A Quantitative Study of Schools as Learning Organizations: An Examination of Professional Learning Communities, Teacher Self-Efficacy, and Collective Efficacy

Shonna G. Anderson

University of Louisiana at Lafayette

Dianne F. Olivier

University of Louisiana at Lafayette

Abstract

This quantitative study explored teacher perceptions of professional learning community dimensions, teacher self-efficacy, and collective efficacy. Professional learning communities (PLCs) have been shown to positively impact teacher self-efficacy and collective efficacy, all supporting student achievement. The overarching question guiding this study was, *What relationships exist among professional learning community dimensions, teacher self-efficacy, and collective efficacy and what differences exist in teacher perceptions in elementary, middle, and high schools; TAP and Non-TAP schools; and high poverty and low poverty schools?* The study sample included 57 schools within one large metropolitan southern school district. Three data collection measures were utilized to assess teacher perceptions including the Professional Learning Community Assessment-Revised, the Teachers' Sense of Efficacy Scale, and the Teacher Efficacy Beliefs Scale-Collective Form. Data analyses included descriptive and inferential statistics and resulted in eight major findings with finding Implications related to conceptual/theoretical frameworks, leadership and practice, and future research. These findings support professional learning communities as positively influencing teacher self-efficacy and collective efficacy; PLCs as contributing to school improvement; and school variables, such as poverty level, PLC implementation, and school level indeed influence efficacy. Additionally, study findings inform district leaders, school leaders, and teachers regarding implementation of PLC practices in enhancing teacher self-efficacy and collective efficacy and supporting school improvement.

Introduction

The No Child Left Behind Act of 2001 (NCLB) was one of the first legislative policies passed to address closing the achievement gap often seen in students of different races, low socioeconomic backgrounds, and living in poverty (No Child Left Behind [NCLB], 2002). Despite two decades since the enactment of NCLB, schools across the United States continue to struggle with closing this gap. While there is evidence of achievement gaps (Reardon, 2011), there is little agreement on effective solutions for closure. Some considered solutions include providing students with effective teachers (Borg et al., 2012), increasing teacher self-efficacy (Bruce et al., 2010), and eliminating teaching in isolation through professional development in the form of professional learning communities (Huffman & Hipp, 2003).

Professional learning communities (PLCs) have been shown to positively impact teacher self-efficacy (Bruce et al., 2010), and teacher self-efficacy has been linked to student achievement (Mojavezi & Tamiz, 2012). Professional learning community models create cycles of learning for teachers focusing on increasing teacher effectiveness (Dufour et al, 2016 ; Hord, 1997). Teacher effectiveness often takes into consideration a teacher's content knowledge and teacher impact on student achievement (Clotfelter et al., 2010; Stronge, et al., 2011). While PLCs can focus on strengthening content knowledge and skills of educators, learning communities can also lead to increasing teacher self-efficacy. Teachers with high teacher self-efficacy implement and persist with challenging but effective classroom strategies, maintain high expectations for students, and have effective classroom management strategies (Bruce et al., 2010). In order to develop effective solutions to closing the gap, it is important to understand common characteristics of persistently struggling schools.

Problem and Significance

Students with certain identified characteristics are at risk of performing at low academic achievement levels (Orfield & Lee, 2005). Common characteristics of schools identified as low-performing include high percentages of less than effective teachers (Boyd et al., 2011; Orfield & Lee, 2005), high percentages of students living in poverty (Orfield & Lee, 2005; Schwartz, 2010), and a large percentage of minority students (Orfield & Lee, 2005).

The National Center for Education Statistics (NCES) uses the free or reduced-price lunch (FRPL) status of students to place schools in four categories. The categories are defined as follows:

> High-poverty schools are defined as public schools where more than 75.0 percent of the students are eligible for FRPL, and mid-high poverty schools as those where 50.1 to 75.0 percent of the students are eligible for FRPL. Low-poverty schools are defined as public schools where 25.0 percent or less of the students are eligible for FRPL, and mid-low poverty schools as those where 25.1 to 50.0 percent of the students are eligible for FRPL. (National Center for Education Statistics, 2018a)

Recent reports from NCES indicate minorities attend high poverty schools at higher rates than non-minority students (National Center for Education Statistics, 2018a). "Higher percentages of Hispanic (45 percent), Black (45 percent), American Indian/Alaska Native (37 percent), and Pacific Islander (25 percent) students attended high-poverty schools than of White students (8 percent) in school year 2015–16" (National Center for Education Statistics, 2018a, para. 1). Assessment data from minorities attending these high-poverty schools are not promising. African American student academic achievement test scores continue to lag behind that of whites (National Center for Education Statistics, 2018b) This racial achievement gap is magnified in schools with populations largely segregated by race and poverty. Data from the National Assessment of Educational Progress (NAEP) indicate students attending high poverty schools performed at levels well below students at low poverty schools (National Center for Education Statistics, 2018b).

Students living in poverty often have barriers which make learning difficult such as homelessness, lack of access to medical care, and food insecurities. The teachers assigned to these schools often struggle because they lack the skills necessary to navigate around these home influences. In addition to this, schools with a majority of students of color living in poverty tend to have a large percentage of teachers who lack either certification or a degree in the subject area in which assigned (Almy & Theokas, 2010; Goldhaber et al., 2015). School systems continue to struggle with ways to address the lack of qualified teachers willing to accept employment in these high poverty/high minority schools in spite of literature showing the greatest influencer on student achievement is placing students in classrooms with effective teachers (Darling-Hammond, 2000).

While high poverty schools continue to struggle with closing the achievement gap (National Center for Education Statistics, 2018b), adoption of more rigorous school accountability policies and standards, such as the Common Core State Standards, charge teachers with implementing new curricula aligned to these standards (Porter et al., 2011). Students living in poverty are often assigned teachers who are not prepared to deliver new curricula while simultaneously, these teachers also struggle to close the content knowledge gaps of students who enter the classroom several grade levels behind (Almy & Theokas, 2010; Clotfelter et al., 2005; Kalogrides & Loeb, 2013). Conventional wisdom has it that if students in high poverty schools are assigned teachers who are less qualified to teach core content, then these teachers will also lack skills necessary to deal with the many social and psychological issues often seen in students living in poverty. Can creating schools as learning organizations be key to training teachers and closing the achievement gap? Is the use of job embedded professional development programs an avenue to helping schools become learning organizations?

While research focuses on the impact of effective teachers on student achievement, there is minimal research identifying effective strategies to increase teacher capacity and efficacy in schools segregated by race and high poverty. The literature documents the impact of teacher self-efficacy in order to positively impact student achievement and the question remains: Does efficacy of teachers change when they are faced with many barriers often seen by teachers in schools segregated by race and poverty?

A reoccurring theme in research shows positive impacts on student achievement exist in schools where teacher collaboration in the form of professional learning communities exist (Berry et al., 2005; Hord, 1997; Louis & Marks, 1998; Phillips, 2003; Strahan, 2003). The gap in literature regarding the intersection of professional learning communities on teacher efficacy and student achievement in high poverty segregated schools is lacking. Review of literature consistently shows that a large percentage of students attending high poverty schools are staffed with high percentages of less than qualified staff (Almy & Theokas, 2010; Darling-Hammond, 2000; Goldhaber et al., 2015). Schools staffed with higher percentages of out-of-field teachers have less support from peers than those staffed with a more effective teaching staff. With federal and state leaders continuing the focus on closing the achievement gap, developing effective strategies in schools with high percentages of high poverty minority students, who traditionally and persistently achieve at lower academic areas, is a critical step in closing the gap.

Purpose of the Study and Conceptual Framework

The broad purpose of this study was to examine teacher perceptions in relationship to professional learning community dimensions, teacher self-efficacy, and teacher's perception of collective efficacy and the relationship among these constructs. The specifics include examining the following: (1) schools as learning communities and the influence of professional learning community dimensions on teacher and collective efficacy at the elementary, middle school, and high school levels; (2) the influence of efficacy of teachers and collective efficacy in schools classified as high poverty and low poverty, and (3) the influence of professional learning communities, teacher self and collective efficacy in TAP and Non-TAP schools. The overarching question guiding this study was, *What relationships exist among professional learning community dimensions, teacher self-efficacy, and collective efficacy and what differences exist in teacher perceptions in elementary, middle, and high schools; TAP and Non-TAP schools; and high poverty and low poverty schools?*

The research framework (Figure 1) conceptualizes schools as learning communities by considering specific characteristics of professional learning communities. This framework initially focused on three identified models of learning communities: NIET (National Institute for Excellence in Teaching Community) model, Hord model, and Dufour model. The NIET model (National Institute for Excellence in Teaching, 2012) presents five sequential steps in conceptualizing learning communities including identifying the need, obtaining new learning, developing new learning, applying new learning, and evaluating the impact of the new learning on the identified need. The second learning community model presented is Hord, and defined by Hipp and Huffman (2010), envisions five critical dimensions within the model: shared and supportive leadership, values and vision, collective learning and application, shared personal practice, supportive conditions-structural and relationship. The third model presented is the Dufour model (Dufour et al., 2016), which focuses on four guiding principles of mission, vision, values, and goals. The three models are shown to influence the measure of teacher effectiveness. Additionally, teacher efficacy and collective efficacy are integral constructs in the conceptualization.

Figure 1

Conceptual Framework
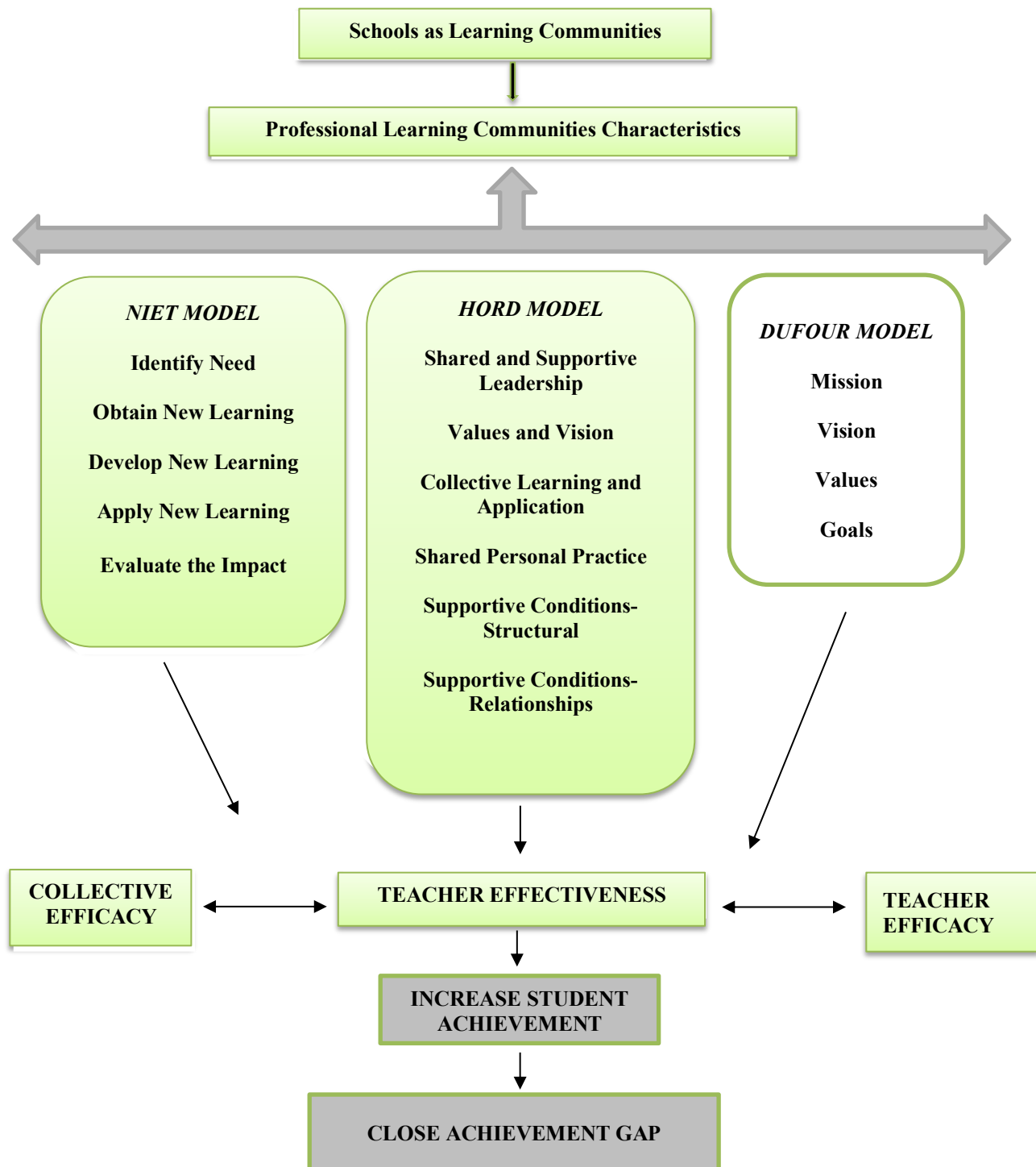
The assumption is that both teacher efficacy and collective efficacy influence and have a reciprocal relationship on teacher effectiveness. Teacher effectiveness can also influence the increase of student achievement and efforts toward closing the achievement gap often observed in schools segregated by race and poverty. While this framework recognizes participation and utilization of the PLC process can impact teacher efficacy, collective efficacy, student achievement, and teacher effectiveness, the direct link to student achievement, teacher effectiveness, and professional learning communities' structures was not assessed in this study. Furthermore, while the Dufour model is a learning community model reviewed and supported by research, it was not part of the research design of this study.

Professional development in the form of professional learning communities (PLC) may be the form of professional development many school districts begin to support. Since ESSA now defines what constitutes professional development, state departments of education, local education agencies, and leaders of schools must now ensure that professional development provided to staff meet the ESSA definition of professional development (ESSA, 2015). Professional learning communities is a form of professional development used to improve teacher effectiveness (Berry et al., 2005; Hord, 1997; Louis & Kruse, 1995).

Hord, a leading expert in school improvement, defines professional learning communities "as the professional staff learning together to direct efforts towards improved student learning" (Hipp & Huffman, 2010, p. 11). Her extensive research resulted in the development of five PLC dimensions, which were modified by Hipp and Huffman (2010) to include shared and supportive leadership, shared values and vision, collective learning and application, shared personal practice, and supportive conditions – both relationships and structures (Hipp & Huffman, 2010). Hipp and Huffman (2010) define professional learning communities as "professional educators working collectively and purposefully to create and sustain a culture of learning for all students and adults" (p. 12).

The National Institute of Effective Teachers (NIET) is an organization that supports the Teacher and student Advancement (TAP) system. NIET defines TAP as "a comprehensive research based reform designed to develop a corps of highly effective teachers and principals for America's schools" (Jerald & Van Hook, 2011, p.1). The four main components of TAP encompass job embedded professional development, performance based compensation, instructionally focused accountability, and creating opportunities of career advancement (Eckert,

2010). Professional development in the TAP system consists of teachers meeting at a common time in order to continuously work towards improving instructional practices as a means of increasing student achievement (Eckert, 2010). A continuous learning cycle uses data to identify needs, set goals, and incorporate research-based strategies designed to impact student learning. Additionally, the TAP model focuses on accountability by implementing a teacher evaluation system that identifies teacher effectiveness based on identified indicators that measure components of effective teaching (Jerald & Van Hook, 2011).

Impact of Professional Learning Communities on Student Achievement

While past school reform initiatives have had short lives, professional learning communities have proven to be a solution to closing the achievement gap (Berry et al., 2005; Louis & Kruse, 1995). Hord's (1997) research showed, "professional communities of staff, can improve student learning" (p. 30). Research funded by Bill and Melinda Gates, focused on minority and low income students, found evidence that at risk youth attending TAP schools saw academic growth equivalent to a year or more (Eckert, 2013). Prior to implementing learning communities through the TAP implementation model, schools in the Gates study performed at levels well below state averages in both English Language Arts (ELA) and math (Eckert, 2013). While promising results have been well established by school systems creating learning communities using the TAP model to create schools as learning communities, attending to additional variables can also prove to be effective.

Teacher Effectiveness, Self-Efficacy, Teacher Self-Efficacy, and Collective Efficacy

Today's teachers must be equipped to teach not only the basics but must continue to adapt teaching practices to meet the requirements of rigorous state standards. With integration of the Common Core State Standards (National Governors Association Center for Best Practices), attention to rigorous student performance assessments, and increased criteria for teacher competencies and evaluations, many teachers are not prepared to teach to the rigor of these standards (Swars & Chestnutt, 2015) and requirements. Leaders cannot simply ignore the fact that *teacher effectiveness* is a critical component of school improvement. Research has shown when teacher effectiveness is increased, increases in student achievement can be expected (Williams, 2013). Findings from a study conducted across an entire school district revealed statistically significant improvements in student achievement data during three years of district wide learning communities across elementary, middle, and high schools (Williams, 2013). The

researchers concluded that the documented improvements seen in reading levels across the district were so significant, the school district should continue the implementation of learning communities in order to build teacher capacity and increase student achievement. The relationship between teacher effectiveness and student achievement is well established by previous research (Rivkin et al., 2005; Stronge et al., 2011; Swars & Chestnutt, 2015) and without an effective teacher in class, school reform will not be easily accomplished (Gordon et al., 2008). Improving teacher effectiveness has been and continues to be the goal of educational policies such as the Every Student Succeeds Act (ESSA, 2015). The question of how to increase teacher effectiveness continues to be a focus of research. Teacher professional development (PD) has been an important method used to impact teacher learning.

Improving *self-efficacy* has been shown to make positive impacts on closing the achievement gap and improving schools (Guo et al., 2012; Swanson, 2014), and with teachers reporting they are ill prepared (Corporation, 2012) to teach in core subjects, ways of increasing efficacy can be a solution for schools working towards the goal of increasing student achievement. Bandura (1977) defines efficacy as one's belief in their ability to perform the behavior necessary to produce an outcome. How strongly the individual believes in their capability to produce an outcome affects their persistence and coping mechanisms (Bandura, 1977). The efficacy expectation model indicates individuals can believe that a certain action will lead to a particular outcome, but if the person does not believe they possess the capacity to perform the action necessary to produce the outcome, then their behavior will not be impacted (Bandura, 1977). If self-efficacy is low, the chances of one making an attempt to engage and exhibit persistence towards the desired outcome is not likely (Bandura, 1977). On the other hand, if their perceived self-efficacy is high, then the chances of persevering towards the outcome are high (Bandura, 1977). According to Bandura (1977), personal self-efficacy expectations are derived from performance accomplishments, vicarious experience, verbal persuasion, and physiological states. Methods of changing behaviors of individuals can be accomplished by impacting these four sources of information (Bandura, 1977; Ozer & Bandura, 1990) and are relevant and applicable toward improved teacher effectiveness.

Researchers from the Rand Corporation were some of the first to report the impact of *teacher efficacy*: "teachers who felt they could get through to even the most difficult or unmotivated students" (Berman & McLaughlin, 1977, p. 208). Teachers' efficacy is derived

from Bandura's self-efficacy theory, and although inter-related to teaching efficacy, researchers have proven both to be different constructs (Guskey & Passaro, 1994). In this paper, the terms teacher efficacy and teacher self-efficacy will be used interchangeably with the same meaning. Previous reference to Bandura's (1977) theory of self- efficacy reveals the belief that an outcome is likely to make a difference and the belief that one has the skills necessary to reach the outcome are different. Researchers agree that teacher self-efficacy is situation dependent (Bandura, 1997; Tschannen-Moran et al., 1998).

Working to achieve an outcome often requires the reliance on someone else to achieve the desired outcome (Bandura, 2000). Groups sharing the belief that working together results in achieving a desired outcome of the group is known as *collective efficacy* (Bandura, 2000). Just as self-efficacy is influenced by mastery experiences, vicarious experiences, social persuasion, and affective states, the same holds true for collective efficacy (Goddard et al., 2004). Embedding the professional learning community process and the NIET practices provide significant opportunities to embrace and enhance collective efficacy among teachers and leaders.

Method

This study utilized a quantitative survey research design which allowed the researcher to "collect quantifiable data from participants" (Creswell, 2008, p. 46), look at breadth of data collected, and analyze statistics in an impartial equitable way. The quantitative research design is fitting because it lends to "addressing research problems requiring a description or an explanation of the relationship among variables (Creswell, 2008).

Research Questions

The following four research questions guiding this study examined construct relationships, as well as differences in teacher perceptions within varying school structures.

- What are the relationships among professional learning communities, teacher self-efficacy, and collective efficacy?
- Are there differences in perceptions of professional learning communities, teacher self-efficacy, and collective efficacy among elementary, middle, and high school teachers?
- Are there differences in perceptions of professional learning communities, teacher self-efficacy, and collective efficacy among teachers in TAP and Teachers in Non-Tap schools?

- Are there differences in professional learning communities, teacher self-efficacy, and collective efficacy between teachers in high poverty schools and teachers in low poverty schools?

Sample Population

The study sample included 57 schools within a single school district in a metropolitan city located in a southern state. The Alpha School District is the fifth largest district in the state. While the overall district letter grade is B, there are schools performing at significantly lower levels. Demographics indicate 44% of students in the Alpha School District are minorities (Hispanics, African Americans, and Indians), and 68% of students qualify for free-reduced lunch. While the Alpha School District maintains a relatively high number of staff certified to teach in their respective content areas, struggling middle schools and schools earning a letter of D have the lowest percentage of certified staff (68%).

The history of school accountability scores reveals high poverty-high minority schools have continued to struggle with closing the achievement gap. Prior to the adoption of Every Student Succeeds Act (ESSA), mid-level district administrators attempted to turn around persistently struggling schools by aligning programs, but results were not satisfactory. Once ESSA was enacted, districts across the state were required to submit improvement plans for schools identified as persistently struggling schools – those schools receiving a letter grade of D or lower for three consecutive years. All schools labeled as persistently struggling schools in the Alpha School District are high poverty schools with high percentages of minority students. The district improvement plan required those schools identified as persistently struggling, based on the stated criteria, be placed in a specific zone, resulting in the implementation of the National Institute for Excellence in Teaching (NIET) Teacher Advancement Program (TAP) professional learning community model. This identified struggling zone encompasses two high schools, two middle schools, and 12 elementary schools. All schools in the zone are high poverty schools where at least 75% of the students qualify for free or reduced lunch. All principals at the middle school level (100%), 33 out of 35 (94%) elementary principals, and eight out of 11 high school principals (72%) granted permission to survey staff for this study. Survey Monkey was used to send all three survey measures to 2390 educators. The rate of participation ranged from a low of 1% participation at an elementary school to a high of 94% at a middle school. The age rate of respondents by levels included the middle school with the highest average percentage of

respondents (42.28%), elementary level (38.38%), and the high school level (19.34%); the highest response rate was from respondents who worked in low poverty schools (65.90%). There were 739 total respondents for a 31% rate of response.

Data Collection Measures

Three primary measures were used to collect data for this study, including the Professional Learning Community Assessment-Revised (Olivier & Hipp, 2010), the Teachers' Sense of Efficacy Scale (Tschannen-Moran & Hoy, 2001), and the Teacher Efficacy Beliefs Scale-Collective Form (Olivier, 2001). The *Professional Learning Community Assessment-Revised* (PLCA-R) assesses teacher practices related to the dimensions of learning communities by measuring practices related to the PLC dimensions (shared and supportive leadership, shared values and vision, collective learning and application, shared personal practice, and structural and relationship supportive conditions (Olivier & Hipp, 2010) The 52-item assessment requires respondents to rate each item using the following scale: 1= Strongly Disagree (SD), 2= Disagree (D), 3= Agree (A), and 4= Strongly Agree (SA). The *Teachers' Sense of Efficacy Scale* (Tschannen-Moran & Hoy, 2001) measures teacher efficacy by capturing "both teacher competence and an analysis of the task in terms of the resources and constraints in particular teaching contexts" (p. 795). The 24-item survey uses a 9 point scale (1=nothing, 3=very little, 5=some influence, 7=quite a bit, and 9=a great deal) (Tschannen-Moran & Hoy, 2001) to assess the three factors including efficacy for instructional strategies, efficacy in classroom management, and efficacy in student engagement. The *Teacher Efficacy Belief Scale-Collective Efficacy* (TEBS-C) (Olivier, 2001) requires respondents to "make judgements about the collective strength of beliefs of faculty members at their school in their capabilities to organize and successfully carry out work task" (p. 124). The 10-item survey uses a 4-point Likert scale (1=weak beliefs in my/our capabilities, 2=somewhat strong belief in my/our capabilities, 3=strong beliefs in my/our capabilities, and 4=very strong belief in my/our capabilities (Olivier, 2001).

Study Results and Major Findings

Data analyses included descriptive and inferential statistics. The descriptive statistics included response rate, sample size, mean, standard deviation, and minimum and maximum scores related to the PLCA-R, TSES, and TEBS-C. Inferential statistics included bivariate correlations (Pearson product moment procedures) to determine the relationships among all

dimensions and subscales, Wilcoxon Rank Sum to determine the differences between the distribution of scores between TAP and Non-TAP schools and high-poverty and low-poverty schools, and the Kruskal-Wallis, a non-parametric one-way ANOVA test, which compared three groups of respondents (elementary, middle, and high school levels). Data analyses resulted in findings for each research question. These results contributed to identification of the eight major study findings across all research questions. These eight study findings are highlighted in the following section.

Major Finding 1

Positive relationships exist among of professional learning communities, teacher self-efficacy, and collective efficacy.

Conclusion. Evidence from this study supports the conceptual framework of this research. The framework recognizes that participation and utilization of the professional learning community process can impact teacher efficacy and collective efficacy. The data show positive relationships among all PLC dimensions, TSES factors, and TEBS-C subscales. Correlations ranged from very strong to weak among all subscales of each measure with correlations between the PLCA-R dimensions with the TSES factors showing mostly weak positive relationships. Relationships were found among the PLC dimensions indicating overlapping characteristics among the dimensions, as supported by Huffman and Hipp (2003). Leaders working to implement the PLC process should recognize the number of dimensions to address at one time is not the most important factor to consider during the implementation process, but rather deciding short term goals for the implementation process is most important (Hipp & Huffman, 2010).

Major Finding 2

The strongest positive relationships exist between supportive conditions structures and instructional strategies.

Conclusion. There was a strong positive relationship between the PLCA-R dimension of supportive conditions-structures with instructional strategies from the TSES. A moderate relationship was found between supportive conditions structures and instructional strategies. The remaining subscales of the PLCA-R dimensions and the TSES factors did not correlate *strongly*. School leaders who foster supportive conditions in terms of structures by providing time for collaboration and professional dialogue, clustering content classroom together, and developing

effective communication systems (Huffman & Hipp, 2003) can expect to see teachers who are more efficacious in using effective instructional practices in the classroom.

Major Finding 3

There are positive relationships between professional learning communities and collective efficacy.

Conclusion. Collective efficacy is defined as groups sharing the belief that working together results in achieving a desired outcome of the group (Bandura, 2000). Collective efficacy has been shown to be influenced by mastery experiences, vicarious experiences, social persuasion, and affective states, all of which are experiences found in PLCs. Faculties with strong collective efficacy believe they are capable of completing tasks (i.e., producing high levels of learning with students; working with disadvantaged students) (Olivier, 2001), which enhances school improvement efforts and outcomes. The results from this study confirm claims indicating schools where staff participate in learning communities can expect to experience increases in collective efficacy (Voelkel & Chrispeels, 2017). Correlations ranging from moderate to strong exist between professional learning communities and collective efficacy. In fact, 83% of the correlations show a strong relationship among the PLC dimensions and the collective efficacy subscales. There was no statistically significant difference among the levels of school and collective efficacy. Thus, leaders at each school level who want to increase collective efficacy at their school should consider implementing research-based PLCs in their school.

Major Finding 4

There are very strong positive reciprocal relationships exiting between shared values and vision and shared and supportive leadership at all school levels.

Conclusion. There were very strong correlations existing between shared and supportive leadership and shared values and vision. Thus, when the principal shares the decision-making process and invites staff to have input about school issues, staff members maintain an undeviating focus on the guiding principles around the school goals. These correlations also support past research conducted by Hipp and Huffman (2010), which shows the overlapping of PLC dimensions. Although the dimensions in the PLCA-R are not sequential, leaders who focus on the attributes of shared and supportive leadership can expect staff to have a focus on the school vision. This is an important aspect of school improvement. According to Huffman and Hipp (2003), "an effective vision presents a credible yet realistic picture of the organization that

inspires the participants to reach for a future goal" (p. 7). This shows that vision provides school staffs with the current status of the school and helps staff work towards school goals. Thus, without shared and supportive leadership, establishing a vision would be difficult to obtain.

Major Finding 5

There are no differences among teacher perceptions of professional learning communities at the elementary, middle, and high school levels of school.

Conclusion. A common belief is that middle and high school teachers tend to be content specific teachers, thus the training and professional development they receive often varies from PD for elementary teachers. Bandura (1993) indicated teachers at the high school level, followed by middle level teachers, typically indicated a weaker sense of collective efficacy when compared to elementary teachers. He concluded the difference may be due to increased content complexities seen in the progression from the elementary to high school levels. Additionally, experienced teachers are shown to have a stronger sense of collective efficacy (Goddard & Skrla, 2006). While the researcher assumed statistically significant differences when comparing teacher perceptions across all grade levels, it is noted that most teachers (84.71%) who responded had four or more years of experience with 36.80% of the respondents having a minimum of 15 years of experience. Thus, considering the positive relationship between PLCs and collective efficacy, it stands to reason that the experience level of respondents could be the reason why perceptions of PLCs are not significantly different among the three levels of school.

Major Finding 6

Differences in perceptions of teachers at TAP and Non-TAP schools exist in collective learning and application, shared personal practice, and the student engagement factor.

Conclusion. TAP is a professional learning community model defined as "a comprehensive research based reform designed to develop a corps of highly effective teachers and principals for America's schools" (Jerald & Van Hook, 2011, p. 1). TAP schools in the Alpha school district are schools labeled as persistently struggling schools. The TAP PLC model embedded in these schools is part of the reform model for these schools. PLC meetings occur twice per week and are based on a cycle of learning. Since these meetings are monitored by state and district leaders, the researcher assumed statistically significant differences would be observed in teacher perceptions at TAP and Non-TAP schools among not only collective efficacy, but all PLC dimensions and teacher self-efficacy factors. Analysis of data of the PLC

dimensions indicates teacher perceptions of PLCs do not depend on whether a teacher is in a TAP or Non-TAP school, except in the dimensions of collective learning application and shared personal practice. Additional analysis show shared personal practice and collective learning and application was higher at TAP schools.

Major Finding 7

There are stronger correlations between the PLCA-R dimensions and TSES factors at TAP schools.

Conclusion. Results indicate that schools with TAP PLCs strongly influence teacher self-efficacy. TAP schools in the Alpha School District are all high poverty schools with fewer credentialed teachers. Teacher self-efficacy has been shown to be influenced by mastery experiences, vicarious experiences, social persuasion, and affective states, all of which are experiences found in PLCs. Thus, PLCs can serve as a beneficial reform in hard-to-staff schools, often staffed with higher percentages of novice teachers. The results and findings of this study confirm literature showing the positive impact PLCs inclusive of mastery and vicarious experiences, social persuasion, and affective states have on teacher self-efficacy (Tschannen-Moran & McMaster, 2009). Moderate to strong relationships were observed between 56% of the PLCA-R dimensions and TSES factors in TAP schools, whereas weak relationships were shown in 100% of correlations between the PLCA-R dimensions and TSES factors in Non-TAP schools.

Major Finding 8

Differences in perceptions of teachers at high poverty and low poverty schools exist in collective efficacy and student engagement.

Conclusion. Results suggest the perceptions in relation to collective efficacy and student engagement factor of teachers in high poverty schools are different from those in low poverty schools. High poverty schools have less collective efficacy than teachers in low poverty schools. The *p*-value revealed that statistically significant difference exists (*p*=.01) between the two groups. This finding supports research indicating adverse school characteristics, such as those often found in identified high poverty schools, tend to negatively influence staff collective efficacy (Bandura, 1993). Armed with this information and recognizing that PLCs have been shown to positively influence collective efficacy (Olivier & Hipp, 2006), school leaders in similar schools should consider implementing school improvement plans that outline protocol for

implementation of all PLC dimensions, as a way to positively influence collective efficacy. In terms of student engagement, the results show teachers in high poverty schools (m=56.65) have stronger teacher self-efficacy in the area of student engagement than teachers in low poverty schools (m=55.07). The p value (.03) shows a statistically significant difference between the two groups. This was surprising to the researcher when considering that several of the high poverty schools are staffed with a high percentage of staff who are labeled as long-term substitutes. It may be the case that PLCs have a stronger influence on teacher self-efficacy when compared to the influence of PLC on collective efficacy in these schools.

Implications for Theory, Practice, and Future Research

The researcher sought to answer questions related to professional learning communities, teacher self-efficacy, and collective efficacy by studying schools as learning organizations. Implications of the study results and major findings are considered in relation to conceptual and theoretical concerns, practice and leadership, and future research.

Implications Related to Conceptual and Theoretical Concerns

The study results support previous research conducted on the relationship between professional learning communities with collective efficacy and teacher self-efficacy. Research suggests that professional learning communities positively influence teacher self-efficacy (Bruce et al., 2010) and this study confirms these findings. Common attributes of effective professional learning communities include shared leadership (Devos et al., 2013), shared values and vision (Hord, 1997), collaboration (Hord, 1997; Louis & Kruse, 1995), and supportive conditions (Hord, 1997; Louis & Kruse, 1995). Researchers have also theorized and found that the constructs of professional learning communities overlap (Huffman & Hipp, 2003) and are not linear in nature. The findings from this study also indicate that the dimensions of PLCs do in fact overlap and can thus work to support and reinforce each other. This provides information demonstrating the importance of PLCs being implemented in alignment with the Professional Learning Standards published by Learning Forward, thus supporting Hipp and Huffman's (2010) notion that using all the dimensions of PLCs is key to creating a culture of learning in schools.

Teachers who exhibit strong teacher self-efficacy implement and persist with challenging and effective instructional strategies, maintain high expectations for students, and have effective classroom management strategies (Bruce et al., 2010). While PLCs have been shown to influence efficacy, implementation of PLCs with an intentional focus on professional development

guidelines, can help to influence both teacher and collective efficacy, thus professional learning communities cannot be considered as events, such as one day workshops.

According to Bandura (1997), influencing efficacy is best accomplished through verbal persuasion, vicarious experiences, mastery experiences, and affective states, especially when all dimensions of PLCs are implemented. Although this research has shown implementation of PLCs cannot be viewed as an assuring linear system which leads to instant improvement in collective and teacher self-efficacy (Tschannen-Moran & McMaster, 2009), this study indicates while there are strong relationships between the PLC dimensions, weak positive relationships were observed between PLCs and teacher efficacy. This confirms that in addition to PLCs influencing efficacy, other factors are likely to also influence efficacy.

Literature reveals collective and teacher efficacy are both situation dependent (Bandura, 1997). Studies have shown that while inverse relationships exist between collective efficacy and school variables, such as school levels and the social economic status of students, school structures had a greater influence (Adams & Forsyth, 2006). This study informs previous studies and corroborates findings of past research. Data collected in this study provide additional evidence that PLCs can contribute to school improvement. This study also suggests school variables, such as the poverty level of schools, level of PLC implementation, and school level, influence efficacy. Thus, this study challenges results of a study conducted by Tschannen-Moran and Barr (2004), whose research results reveal that no differences exist between collective teacher efficacy and the socio-economic status variable of a school. Additionally, research reported by Goddard, LoGerfo, and Hoy (2004) and Bandura (1993) show that collective efficacy of staff is lower in high poverty schools compared to low poverty schools. This study confirms the findings of these previous studies since a significant difference is observed when comparing collective efficacy in high poverty schools to collective efficacy in low poverty schools. Tschannen-Moran and Barr (2004) concluded their study by theorizing that some schools have found ways to positively impact collective efficacy in high poverty schools. PLCs in the form of TAP are in 70% of the high poverty schools studied in the Alpha School District that shows there are many variables influencing collective efficacy.

Implications for Practice and Future Research

The following section outlines implications for practice for district and school level leaders.

District Leaders. *What influence do district level leaders have on professional learning community implementation, teacher self-efficacy, and collective efficacy?* School improvement is likely to continue to be the focus of state and federal leaders. Previous accountability models focused heavily on students who failed to reach grade level standards, but measures of accountability have shifted to focusing on growing achievement levels of *all* students**.** Previous studies indicate that professional learning communities are essential to improving student achievement (Dufour & Eaker, 1998; Hord, 1997), collective efficacy, and teacher self-efficacy. Additionally, positive relationships have been shown among schools with a strong sense of collective and teacher self-efficacy and student achievement in schools where teachers have high perceptions of collective and teacher efficacy. This study confirms the important role of implementing all PLC dimensions in schools working to increase collective and teacher self-efficacy, thus creating a culture of continuous learning with a focus on improving student achievement. While this study looks at PLC practices at the school level, there is new research and a new measure (PLCA-District Support) by Olivier, Huffman, and Cowan (2015) that could be utilized in future studies to assess district practices and the importance of district involvement and support in the development of the PLC process within all schools throughout the district.

District leaders can benefit from this study when working to establish district level visions for creating high-performing schools that maintain continued focus on teacher and student learning. District leaders should consider engaging and empowering school principals to implement PLCs that adopt all essential aspects of PLCs, as outlined in literature and this study, by providing a model of what the essential PLC components look like when effectively implemented. This could be accomplished by implementing cycles of learning at district level PLC meetings where principals engage with district level personnel using a research-based professional learning community format. This would allow for principals to become the true instructional leaders of their schools.

School Leaders and Teachers. School leaders are often viewed as the instructional leaders of schools, yet when all dimensions of PLCs are implemented, teachers are also viewed as leaders. This study informs the literature in relation to professional learning communities, teacher self-efficacy, and collective efficacy within high and low poverty schools and all levels of schools (elementary, middle, and high). Future research in this area could include a more in-depth study and analyses through qualitative methodology or a mixed methods study in order to

gain more in-depth perceptions of school leaders and classroom teachers. Additionally, including a qualitative study would help district leaders be informed as to the assistance provided by system leaders and perceptions of district leaders in relation to professional learning community practices and the influence on teacher self-efficacy and school level collective efficacy. Future research could also be conducted in relation to the influence of leadership style of both school and district level leaders on professional learning communities, teacher self-efficacy, and collective efficacy.

Discussion and Summary

This study analyzed data to test the relationship and teacher perceptions of the PLCA-R dimensions with teacher and collective efficacy at the three different levels of school (elementary, middle, and high), at TAP and Non-TAP schools, and at high and low poverty schools. This study was important because of the gap in literature regarding the intersection of professional learning communities on teacher and collective efficacy in high poverty schools where students are often outperformed by students who do not attend high poverty schools. Since literature (Bruce et al., 2010; Mojavezi & Tamiz, 2012) shows a correlation between teacher efficacy and student achievement, it was important to conduct research to discover whether PLCs had the same impact on teacher efficacy in high poverty schools as it does in low poverty schools. This study tests the relationship among the professional learning community constructs found in literature that are related to teacher self and collective efficacy. Thus, the conceptual framework utilized in this study was found to be valid.

Teachers can be viewed as teacher leaders when all dimensions of professional learning communities are implemented in schools with a focus on continuous learning. This study adds to existing research centered around professional learning communities and relationships among learning community dimensions, teacher self-efficacy, and collective efficacy. More specifically, the findings highlight the influence of teacher self-efficacy, collective efficacy, and professional learning communities within high and low poverty schools, as well as within all school levels (elementary, middle, and high). Since this study was limited to one school district and voluntary participation, thus impacting the rate of response, more comprehensive research could include qualitative methodology or mixed-methods to gain more in-depth perceptions of school leaders and classroom teachers. Study findings could inform district leaders regarding assistance provided through the district for implementing professional learning community practices within

schools and the influence of PLCs on teacher self-efficacy and collective efficacy. Future research could also examine the influence of district and school leaders' leadership styles on professional learning communities, teacher self-efficacy, and collective efficacy.

References

Adams, C. M., & Forsyth, P. B. (2006). Proximate sources of collective teacher efficacy. *Journal of Educational Administration*, *44*(6), 625-642. https://doi.org/10.1108/09578230610704828

Almy, S., & Theokas, C. (2010). Not prepared for class: High-poverty schools continue to have fewer in-field teachers. *Education Trust*. https://edtrust.org/wp-content/uploads/2013/10/Not-Prepared-for-Class.pdf

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review, 84*(2), 191-215. doi:10.1037/0033-295x.84.2.191

Bandura, A. (1993). Perceived self-efficacy in cognitive development and functioning. *Educational psychologist, 28*(2), 117-148.

Bandura, A. (1997). *Self-efficacy: The exercise of control*: W.H. Freeman.

Bandura, A. (2000). Exercise of human agency through collective efficacy. *Current Directions in Psychological Science, 9*(3), 75-78.

Berman, P., & McLaughlin, M. (1977). *Federal Programs Supporting Educational Change, Vol. VII: Factors Affecting Implementation and Continuation*. Retrieved from https://files.eric.ed.gov/fulltext/ED140432.pdf:

Berry, B., Johnson, D., & Montgomery, D. (2005). The power of teacher leadership. *Educational Leadership, 62*(5), 56-60.

Borg, J. R., Borg, M. O., & Stranahan, H. A. (2012). Closing the achievement gap between high-poverty schools and low-poverty schools. *Research in Business and Economics Journal, 5*, 1.

Boyd, D., Lankford, H., Loeb, S., Ronfeldt, M., & Wyckoff, J. (2011). The effect of school neighborhoods on teachers' career decisions. *Whither Opportunity*, 377-396.

Bruce, C. D., Esmonde, I., Ross, J., Dookie, L., & Beatty, R. (2010). The effects of sustained classroom-embedded teacher professional learning on teacher efficacy and related student

achievement. *Teaching and Teacher Education, 26*(8), 1598-1608.
doi:https://doi.org/10.1016/j.tate.2010.06.011

Clotfelter, C. T., Ladd, H. F., & Vigdor, J. (2005). Who teaches whom? Race and the distribution of novice teachers. *Economics of Education review, 24*(4), 377-392.

Corporation, B. (2012). *STEM Education, Science Literacy, and the Innovation Workforce in America: 2012 Analysis and Insights from the Bayer Facts of Science Education Survey*. Retrieved from http://www.se.edu/dept/native-american-center/files/2012/04/STEM-Education-Science-Literacy-and-the-Innovation-Workforce-in-America.pdf

Creswell, J. W. (2008). *Educational research: Planning, conducting, and evaluating quantitative*: Prentice Hall Upper Saddle River.

Darling-Hammond, L. (2000). Teacher quality and student achievement. *Education policy analysis archives, 8*, 1.

Devos, G., Tuytens, M., & Hulpia, H. (2013). Teachers' organizational commitment: Examining the mediating effects of distributed leadership. *American Journal of Education, 120*(2), 205-231.

Dufour, R., DuFour, R., Eaker, R. E., & Many, T. W. (2016). *Learning by doing: A handbook for professional learning communities at work*. Solution Tree Press.

Dufour, R., & Eaker, R. E. (1998). *Professional learning communities at work: Best practices for enhancing student achievement*. Solution Tree Press.

Eckert, J. (2010). Performance-based compensation: Design and implementation at six teacher incentive fund sites. *Bill & Melinda Gates Foundation. Último acceso en julio, 25*, 2011.

Eckert, J. (2013). *Increasing educator effectiveness: Lessons learned from teacher incentive fund sites.* National Institute for Excellence in Teaching.

ESSA. (2015). *Every Student Succeeds Act of 2015 , Pub. L No. 114 Stat. 1177 (2015-2016).*

Goddard, R. D., Hoy, W. K., & Hoy, A. W. (2004). Collective efficacy beliefs: Theoretical developments, empirical evidence, and future directions. *Educational Researcher, 33*(3), 3-13.

Goddard, R. D., LoGerfo, L., & Hoy, W. K. (2004). High school accountability: The role of perceived collective efficacy. *Educational Policy, 18*(3), 403-425.

Goddard, R. D., & Skrla, L. (2006). The influence of school social composition on teachers' collective efficacy beliefs. *Educational Administration Quarterly, 42*(2), 216-235.

Goldhaber, D., Lavery, L., & Theobald, R. (2015). Uneven playing field? Assessing the teacher quality gap between advantaged and disadvantaged students. *Educational Researcher, 44*(5), 293-307.

Gordon, R., Kane, T. J., Staiger, D. O., & Rubin, R. E. (2008). Identifying effective teachers using performance on the job. In *Path to Prosperity* (pp. 189-226): Brookings Institution Press.

Guo, Y., Connor, C. M., Yang, Y., Roehrig, A. D., & Morrison, F. J. (2012). The effects of teacher qualification, teacher self-efficacy, and classroom practices on fifth graders' literacy outcomes. *The Elementary School Journal, 113*(1), 3-24.

Guskey, T. R., & Passaro, P. D. (1994). Teacher efficacy: A study of construct dimensions. *American Educational Research Journal, 31*(3), 627-643. doi:10.2307/1163230

Hipp, K. K., & Huffman, J. B. (2010). *Demystifying professional learning communities: School leadership at its best*. Rowman & Littlefield Education.

Hord, S. M. (1997). *Professional learning communities: Communities of continuous inquiry and improvement.* Retrieved from http://www.sedl.org/pubs/change34/plc-cha34.pdf

Huffman, J. B., & Hipp, K. K. (2003). *Reculturing schools as professional learning communities*. Scarecrow Education.

Jerald, C. D., & Van Hook, K. (2011). *More than measurement: The TAP system's lessons learned for designing better teacher evaluation systems.* National Institute for Excellence in Teaching.

Kalogrides, D., & Loeb, S. (2013). Different teachers, different peers: The magnitude of student sorting within schools. *Educational Researcher, 42*(6), 304-316.

Louis, K. S., & Kruse, S. D. (1995). *Professionalism and community: Perspectives on reforming urban schools*. SAGE Publications Ltd.

Louis, K. S., & Marks, H. M. (1998). Does professional community affect the classroom? Teachers' work and student experiences in restructuring schools. *American Journal of Education, 106*(4), 532-575.

Mojavezi, A., & Tamiz, M. P. (2012). The impact of teacher self-efficacy on the students' motivation and achievement. *Theory & Practice In Language Studies, 2*(3).

National Governors Association Center for Best Practices, C. o. C. S. S. Common Core State Standards Initiative.

National Institute for Excellence in Teaching. (2012). *Beyond "Job-Embedded": Ensuring that good professional development gets results*. Retrieved from https://ezproxyprod.ucs.louisiana.edu:2443/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=eric&AN=ED533379&site=ehost-live

No Child Left Behind Act of 2001, P.L. 107-110, 20 U.S.C § 6319 (2002).

Olivier, D. F. (2001). Teacher personal and school culture characteristics in effective schools: Toward a model of a professional learning community. Unpublished dissertation. Louisiana State University.

Olivier, D. F., & Hipp, K. K. (2006). Leadership capacity and collective efficacy: Interacting to sustain student learning in a professional learning community. *Journal of School Leadership, 16*(5), 505-519.

Olivier, D. F., & Hipp, K. K. (2010). Assessing and analyzing schools as professional learning communities. In K. K. Hipp & J. B. Huffman (Eds.), *Demystifying professional learning communities: School leadership at its best* (pp. 29-41). Rowman & Littlefield Education.

Orfield, G., & Lee, C. (2005). Why segregation matters: Poverty and educational inequality. *The Civil Rights Project at Harvard University*. https://civilrightsproject.ucla.edu/research/k-12-education/integration-and-diversity/why-segregation-matters-poverty-and-educational-inequality/orfield-why-segregation-matters-2005.pdf

Ozer, E. M., & Bandura, A. (1990). Mechanisms governing empowerment effects: A self-efficacy analysis. *J Pers Soc Psychol, 58*(3), 472-486.

Phillips, J. (2003). Powerful learning: Creating learning communities in urban school reform. *Journal of Curriculum and Supervision, 18*(3), 240-258.

Porter, A., McMaken, J., Hwang, J., & Yang, R. (2011). Common core standards: The new US intended curriculum. *Educational Researcher, 40*(3), 103-116.

Reardon, S. F. (2011). The widening academic achievement gap between the rich and the poor: New evidence and possible explanations. *Whither opportunity*, 91-116.

Rivkin, S. G., Hanushek, E. A., & Kain, J. F. (2005). Teachers, schools, and academic achievement. *Econometrica, 73*(2), 417-458.

Schwartz, H. L. (2010). *Housing policy is school policy*: *Economically integrative housing promotes academic success in Montgomery County, MD*. *The Education Digest*, *76*(6), 42.

Strahan, D. (2003). Promoting a collaborative professional culture in three elementary schools that have beaten the odds. *The Elementary School Journal, 104*(2), 127-146.

Stronge, J. H., Ward, T. J., & Grant, L. W. (2011). What makes good teachers good? A cross-case analysis of the connection between teacher effectiveness and student achievement. *Journal of teacher Education, 62*(4), 339-355.

Swanson, P. (2014). The power of belief: Spanish teachers' sense of efficacy and student performance on the National Spanish Examinations. *Hispania*, 5-20.

Swars, S. L., & Chestnutt, C. (2015). *A mixed methods study of elementary teachers' experiences with and perspectives on the CCSS-Mathematics.* North American Chapter of the International Group for the Psychology of Mathematics Education.

Tschannen-Moran, M., & Barr, M. (2004). Fostering student learning: The relationship of collective teacher efficacy and student achievement. *Leadership and Policy in Schools, 3*(3), 189-209.

Tschannen-Moran, M., & Hoy, A. W. (2001). Teacher efficacy: Capturing an elusive construct. *Teaching and Teacher Education, 17*(7), 783-805.

Tschannen-Moran, M., Hoy, A. W., & Hoy, W. K. (1998). Teacher Efficacy: Its Meaning and Measure. *Review of Educational Research, 68*(2), 202-248. doi:10.2307/1170754

Tschannen-Moran, M., & McMaster, P. (2009). Sources of self-efficacy: Four professional development formats and their relationship to self-efficacy and implementation of a new teaching strategy. *The Elementary School Journal, 110*(2), 228-245.

National Center for Education Statistics. (2018a). Concentration of Public School Students Eligible for Free or Reduced-Price Lunch. Retrieved from https://nces.ed.gov/programs/coe/indicator_clb.asp#f2

National Center for Education Statistics. (2018b). Mathematics Performance. Retrieved from https://nces.ed.gov/programs/coe/indicator_cnc.asp

U.S. Department of Education, Office of Planning, Evaluation and Policy Development, Policy and Program Studies Service. (2016). *Prevalence of Teachers Without Full State Certification and Variation Across Schools and States.* http://www.ed.gov/offices/opepd/ppss/reports.html#tq.

Voelkel Jr, R. H., & Chrispeels, J. H. (2017). Understanding the link between professional learning communities and teacher collective efficacy. *School Effectiveness and School Improvement, 28*(4), 505-526.

Williams, D. J. (2013). Urban education and professional learning communities. *Delta Kappa Gamma Bulletin, 79*(2), 31.

Author Biographies

Shonna Guillory-Anderson, Ed.D. earned a Bachelor of Science in Environment Science and a Master of Art in Educational Technology from McNeese State University. She earned a Doctorate in Educational Leadership from the University of Louisiana at Lafayette. As a middle school principal, Shonna is dedicated to ensuring equity in education.

Dianne F. Olivier, Ph.D. is a Professor in Educational Foundations and Leadership and Associate Dean of Administration and Academic Affairs, College of Education, University of Louisiana at Lafayette. She holds the Joan D. & Alexander S. Haig/BORSF Professorship in Education and the University Eminent Scholar/Dr. Ray P. Authement Excellence in Teaching Award.