that facilitate teachers' work. The factor named "Empowerment to Work Autonomously" extracted from the 3 Factor solution consisted of the following PLCA-R indicators:

- Staff members have accessibility to key information (e.g. student discipline data, student learning data, etc.).
- Opportunities are provided for staff members to initiate change.
- School-based professional development focuses on teaching and learning.

- Staff members are consistently involved in discussing and making decisions about most school issues (e.g. supports for at risk students, increasing parental involvement, recent incidents of bullying, etc.).
- Appropriate technology and instructional material are available to staff.
- Resource people provide expertise and support for continuous learning.

These indicators represent some practical ways school boards and administrators encourage teacher autonomy. Blase and Blase (2001) pointed out that in order to empower teachers, principals must first establish a shared leadership approach. Principals should then focus on encouraging teacher autonomy and teacher innovation by allowing teachers to "be largely in control of instructional areas of classroom life," provide educators with general "control of non-instructional areas of classroom life" (such as discipline issues), and allow teachers to determine "needs for and access to additional but necessary supplies and materials" (Blase & Blase, 2001, p.89). Teachers articulated the empowering behaviours of their principals such as the principal protecting instructional time by limiting interruptions, listening to teaching staff, and guiding teachers while trusting them to make the final decision and try new strategies (Blase & Blase, 2001). Blase and Blase pointed out that empowering teachers to work autonomously basically calls for administrators to treat them like professionals. School boards and schools might anticipate the resources, (such as student data or instructional materials) and controls (such as the ability to initiate change or use innovative strategies) that teachers' might require to facilitate their work as effective teachers and ensure that those resources and controls are made available to them.

Limitations of the Study

A limitation of this study is the relatively small sample size. While the teachers who responded to the survey were employees of various schools across Southwestern Ontario, a larger number of participants might have provided more generalizable findings. As previously addressed, a limitation arose, at times, when trying to compare specific responses, the researcher was unable to explore certain potential relationships because the groups being compared were not large enough to permit quantitative analyses.

Limitations exist that are commonly associated with research questionnaires (Gray & Guppy, 1994). For example, due to the nature of this method of data collection, participants were unable to ask follow-up questions. The impact of this limitation may be reduced, however by the initial pilot-test that enabled teachers to respond to the questionnaires and indicate areas on the questionnaires that were ambiguous or problematic. There is no evidence to suggest that these limitations would have significantly affected the representativeness ("match[ing of] the distributions derived from your sample with known distribution of the population") (Gray & Guppy, 1994, p. 162) of the data.

Future Research

The following are recommendations for future research in the area of professional learning communities and teacher self-efficacy.

1. The finding that Shared Values and Vision was a negative predictor of TSES suggests this would be an area for future studies. While Shared Values and Vision appear consistently throughout the literature to suggest that it is an essential component of an effective PLC, this study and Nolan's (2009) work pertaining to PLCs suggest that there is a negative relationship between Shared Values and Vision and TSES. The component 'Shared Values

and Vision' described the set of guiding principles that focuses the work of the staff and determines the school's direction. Studies by Hoy, Tarter and Witkoskie (1992) and Hoy and Woolfolk (1993) identified that principals who promoted high performance expectations and a sense of purpose established by visions and goals produced teachers who possessed elevated levels of teacher self-efficacy. However, results produced in this study revealed the opposite. 'Shared Values and Vision' was actually identified as a negative predictor of teacher self-efficacy. This finding is similar to Nolan's (2009) conclusions regarding elements related to shared values and vision and teachers' self-efficacy.

Nolan (2009) found that teachers who indicated that a "collaborative decision-making structure existed" that was guided by "the good of the school" actually exhibited lower teacher self-efficacy than those who did not identify with this statement. Nolan also found that teachers who believed that their principal held high expectations for faculty and students actually exhibited lower levels of teacher self-efficacy than those who did not feel this way. In addition, Nolan found that teachers with lower efficacy strongly believed that their principal communicated a clear mission, goals, and purpose for the school while those with higher efficacy did not believe that to be particularly true. Additional research might be required to shed light on this topic.

2. The finding of a 'potentially meaningful' association between Supportive Conditions: Relationships and TSES seemed to align with a finding that emerged later in this study. The results indicated that teachers who felt that the learning within the PLC was focused on the work of teaching and learning exhibited higher levels of teacher self-efficacy than teachers who identified that the focus was primarily social, for sharing resources or sharing the

workload. Since the relationship between Supportive Conditions: Relationships and teacher self-efficacy was only 'potentially meaningful,' it remains an area for future research.

3. Teachers who viewed the momentum within the learning community as generated by specific members or specific combinations of members (these options from the questionnaire one teacher-leader, a different teacher leader than identified in question 19 (informal group leader), instructional coach, teachers and administration) had higher levels of teacher self-efficacy than did participants who viewed the momentum within the learning community generated by other members or combination of members (most or all of the PLC group, the administration or one teacher paired with the administration). This finding indicates that there is a link between the individual or the group of individuals who shape the agenda and guide the direction of the learning community work or meetings and teacher self-efficacy. Additional studies might be useful in searching for a relevant trend pertaining to those that generate momentum within a learning community group and levels of teacher self-efficacy.

4. The data pertaining to the frequency of learning community meetings revealed some patterns that might merit additional investigation. In general, there was an emerging trend that hinted that the more frequently participants meet, the higher the levels of teacher self-efficacy. Since the number of participants was not evenly distributed, the emerging pattern could not be tested. This area would be an appropriate topic to pursue in future studies.
5. It is noteworthy that the statement regarding financial support provided by administrators was not identified as being positively related to TSES scores while many other resources such as provision of time, conversation structures, expert personnel, access to instructional resources and access to data relevant to teaching and learning. In this study, teachers felt

supported through actual structures such as the provision of time for professional growth, structured conversations, and the ability to learn with colleagues instead of simply having access to financial resources or having administrators that would spend money on resources when asked. This observation might merit further investigation through further research.

6. While the scope of this study did not include collection of any qualitative data, follow-up interviews with participants or collection of other qualitative data might provide additional insights into the results of the study. For instance, participants could expand on some of their responses and further describe some of the elements that contribute to their PLC experiences. Participants might be able to better articulate some of the characteristics of their PLCs that influence their teacher self-efficacy.
7. Given the results of the study, further research into additional professional learning community characteristics and conditions might be considered. The results of the PLCA-R suggested several 'potentially meaningful' trends, however they did not achieve the appropriate level of significance to be considered significant findings in this study. The 'potentially meaningful' findings were identified based on their level of significance, meaning that statements on the PLCA-R that had alpha scores of .051 to .1 levels were identified as possible areas to be further explored in future work, particularly with larger populations. The following statements were identified as 'potentially meaningful':
    - Principal welcomes input from staff and considers their feedback when making decisions.
    - Principal shares responsibility by being open and encouraging to staff who wish to initiate/lead activities.

- Decision-making takes place through committees and communication occurs across grade/subject divisions.
- Staff members engage in dialogue that reflects a respect for diverse ideas that lead to continuous inquiry.
- School facility is clean, attractive and inviting.
- Data are organized and made available to staff.

Any of these 'potentially meaningful' indicators might be considered in relation to TSES in future studies.

8. Hoy and Miskel (2005) highlighted the importance of collective efficacy, or the shared beliefs of teachers and administrators regarding the capabilities and efforts of the faculty as a whole to have a positive effect on student learning. While the construct of teacher self-efficacy was explored in this study, the related construct of collective efficacy might be pursued in future studies to examine learning communities' collective efficacy.

Reflections on Current Practices

I have elected to include some observations and reflections based on my lived experience as an administrator and former instructional coach in schools. These comments are not meant to be generalized onto the entire province, school board or even any individual school. The items mentioned in this section are merely observations and reflections that I will consider in my own practice.

Direction and momentum. In my experience, it seems that the learning community makes more progress towards its goals when the focus of the work is limited to fewer initiatives or directions. When the focus of school improvement efforts is clear, I have observed that teachers are more adept at articulating the direction and stating the strategies they have

implemented and students' progress towards reaching school goals. In addition, a broad school wide focus tends to eliminate confusion. A broad focus keeps the conversations connected even if the small groups within the school are not necessarily pursuing identical work. For instance, if a school is pursuing improving communication skills in math as a focus, some teams might be working on developing strategies to support 'accountable talk' in math while others might be looking at written communication in math.

In my experience, many benefits arise from investing time into articulating the learning goals for both the students and the teachers. When participants revisit these goals at each sitting, they are reminded of their purpose for their learning and this reduces time spent off-task. It has been a useful facilitative tactic, particularly when investigating instructional strategies and resources to support the professional learning of the team members. In addition, crafting and revisiting professional learning goals fosters metacognitive habits of mind for participants.

Another important point pertaining to direction is that administrators, learning community facilitators and teams who draft the agenda for the next meeting at the end of the current meeting create momentum for the work, enabling it to be continuous and sustainable. In addition, this strategy clarifies responsibilities and allows teams to begin their collaborative learning as soon as they meet up again. In this scenario, before concluding the meeting, a facilitator or secretary will invest a few minutes in enlisting the support of the team in drafting the group's agenda for the upcoming meeting and determining what preparatory steps are required of each member. Typically, these notes are sent out to members before the next meeting so that they are able to have a focus for their learning and come into the meeting prepared.

Presence and frequency. In my experience, it appears to work best when administrators are involved in very specific ways. There is a definite power imbalance due to the role of the

administrator in the school, however administrators who get into classrooms and attempt to teach using strategies that are being discussed and participate in the learning alongside staff tend to experience more success. This approach helps to keep administrators connected to the teaching and learning in the school and lends them credibility as head learners in the school. This shift is not an easy one for many administrators however principals who are open to developing their instructional leadership skills might consider persisting in spite of the discomfort. When I was working as an instructional coach, one administrator asked me to cue him using predetermined nonverbal signals when he stepped out of the role of participant and into the role of principal. When administrators are willing to become vulnerable and learn by engaging in this work, they are able to better understand teaching and learning in their schools and implement supports that can make significant differences. It seems to work best when administrators are consistently involved as participants in the learning community instead of just dropping in from time to time.

In terms of consistent attendance, it is critical that the same members of the learning community are able to attend the meetings on a regular basis. This helps to maintain continuity and when a member is away, it is important to have systems in place to share the highlights and outcomes of the last meetings. In my experience, it works best when teams are afforded time to collaborate at least once every two weeks. When the meetings happen less frequently than this, it seemed as though PLC meetings are perceived by teachers as isolated events instead of a way of doing business.

Powerful professional learning. In my experience, learning community participants benefit most when the teacher learning is rigorous. When teachers participate in debating, critiquing, creating, and analyzing, they seemed to invest more in the work of the learning community. Teachers must think deeply when participating in activities such as individually

completing student assignments, then collaboratively identifying the thinking that was employed to pinpoint essential teaching that should take place and determining appropriate ways of assessing the student work. Other activities that enlist higher level thinking skills are analysis of peers' actual instructional practices either in person or through video viewing. These types of activities require teachers to deprivatize their practices and to think deeply about refining instructional practices. In addition, when teachers share work from their own practice, it appears that deeper connections begin to develop between PLC members, relationships that are rooted in the work.

Conclusions

A high sense of efficacy has been repeatedly linked to indicators of overall teacher effectiveness (Chaco'n, 2005; Henson, 2001; Ross & Bruce, 2007; cf. Tschannen Moran, Woolfolk Hoy, & Hoy, 1998). In fact, Henson (2001) suggested that a strong sense of efficacy is "perhaps one of the best documented attributes of effective teachers" (p. 404). This study sought to uncover the origins of teacher self-efficacy, as well as the experiences and supports that promote and nurture teacher self-efficacy. PLCs are established structures of job-embedded staff development that have demonstrated to improve teacher and student outcomes (Dufour & Eaker, 1998; Hord, 1997; Ross & Bruce, 2007; Reeves, 2010).

Based upon the findings of this study, PLC structures appeared to be linked to increased levels of teacher self-efficacy. The relationship between Shared and Supportive Leadership and Supportive Conditions: Structures and TSES scores indicated that certain conditions and characteristics of the PLC are particularly influential with respect to teacher self-efficacy. In other words, specific indicators from the PLCA-R tool linked certain aspects of the PLC to increased levels of teacher self-efficacy. Factor analysis was conducted using the 13 significant

indicators. Three factors were extracted and named: Structures and Opportunities for Collaborative Learning, Empowerment to Work Autonomously, and Coaching Practices.

In addition to these findings, it was also found that the role of the individual or individuals who generate momentum for the PLC's work is critical. More specifically, TSES was higher when one teacher leader, an instructional coach or teachers and administration were involved in building the agenda for the PLC meeting than when most or all of the teachers, just administration, or one teacher paired with administration were involved in that process. Participants with higher teacher self-efficacy also expressed that the primarily purpose of PLC time for them is learning instead of socializing or sharing their work. It is also noteworthy that while Shared Vision and Values has repeatedly been identified as an essential element of effective PLCs (Dufour & Eaker, 1998; Elmore, 2000; Hord 1997), the findings in this study point to this component as a negative predictor of teacher self-efficacy.

As a result of the factor analysis, three key factors arose: Shared Leadership Approach, Structures and Opportunities for Collaborative Learning (Embedded Facilitative Structures and Structures that Promote an Environment of Collaborative Learning), Empowerment to Work Autonomously and Coaching Practices. In addition, Communities with a Focus on Learning arose from the data analysis conducted on the researcher tool and was an identified theme. According to the findings of this study, the listed themes comprise many of the elements that cause the PLC to influence on teacher self-efficacy. Many critical areas for further research have also been identified in this section. It may be possible to develop more efficient and effective professional development supports through increased attention to creating school cultures that honour these tenets.

Beginning steps involve refocusing some of the professional development efforts and the allocation of resources by embedding teacher-centered structures such as PLCs and sharing the leadership by trusting teachers to direct their own learning and providing them with time to work collaboratively with colleagues. These transformations are not minor. In fact, they may reflect a significant paradigm shift for many policy makers, school board officials, administrators, and teachers. These transformations however appear to be the necessary beginning steps towards promising gains for teachers.

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APPENDICES

Appendix A

DEMOGRAPHIC SURVEY

1. Gender:
   __ Male
   __ Female

2. Age:
   __ 20-25
   __ 26 – 30
   __ 31 – 35
   __ 36 – 40
   __41 – 45
   __ 46 – 50
   __ 50 or older

3. Ethnicity:
   __ Asian
   __ Black
   __ Hispanic
   __ White
   __Other

4. Marital Status:
   __ Married
   __ Single
   __ Divorced
   __ Common Law

5. Number of Children:
   __ 0
   __ 1
   __ 2
   __ 3
   __4
   __ 5 or more

6. Do you live within the geographic area from which the school draws its students?
   __Yes
   __No

Appendix B

TEACHING EXPERIENCES SURVEY

1. Total number of years as a professional educator:
   __ Less than 1 year
   __ 1-3
   __4-5
   __6-10
   __11-20
   __21-30
   __31 or more

2. Do you consider teaching to be your first career
   __ Yes
   __ No

3. Total number of years working at your current school:
   __Less than 1 year
   __1
   __2-3
   __4-5
   __6-10
   __11-20
   __21 – 30
   __ 31 or more

4. Do you teach a homeroom?
   __ Yes
   __No, I teach rotary
   __ No, I have a different assignment _____ (explain)

5. What grade level do you spend most of your time teaching? (check all that apply)
   __Combined Grades (split)
   __ Early Years
   __ Grade 1
   __Grade 2
   __ Grade 3
   __ Grade 4
   __Grade 5
   __Grade 6
   __Grade 7
   __Grade 8
   __Other _____

6. As a teacher you are certified to teach certain grade levels and/or subject areas. Do you teach more than one class that is in your area of certification?
   __ Yes
   __ No

7. Highest degree completed:
   __Bachelors
   __Masters
   __PhD/EdD

8. Basic Qualifications:
   __ Primary
   __Junior
   __Intermediate
   __ Senior

9. How much time did you spend working in a non-teaching position before you received a full-time teaching position?
   __0-6 months
   __7-11 months
   __1 year
   __ 2 years
   __3 years
   __4 years
   __5 years
   __6 years or more

10. How much time did you spend working as a supply/occasional teacher before you received a full-time teaching contract?
    __0-6 months
    __7-11 months
    __1 year
    __ 2 years
    __3 years
    __4 years
    __5 years
    __6 years or more

Appendix C

Department of Educational Foundations and Leadership
P.O. Box 43091
Lafayette, LA 70504-3091

February 12, 2012

Margot Heaton
Doctoral Student, University of Windsor
615 Reaume Road
LaSalle, Ontario Canada N9J1B5

Dear Ms. Heaton:

This correspondence is to grant permission to utilize the *Professional Learning Community Assessment-Revised* (PLCA-R) as your instrument for data collection for your doctoral study through the University of Windsor, Ontario. I believe your research *investigating relationships between professional learning communities and teacher self-efficacy* will contribute to the PLC literature and provide valuable information relating to the self-efficacy theoretical perspective. I am pleased that you are interested in using the PLCA-R measure in your research.

This permission letter allows use of the PLCA-R through a paper/pencil administration. In order to receive permission for the PLCA-R online version, it is necessary to secure the services through our online host, SEDL in Austin, TX. Additional information for online administration can be found at www.sedl.org.

Upon completion of your study, I would be interested in learning about your results. If possible, I would appreciate the opportunity to receive an Excel file of raw data from your administration of the PLCA-R (applicable only for paper/pencil version). This information would be added to our data base of PLCA-R administration. Additionally, I would also be interested in learning about your entire study and would welcome the opportunity to receive an electronic version of your completed dissertation research.

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

Sincerely,

Dianne F. Olivier

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Appendix D

Professional Learning Communities Assessment – Revised

Directions:

This questionnaire assesses your perceptions about your principal, staff, and stakeholders based on the dimensions of a professional learning community (PLC) and related attributes. This questionnaire contains a number of statements about practices which occur in some schools. Read each statement and then use the scale below to select the scale point that best reflects your personal degree of agreement with the statement. Shade the appropriate oval provided to the right of each statement. Be certain to select only one response for each statement. Comments after each dimension are optional.

Key Terms:

Principal = Principal (not Vice Principal)

Staff/Staff Members = All adult staff directly associated with curriculum, instruction, and assessment of students

Stakeholders = Parents and community members

Scale:

1 = Strongly Disagree (SD)

2 = Disagree (D)

3 = Agree (A)

4 = Strongly Agree (SA)

STATEMENTS		SCALE			
Shared and Supportive Leadership					
1.	Staff members are consistently involved in discussing and making decisions about most school issues (e.g. supports for at risk students, increasing parental involvement, recent incidents of bullying, etc.)	SD	D	A	SA
2.	The principal welcomes staff members to provide input and takes this feedback into consideration when making decisions.	SD	D	A	SA
3.	Staff members have accessibility to key information (e.g. student data, etc.)	SD	D	A	SA
4.	The principal is proactive and addresses areas where support is needed.	SD	D	A	SA
5.	Opportunities are provided for staff members to initiate change.				
6.	The principal shares responsibility by being open and encouraging when teachers want to coordinate school wide events, share recent learning with staff or wish to take on additional responsibilities (e.g. teacher wishes to begin a book club, principal and teacher go to a workshop and they work together to present ideas back to staff, etc.)	SD	D	A	SA
7.	The principal shares rewards for innovative actions by acknowledging staff that have taken on additional responsibilities or tried new approaches or strategies in their classroom.	SD	D	A	SA
8.	The principal participates democratically with staff sharing power and authority.	SD	D	A	SA
9.	Leadership is promoted and nurtured among staff members.	SD	D	A	SA

10.	Decision making takes place through committees and through communication across grade and subject areas (e.g. collecting input/feedback from grade level or division teams to determine school improvement focus)	SD	D	A	SA
11.	Stakeholders assume shared responsibility and accountability for students' learning without evidence of imposed power and authority.	SD	D	A	SA
12.	Staff members use multiple sources of data to make decisions about teaching and learning (e.g. staff members use student profile data and assessment data, etc.)	SD	D	A	SA
Shared Vision and Values					
1.	A collaborative process exists for developing a shared sense of values among staff.	SD	D	A	SA
2.	Shared values clearly guide the decisions about teaching and learning.	SD	D	A	SA
3.	Staff members share visions for school improvement that have unwavering focus on student learning.	SD	D	A	SA
4.	Decisions are clearly made in alignment with the school's values and vision.	SD	D	A	SA
5.	A collaborative process exists for developing a shared vision among staff (e.g. Staff members discuss school improvement planning together before drafting school goals, etc.)	SD	D	A	SA
6.	School goals focus on student learning beyond test scores and grades.	SD	D	A	SA
7.	Policies and programs are aligned to the school's vision.	SD	D	A	SA
8.	Stakeholders are actively involved in creating high expectations that serve to increase student achievement.	SD	D	A	SA
9.	Data are used to prioritize actions to reach a shared vision.	SD	D	A	SA
Collective Learning and Application					
1.	Staff members work together to seek knowledge, skills and strategies and apply this new learning to their work.	SD	D	A	SA
2.	Collegial relationships exist among staff members that reflect commitment to school improvement efforts.	SD	D	A	SA
3.	Staff members plan and work together to search for solutions to address diverse student needs.	SD	D	A	SA
4.	A variety of opportunities and structures exist for collective learning through dialogue.	SD	D	A	SA
5.	Staff members engage in dialogue that reflects a respect for diverse ideas that lead to continued inquiry.	SD	D	A	SA
6.	School-based professional development focuses on teaching and learning.	SD	D	A	SA
7.	School staff members and stakeholders learn together and apply new knowledge to solve problems.	SD	D	A	SA
8.	School staff members are committed to programs that enhance learning.	SD	D	A	SA
9.	Staff members collaboratively analyze multiple sources of data to assess the effectiveness of instructional practices.	SD	D	A	SA

10.	Staff members collaboratively analyze student work to improve teaching and learning.	SD	D	A	SA
Shared Personal Practice					
1.	Opportunities exist for staff members to observe peers and offer encouragement.	SD	D	A	SA
2.	Staff members provide feedback to peers related to instructional practices.	SD	D	A	SA
3.	Staff members informally share ideas and suggestions for improving student learning.	SD	D	A	SA
4.	Staff members collaboratively review student work to share and improve instructional practices.	SD	D	A	SA
5.	Opportunities exist for coaching and mentoring.	SD	D	A	SA
6.	Individuals and teams have the opportunity to apply learning and share the results of their practices (e.g. teachers have opportunities to try some of the strategies that they are learning about and connect with others to share their progress and problem-solve any difficulties, etc.).	SD	D	A	SA
7.	Staff members regularly share student work to guide overall school improvement.	SD	D	A	SA
Supportive Conditions: Relationships					
1.	Caring relationships exist among staff and students that are built on trust and respect.	SD	D	A	SA
2.	A culture of trust exists for taking risks.	SD	D	A	SA
3.	Outstanding achievement is recognized and celebrated regularly in our school.	SD	D	A	SA
4.	School staff and stakeholders exhibit a sustained and unified effort to embed change into the culture of the school.	SD	D	A	SA
5.	Relationships among staff members support honest and respectful examination of data to enhance teaching and learning.	SD	D	A	SA
Supportive Conditions: Structures					
1.	Time is provided to facilitate collaborative work.	SD	D	A	SA
2.	The school schedule promotes collective learning and shared practice.	SD	D	A	SA
3.	Financial resources are available for professional development.	SD	D	A	SA
4.	Appropriate technology and instructional materials are available to staff.	SD	D	A	SA
5.	Resource people provide expertise and support for continuous learning.	SD	D	A	SA
6.	The school facility is clean, attractive, and inviting.	SD	D	A	SA
7.	The physical proximity or layout of grade level classrooms and divisional colleagues allows for ease in collaborating with colleagues.	SD	D	A	SA
8.	Communication systems promote a flow of information among staff members.	SD	D	A	SA
9.	Communication systems promote a flow of information across the entire school community including: central office personnel, parents, and community members.	SD	D	A	SA

10.	Data are organized and made available to provide easy access to staff members.	SD	D	A	SA

Appendix E

Teachers' Sense of Efficacy Scale (long form)

Teacher Beliefs How much can you do?

Directions: This questionnaire is designed to help us gain a better understanding of the kinds of things that create difficulties for teachers in their school activities. Please indicate your opinion about each of the statements below. Your answers are confidential.

(1) Nothing
(2)
(3) Very Little
(4)
(5) Some Influence
(6)
(7) Quite A Bit
(8)
(9) A Great Deal

1. How much can you do to get through to the most difficult students?
(1) (2) (3) (4) (5) (6) (7) (8) (9)

2. How much can you do to help your students think critically?
(1) (2) (3) (4) (5) (6) (7) (8) (9)

3. How much can you do to control disruptive behavior in the classroom?
(1) (2) (3) (4) (5) (6) (7) (8) (9)

4. How much can you do to motivate students who show low interest in school work?
(1) (2) (3) (4) (5) (6) (7) (8) (9)

5. To what extent can you make your expectations clear about student behavior?
(1) (2) (3) (4) (5) (6) (7) (8) (9)

6. How much can you do to get students to believe they can do well in school work?
(1) (2) (3) (4) (5) (6) (7) (8) (9)

7. How well can you respond to difficult questions from your students?
(1) (2) (3) (4) (5) (6) (7) (8) (9)

8. How well can you establish routines to keep activities running smoothly?
(1) (2) (3) (4) (5) (6) (7) (8) (9)

9. How much can you do to help your students value learning?
(1) (2) (3) (4) (5) (6) (7) (8) (9)

10. How much can you gauge student comprehension of what you have taught?
(1) (2) (3) (4) (5) (6) (7) (8) (9)

11. To what extent can you craft good questions for your students?
(1) (2) (3) (4) (5) (6) (7) (8) (9)

12. How much can you do to foster student creativity?
(1) (2) (3) (4) (5) (6) (7) (8) (9)

13. How much can you do to get children to follow classroom rules?
(1) (2) (3) (4) (5) (6) (7) (8) (9)

14. How much can you do to improve the understanding of a student who is failing?
(1) (2) (3) (4) (5) (6) (7) (8) (9)

15. How much can you do to calm a student who is disruptive or noisy?
(1) (2) (3) (4) (5) (6) (7) (8) (9)

16. How well can you establish a classroom management system with each group of students?
(1) (2) (3) (4) (5) (6) (7) (8) (9)

17. How much can you do to adjust your lessons to the proper level for individual students?
(1) (2) (3) (4) (5) (6) (7) (8) (9)

18. How much can you use a variety of assessment strategies?
(1) (2) (3) (4) (5) (6) (7) (8) (9)

19. How well can you keep a few problem students form ruining an entire lesson?
(1) (2) (3) (4) (5) (6) (7) (8) (9)

20. To what extent can you provide an alternative explanation or example when students are confused?
(1) (2) (3) (4) (5) (6) (7) (8) (9)

21. How well can you respond to defiant students?
(1) (2) (3) (4) (5) (6) (7) (8) (9)

22. How much can you assist families in helping their children do well in school?
(1) (2) (3) (4) (5) (6) (7) (8) (9)

23. How well can you implement alternative strategies in your classroom?
(1) (2) (3) (4) (5) (6) (7) (8) (9)

24. How well can you provide appropriate challenges for very capable students?
(1) (2) (3) (4) (5) (6) (7) (8) (9)

Appendix F

Anita Woolfolk Hoy, Ph.D. Professor
Psychological Studies in Education

Dear Margot Heaton:

You have my permission to use the *Teachers' Sense of Efficacy Scale* in your research. A copy of both the long and short forms of the instrument as well as scoring instructions can be found at: http://www.coe.ohio-state.edu/ahoy/researchinstruments.htm

Best wishes in your work,

Anita Woolfolk Hoy, Ph.D.
Professor
College of Education Phone 614-292-3774
29 West Woodruff Avenue www.coe.ohio-state.edu/ahoy FAX 614-292-7900
Columbus, Ohio 43210-1177 Hoy.17@osu.edu

Appendix G

PROFESSIONAL LEARNING COMMUNITY EXPERIENCES

One main purpose of this study is to better understand the relationship between teacher self-efficacy and learning communities. For the purpose of this study, the term 'Learning Community' will be defined as a group of teachers who come together through face-to-face interactions, phone conversations, interactions facilitated through digital media, or a combination of any of these, to learn collaboratively about issues as they relate to their daily work.

- Do you participate in one or more learning communities according to this definition?
  __Yes
  __No

If you answered No, please stop the questionnaire at this point.

If you participate in more than one learning community, please focus on the learning community that has influenced you as a professional educator in the most significant way.

1. In the learning community that you identified as most influential on you as a professional educator, how does this learning community most commonly meet?
   __online chat
   __email
   __over the phone
   __ using skype or some other application that enables you to see one another and chat
   __ in person
   __ other

2. In the learning community that you identified as most influential on you as a professional educator there may be a variety of methods of interaction. Which method do you believe generates momentum for the group?
   __online written chat
   __email
   __over the phone
   __ using skype or some other application that enables you to see one another and chat
   __ in person
   __ other

3. How regularly do you meet with your learning community?
   __ every day
   __ 3 or more times per week
   __ 2 times per week
   __ 1 time per week
   __ every other week
   __ every three weeks
   __ once a month
   __ a few times per year
   __ other

4. Is your learning community organized by:
   __grade level
   __ division
   __teachers with similar interests
   __ content area
   __ random teachers
   __ other _____

5. Who first initiated this team's collaboration? Who first suggested this team should meet?
   __ current administration
   __ administration that has since left the school
   __ a current member of the group
   __instructional coach
   __ a member of the group who has since left
   __ a school-based opportunity (please name: _____)
   __ other _____
   __ unsure

6. Who determines what is discussed when you meet?
   __ one teacher-leader
   __ most or all teachers involved
   __ administration
   __ instructional coach
   __ one teacher and administration
   __ teachers and administration

7. In this learning community who helps keep the momentum so that the group continues to move towards its goals and you will continue to meet?
   __ one teacher-leader
   __ a different teacher leader than identified in question 6
   __ most or all teachers involved
   __ administration
   __ instructional coach
   __ one teacher and administration
   __ teachers and administration
   __ unsure

8. Do you have time built into your school schedule to meet with the members of the learning community you identified as most influential on you as a professional educator?
   __ Yes, shared prep time
   __ Yes, time outside of prep time
   __ Yes, through other arrangements _____(explain)
   __ No, we don't have shared prep time, time outside of prep time or other arrangements.

9. For you, what is the primary function of the learning community that you identified as most influential? or why do you believe this PLC has had the most influence on you as a professional educator?
   __ the learning
   __ socializing with peers
   __ sharing the load
   __ sharing practices
   __ reflection time
   __ impact on my teaching

Appendix H

Office of the Research Ethics Board

University of Windsor
thinking forward

Today's Date: March 09, 2012
Principal Investigator: Mrs. Margot Heaton
REB Number: 29903
Research Project Title: REB# 12-032: An Examination of the Predictive Power of Demographic, Experiential, and Professional Learning Community Variable Clusters in Relation to Teacher Self-Efficacy
Conditional Clearance Date: March 8, 2012 (Pending receipt of clearance from the each proposed school board)
Project End Date: December 30, 2012
Milestones:
Renewal Due-2012/12/30(Pending)

This is to inform you that the University of Windsor Research Ethics Board (REB), which is organized and operated according to the Tri-Council Policy Statement and the University of Windsor Guidelines for Research Involving Human Subjects, has granted approval to your research project on the date noted above. This approval is valid only until the Project End Date.

A Progress Report or Final Report is due by the date noted above. The REB may ask for monitoring information at some time during the projects approval period.

During the course of the research, no deviations from, or changes to, the protocol or consent form may be initiated without prior written approval from the REB. Minor change(s) in ongoing studies will be considered when submitted on the Request to Revise form.

Investigators must also report promptly to the REB:
a) changes increasing the risk to the participant(s) and/or affecting significantly the conduct of the study;
b) all adverse and unexpected experiences or events that are both serious and unexpected;
c) new information that may adversely affect the safety of the subjects or the conduct of the study.

Forms for submissions, notifications, or changes are available on the REB website: www.uwindsor.ca/reb. If your data is going to be used for another project, it is necessary to submit another application to the REB. We wish you every success in your research.

Pierre Boulos, Ph.D.
Chair, Research Ethics Board

c.c. Dr. Glenn Rideout, Supervisor, Education

This is an official document. Please retain the original in your files.

Appendix I

EMAIL REQUESTING PERMISSION FROM SUPERINTENDENT AND PRINCIPAL

Date

School Superintendent:
School District
City, Postal Code

Dear School Superintendent:

I am requesting permission to survey a number of teachers in elementary schools in your board to collect data for a research study. I am conducting the study as a part of my doctoral dissertation at the University of Windsor. The purpose of the study is to examine the relationship between teacher self-efficacy and demographic variables, teaching experiences, and experiences in professional learning communities (PLCs). In addition, the study seeks to identify professional learning community characteristics that correlate with teacher self-efficacy. Participants will be asked to spend approximately 30 minutes reading and completing online questionnaires while at home or at a school location. The online tools will be available to teachers for approximately one month and it is anticipated that the results will be available by December 2012 at the following web address: www.uwindsor.ca/reb. All of the instruments that will be used are attached to this email message for your perusal. Participants will have the opportunity to enter a draw to win one of three $100 gift cards at www.amazon.ca.
My research has been approved by the University of Windsor Research Ethics Boards which has granted clearance for this study. The safeguards that I employ include confidentiality in all data collected.

The knowledge that is gained through this study could contribute to your board's staff development plans and benefit the teachers and students in your school board. If you have any questions, please feel free to contact me at (519) XXX-XXXX or by email at XXX@uwindsor.ca or Dr. XXX, my supervisor, at (519) XXX-XXXX ext. XXXX or by email at XXX@uwindsor.ca. If you agree to participate in this research, please so indicate in your email response and I will then forward a letter of recruitment that can be sent out to teachers with a link which guides interested teachers to the surveys.

Sincerely,

Margot Heaton
BComm.,BEd., MEd.

Appendix J

EMAIL TO TEACHERS TO RECRUIT

Date

School Superintendent:
School Board
City, Postal Code

Dear Teacher:

I am requesting your participation in a research study. I am conducting the study as a part of my doctoral dissertation at the University of Windsor. The purpose of this study is to examine the relationship between teacher self-efficacy and demographic variables, teacher experiences, and Professional Learning Communities (PLCs).
Much can be learned from studying the degree to which various factors relate to teachers' self-efficacy.

I understand the pressures and time constraints within a school setting, and I hope that you will be willing to participate in the electronic surveys. Participating in this study might require up to 30 minutes of your time. Once you have submitted your responses they will be merged with other data and it will be impossible to connect this data to you as an individual. As a token of my appreciation, you will have the option to enter into a draw for one of three $100 gift cards to amazon.ca. The draw will take place two weeks after the data collection has concluded. The survey will remain online until an appropriate number of responses have been received.
My research includes all safeguards as established by the University of Windsor Research Ethics Board. The safeguards that I will employ include confidentiality in all data collection.
It is my hope that the knowledge that is gained through this study will benefit the teachers and students in your board. If you have any questions, please feel free to contact me at (XXX) XXX-XXXX or email me: XXX@uwindsor.ca or Dr. XXX, my supervisor, at (XXX) XXX-XXXX ext. XXXX or by email at XXX@uwindsor.ca.
To participate in this study, please click the link below:
http://uwindsor.fluidsurveys.com/surveys/margot/teaching-experiences-survey
Sincerely,

Margot Heaton
BComm, BEd, MEd

Appendix K

CONSENT TO PARTICIPATE IN RESEARCH

Title of Study: An Examination of the Predictive Power of Demographic, Teaching Experiences, and Professional Learning Community (PLC) Variable Clusters in Relation to Teacher Self-Efficacy.

You are asked to participate in a research study conducted by Margot Heaton, from the Faculty of Education at the University of Windsor. The results of this study will contribute to a dissertation.

If you have any questions or concerns about the research, please feel to contact Margot Heaton at XXX@uwindsor.ca or by telephone at (XXX) XXX-XXXX. You may also contact Dr. Glenn Rideout, the Faculty Supervisor associated with this study, at XXX@uwindsor.ca or at (XXX) XXX-XXXX ext. XXXX.

PURPOSE OF THE STUDY

The purpose of the study is threefold:

1) To examine the relationship between demographic, experiential and PLC variable clusters and teacher self-efficacy

2) To examine the relationship of six different PLC components (as described and measured by Hord, 2001) and teacher self-efficacy

3) To investigate the groupings of characteristics and conditions identified in PLC experiences associated with teacher self-efficacy

PROCEDURES

You have been selected to participate in this study because you are working as a full-time elementary teacher in an Ontario School Board that has expressed an interest in learning more about teachers' backgrounds, their teaching and learning experiences, and their learning communities. Your participation in this study requires that you select the link found below, consent to participate, and complete the questionnaires that will follow. You are asked to complete the online surveys, which will take approximately 30 minutes, at one sitting so that your responses will be saved. At the end of the final survey you will have the option to send in your name and contact information so that you can be entered into a draw to win one of three $100 gift cards to amazon.ca.

The draw will take place two weeks after data collection is complete.

Your participation is considered complete once you have electronically submitted your surveys. The data collected from this study will contribute to a dissertation and the information collected may be used in follow-up studies.

Some information about this study:
One main purpose of this study is to better understand the relationship between teacher self-efficacy and three variable clusters: demographic, teaching experiences and experiences within learning communities. For the purpose of this study, the term 'learning community' will be defined as a group of teachers who come together through face-to-face interactions, phone conversations, interactions facilitated through digital media, or a combination of any of these, to learn collaboratively about issues as they relate to their daily work. The term self-efficacy is defined by Tschannen-Moran and Woolfolk Hoy (2001) as "a teacher's judgment of his or her capabilities to bring about desired outcomes of student engagement and learning, even among those student who may be difficult or unmotivated" (p. 783). Tschannen-Moran and Woolfolk Hoy's Teacher Sense of Efficacy Scale is being used in this study therefore their definition of teacher self-efficacy is also being employed.
If you volunteer to participate in this study, you are asked to do the following things:

Instructions:
To participate in this study, read and print the consent form and complete all of the required instruments. All of the questions ask about your background, teaching beliefs and experiences, and about your experiences within your professional learning community.

Reflect upon your own experiences as you complete the surveys.

1. Read and print the consent letter
2. Click the button: " I have read and agree to the terms outlined. I consent to participate"
3. Complete the attached questionnaires
4. Review the consent letter
5. Select the button "submit responses"

POTENTIAL RISKS AND DISCOMFORTS
There are no potential risks and significant discomforts anticipated since the responses are anonymous and confidential. Data cannot be linked to specific respondents once they have been submitted.

POTENTIAL BENEFITS TO SUBJECTS AND/OR TO SOCIETY
Participants will be able to take pride in their contribution to new understanding of teacher self-efficacy, learning communities and other demographic and experiential variables. In addition, participants are teachers and they may enjoy the experience of completing questionnaires that inspire reflection and inquire about their teaching practice, beliefs and learning community.

PAYMENT FOR PARTICIPATION
Participants potentially receive compensation in that they have the opportunity to enter a draw for one of three $100 gift certificates.

CONFIDENTIALITY
Any responses provided by participants will remain anonymous.
There is no file that connects participants to their responses. The files will be exported into a spreadsheet, deleted from Fluidsurveys.com and stored on a password protected computer for

period of seven years. The electronic files will be deleted thereafter. The only breach of anonymity will occur if the participant offers his or her name and contact information to be entered into the draw. This information will in no way be linked to the participant's responses and will be used solely for the purposes of selecting three winners and contacting them to inform them that they have won a gift card. The names and contact information will be destroyed and deleted after that time.

PARTICIPATION AND WITHDRAWAL

Participants can choose whether or not to be involved in this study. If a participant volunteers to be in this study, he or she may withdraw at any time without consequences of any kind by selecting the "WITHDRAW FROM STUDY" button. If a participant exits the browser, his or her response data will not be saved. A participant may also refuse to answer any questions that he or she does not wish to answer and still remain in the study. The investigator may withdraw the participant from this research if circumstances arise which warrant doing so.

FEEDBACK OF THE RESULTS OF THIS STUDY TO THE SUBJECTS

Participants are encouraged to view the results of this study. They will be posted at the following web address by December, 2012: www.uwindsor.ca/reb

SUBSEQUENT USE OF DATA

This data may be used in subsequent studies to further explore related research questions.

RIGHTS OF RESEARCH SUBJECTS

If a participant has questions regarding his or her rights as a research subject, contact: Research Ethics Coordinator, University of Windsor, Windsor, Ontario N9B 3P4; Telephone: 519-253-3000, ext. 3948; e-mail: ethics@uwindsor.ca

These are the terms under which I will conduct research.

Margot Heaton — February 29th, 2012

BComm, BEd, MEd

Vita Auctoris

Margot Heaton was born in 1978 in Windsor, Ontario. In 1997, she graduated from Sandwich Secondary School in LaSalle, Ontario. From there she went to the University of Windsor in Ontario, Canada, where she obtained an Honours Degree in Business Commerce with a special focus on Human Resources and Labour Relations. In 2002, she graduated with a Bachelor of Education Degree from the University of Windsor where she later, she completed her Master of Education Degree. She graduated from the Joint PhD program in Education in the area of Leadership and Policy Studies facilitated through three affiliate Universities: Brock University, Lakehead University and the University of Windsor.