Teacher Efficacy Beliefs in Collaborative Learning Communities:

A Statewide Study in Large High Schools

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This dissertation titled
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A Statewide Study in Large High Schools

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ABSTRACT

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Teacher Efficacy Beliefs in Collaborative Learning Communities: A Statewide Study in Large High Schools

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This observational study explored the connections between collaborative teacher learning communities as related to teacher efficacy in the largest high schools in Ohio. These communities are typically called Small Learning Communities and Professional Learning Communities. Small Learning Communities are usually created with academic content area ninth or tenth grade teachers, involve sharing a group of students across the school day, have common planning time to create similar expectations, and are provided professional development in order to more effectively collaborate on student achievement. Professional Learning Communities allow groups of teachers to evaluate student work, and achievement data trends, but do not involve purposeful scheduling to share students across the school day. Each of these models was examined for teacher efficacy. Investigating such connections is key, because teacher efficacy has been linked to student achievement.

Findings demonstrated that participation in collaborative learning communities, specifically small learning communities and professional learning communities appear to be linked to high school teachers’ sense of self-efficacy. The supportive structures of common planning time, professional development and professional learning communities did show statistically significant relationships to teacher efficacy in this study. High school teachers showed higher levels of efficacious beliefs in the subset areas of
instruction and student engagement, and lowest efficacy scores in the subset of classroom management on the TSES instrument, when engaged in collaborative learning communities, as compared to teachers who were not participating in such structures.

The dependent variable, teachers’ sense of self-efficacy, was measured using the twelve question short form of the Teachers’ Sense of Self-efficacy Scale (TSES) (Tschannen-Moran & Woolfolk Hoy, 2001) that contains questions related to student instruction, student engagement and classroom management. The independent variables were enrollment in small learning communities, common planning time, professional development and professional learning community. Auxiliary analysis included school demographics of student achievement, as measured by the Reading Ohio Graduation Test, student attendance, student discipline rates, student socioeconomic status and graduation rates.
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CHAPTER 1
Background

According to some commentators, large comprehensive high schools in the United States are performing poorly with respect to students’ engagement and achievement (Boyer, 1983; Cotton, 1996a, 1996b; Martinez, 2005). These schools contain a variety of curricular options for ninth through twelfth grades and serve large numbers of students. Critics provide various sorts of evidence to demonstrate the shortfalls of U.S. high schools (Bottoms & Cooney, 2003). For instance, Bottoms and Cooney (2003) cite increasing levels of disruptive behaviors and violence, poor performance on international academic measures compared to other countries, and unacceptably high dropout rates. According to some research, the high school dropout rate can be as high as 50%, especially in large cities (Steinberg & Allen, 2002). In Ohio, high rates have also been reported (Ohio Department of Education, personal communication, July 6, 2010). According to Burns (2006), for example, Ohio’s lowest performing large high schools graduated only 42.4% of their seniors in 2004-2005.

Small Schools to Small Learning Communities

Educational leaders have attempted to rectify the issue of students’ disengagement and drop-out rates, by using various approaches to make the high school experience more relevant. One strategy for improving secondary students’ engagement with school and their persistence through to graduation is a reform model that requires the restructuring of large high schools into several small learning communities (SLCs: Cotton, 1996a, 1996b, 1998, 2001). In SLCs, a small group of students (typically 120 or fewer) shares a team of four teachers, each with expertise in at least one core academic subject. This arrangement
enables students to have more contact with a smaller number of teachers than they would in a traditional high school, and it provides greater opportunities for building student-teacher relationships (Copland & Boatright, 2004). Teachers on the team often create integrated lessons, jointly monitor and analyze students’ progress, establish a collaborative approach to addressing issues and students’ personal needs, and develop a cohesive set of expectations and guidelines for students (Cotton, 1996a; Kershaw & Blank, 1993; Rutter, 1988). It purports to address the issue of poor student adjustment and engagement, as well as higher levels of academic achievement by creating a personalized and responsive high school environment in which individual students are known and nurtured by the teachers, both socially and academically (e.g., Cotton, 1996a). The creation of SLCs within large high schools has a history that reaches back to the 1940s, but it became the focus of a sweeping reform movement with the infusion of funds from the Bill and Melinda Gates Foundation in 2000 and subsequent funding from the U.S. Department of Education (American Institutes for Research and SRI International, 2005).

The goal of these SLCs is to mimic the reported benefits of extant small schools which include relatively higher levels of student satisfaction, extracurricular participation, and academic achievement; fewer discipline problems; higher student attendance; and lower dropout rates (Capps & Maxwell, 1999; Cotton, 1998; Cutshall, 2003; Haller, 1992; Raywid, 1999). Small schools are also found to have higher levels of teacher satisfaction and efficacy (Cotton, 1998). A teacher’s sense of efficacy (TSE) is a teacher’s belief in her or his personal ability to have an impact student learning through teaching effectiveness (Ashton & Webb, 1986). This and other research led some
education reformers to consider the possibility that restructuring large high schools to make them more like small schools might confer similar benefits (Cotton, 2001; Cushman, 1999; McAndrews & Anderson, 2002).

Researchers subsequently studied naturally occurring small schools to identify possible reasons for their comparative success, and these findings have lent support to the reform initiative promoting the creation of SLCs. Several researchers have observed that the movement to create SLCs within large high schools is an attempt to apply insights gained from the study of extant small schools in rural and suburban settings to larger schools in urban settings (Hammack, 2008; Howley, 1996; Meier, 1995; Oxley, 1994; Semel & Sadovnik, 2008).

According to the National Center for Education Statistics (2008), the average number of students taught by departmentalized instruction in an urban secondary classroom was 24.9 in 2007-2008. In contrast, SLCs, which are typically focused on ninth grade students, are designed to allow several teachers to share students and team to teach that group of students, so that there can be common themed lessons, common expectations, and more information exchange about students.

Some research has examined the dynamics and outcomes associated with SLCs, such as higher levels of students’ sense of belonging (Cotton, 1998). One possibility regarding relationships is that SLCs enable teachers to function more effectively with students by improving the teachers’ sense of efficacy (Guskey, 1988; Guskey & Passaro, 1994; Pajares, 2002; Woolfolk Hoy & Davis, 2006; Woolfolk, Rosoff, & Hoy, 1990). Teacher efficacy is shown to be linked to higher levels of student achievement, which positively impacts student success and persistence (Goddard, Hoy, & Woolfolk Hoy,
Only a small body of research discusses teacher efficacy in SLCs (Wasley et al., 2000). Indeed, additional research of the relationship between SLCs and TSE is needed in order to evaluate possible connections. This research study sought to contribute to this literature through the research results regarding SLC practices, containing common planning time, professional development (PD), and professional learning communities (PLCs), and personal efficacy beliefs of high-school teachers.

**Rationale for the Study**

Justification for the proposed study relied on (a) citing inconsistent academic achievement and low levels of engagement at the high school level (circumstances that can lead to students dropping out), (b) presenting evidence that suggests how and why SLCs may be better at supporting and engaging students than larger high schools, and (c) demonstrating that enhanced teacher self-efficacy in SLC schools is a significant, but often overlooked, contributor to the effectiveness of these alternatives to traditional mega-schools.

The reality and consequences of student adjustment and engagement in high school. According to several researchers, adolescents, especially those who are just

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1. A search of standard databases using the terms “small learning communities” and “teacher efficacy” yielded no empirical reports.
2. Smaller schools are defined by several researchers as schools with fewer than 900 students (Howley, 2000; Raywid, 1999). Small learning communities are created in schools which typically enroll over 1,000 students (Cotton, 2001; Cutshall, 2003).
entering high school, experience notable adjustment issues related to a variety of developmental issues and social conditions (Akos & Galassi, 2004; Black, 2004; Cauce, Felner, & Primavera, 1982; Cotton, 1996b; Hylden, 2004; Queen, 2002; White-Hood, 2001). The overall evidence suggests that the first year of high school can be an emotionally trying time. Perhaps some of the difficulty comes from the fact that the transition is marked by new academic expectations, new grading practices, engagement with unfamiliar peers, and different social norms (Mizelle & Irvin, 2000). The adjustment difficulties also relate to organizational characteristics of schools. Notably, ninth grade students are generally making a transition from a middle school, where teachers use practices such as team teaching that enable them to get to know their students well, to a relatively impersonal high school, where the lecture method prevails and adults are much less accessible (Black, 2004; Sizer, 1984, 1992).

Challenged and often confused by these changes in the school environment, as well as the increased expectations for them to function independently, many students decide within the first few weeks of ninth grade that they do not want to continue their schooling (Black, 2004; Hertzog & Morgan, 1999; Jordan, 2001; Quint, Miller, Pastor, & Sytron, 1999). In fact, ninth grade is often the watershed year during which students decide whether to remain in school or to drop out. According to some educators, therefore, success in ninth grade increases the likelihood of students’ persistence in school, which in turn increases the likelihood of students graduating from high school (Jerald, 2006).

Despite the importance of success in ninth grade, however, some research shows that high schools often fail to provide the kinds of experiences needed for a successful
transition (Akos & Galassi, 2004; Bottoms & Cooney, 2003; Butts & Cruzeiro, 2005; Chmelynski, 2004). High school students have reported that they want more social and emotional support from the teachers in their buildings and an environment where they feel encouraged (Butts & Cruzeiro, 2005; Cauce et al., 1982; Holland, 2002; Isakson & Jarvis, 1999; Mizelle, 1999; Paulson, 2006; Potter, Schliskey, Stevenson, & Drawdy, 2001; Rourke, 2001; Ryan, Gheen, & Midgley, 1998; Sinner, 2004; Smyth & Hattam, 2004).

Affiliation and belonging, defined as social support from peers and teachers, is purported to be situated primarily in small schools and SLCs, and can also play a pivotal role in helping students feel connected to the school community (Bottoms & Cooney, 2003; Cotton, 1998; Isakson & Jarvis, 1999, 2009; Maroulis & Gomez, 2008; Southern Regional Education Board, 2003; White-Hood, 2001). Students reported that among their top concerns are “interesting classes” and “teachers who care” (Butts & Cruzeiro, 2005, p. 73). Regardless of school size, students want academic lessons that are relevant and applicable to their lives and exhibit practicality, purpose, and meaning (Brophy, 1991; Dewey, 1997; Ma, 2003; Mizelle & Irvin, 2000; Newman, 2002; Paulson, 2006; Sergiovanni, 1996; Sizer, 1996; Zvock, 2006). These goals seem more likely to be attained in small schools and some smaller learning communities (Fine & Somerville, 1998; Legters, 1999). These findings suggest that high school students at all grade levels might see benefit in a personalized environment—a type of environment that occurs naturally in smaller schools, but that must be deliberately created and nurtured in larger ones through restructured schools (Cotton, 1996a, 1996b, 1998, 2001).
As previously noted, some evidence suggests that failure to provide an environment that supports student success can contribute to higher dropout rates, which can lead to other negative consequences for high school students and for society at large. School leaders need to understand and address the conditions that lead to students’ decisions to leave school, in order to adjust the high school environments to improve student retention. Students who have dropped out have cited the following conditions that influenced the decision: poor relationships with teachers; inconsistent expectations; perceptions that school is boring, repetitive, and irrelevant to immediate and future endeavors; and low expectations for academic performance that students interpreted as a lack of caring (Bearden, Spencer, & Moracco, 1989; Kortering & Braziel, 1999; Murdock, Anderman, & Hodge, 2000; Paulson, 2006; Queen, 2002).

Research has shown that a communal organizational structure, such as that created through SLCs, promotes greater teacher understanding of individual students and their needs, higher student achievement, and lower dropout rates (Bemel, 2009; Ma, 2003; Rutter, 1988; Zvock, 2006). SLCs are able to create a sense of community and produce these outcomes, according to some researchers, because their more personalized structure enables adults to provide the kinds of support that help students succeed (Astin, 2008; Iniguez, 2008; Rutter, 1988). Furthermore, the structure of SLCs is purported to support teachers creating lessons together, finding linkages to real-world application through those lessons, and learning more about their students (Bill and Melinda Gates, 2005; Cotton, 1996b, 1998, 2001).

Communal organizational structures, however, have been and seem to continue to be an exception to the U.S. norm of large, industrial-era schools (Payne, 2012;
Sergiovanni, 1996). These large high schools tend (a) to offer academic core classes that have little connection to one another and little to offer students in terms of personal relevance, (b) to employ staff who are isolated in their classrooms, (c) to occupy large “factory-style” buildings, and (d) to support impersonal organizational climates in which small-group cohesion replaces a broader sense of community (Akos & Galassi, 2004; Chmelynski, 2004; Cutshall, 2003; Holland, 2002; Jordan, 2001; Paulson, 2006; Smyth & Hattam, 2004; Southern Regional Education Board, 2003; Steinberg & Allen, 2002).

Taken together, these findings about traditional high schools suggest that addressing the experience and the negative consequences of poor student adjustment and lack of engagement may require attention to school organization and social context. This interpretation is not new. In fact, it was this realization—in addition to evidence supporting the efficacy of small, rural schools—that sparked national interest in a reform model devoted to reorganizing large high schools into small schools or SLCs within each that support and engage students in school (Cotton, 1996, 1998; Semel & Sadovnik, 2008). Smaller schools do occur naturally, particularly in rural settings, where population density is low (Howley & Harmon, 2000). Researchers have found that, in general, such schools share several positive features: strong personal relationships, academic rigor, and curricular relevance (American Institutes for Research and SRI International, 2005; High Quality High School Fact Sheet, n.d.; Howley, 1994; Howley & Harmon, 2000; Joftus, 2002; Smaller learning communities, 2002). Recognizing the benefits of naturally occurring smaller schools, some reformers have attempted to introduce the best features of smaller, rural schools into large comprehensive high schools (typically in urban and suburban locales) by creating SLCs within these schools (Joftus, 2002). Researchers have
explored both smaller rural schools and SLCs to gain insight into how and to what extent such schools support and engage students.

**Small schools.** Although increasingly larger institutions of learning have evolved in the wake of various social, political, and economic pressures, small schools were historically the standard for high school education in the United States (Chase & Anderson, 1958; Cubberley, 1916). Teachers had opportunities to become aware of and responsive to each child’s strengths and weaknesses. Teachers also enjoyed a high degree of autonomy (O’Neil, 1995). These conditions fostered strong teacher-student relationships and allowed smaller schools to be flexible in responding to individual differences among students (Tyack & Cuban, 1995).

Strong teacher-student and student-student relationships are still integral to the culture and operation of small schools (Cutshall, 2003; Howley, 1994). Many of these schools, often in rural settings, have been found to demonstrate a high level of personal care, a strong sense of community, and high student achievement (Cotton, 1996a, 2001; Howley & Bickel, 2000; Hylden, 2004; Rutter, 1988; Sergiovanni, 1996; Stockard & Mayberry, 1992). Small schools described in this study are defined as extant, public schools with enrollment under 1,000.

Considerable evidence suggests that teachers in larger schools, compared to those in smaller schools, receive less support, have fewer opportunities to collaborate with colleagues, and suffer from the negative personal and professional effects of isolation (Darling-Hammond, 1997; Letgers, 1999; McLaughlin & Talbert, 2001; Queen, 2002).

**Small learning communities within large schools.** Through a variety of initiatives making use of several different structural arrangements, education reformers
have invested heavily in efforts to replicate the benefits of smaller schools. Some of these structural arrangements involve the creation of small “schools” (i.e., learning communities) within large high schools; others entail the establishment of SLCs, called ninth grade (freshman) academies, which are characterized by teacher teams whereby each team serves one group of students. SLCs, such as those created by “school-within-a-school” arrangements, teamed groupings of teachers who share the same students, or “houses”, may or may not occupy a common area of the school building (Manning & Saddlemire, 1996; “Smaller Learning Communities,” 2002).

**Professional learning communities.** Another structure for teacher collaboration is found in PLCs. Teachers are provided time to evaluate student work, discuss teaching methodology and work to improve student achievement. (Deuel, Holmlund Nelson, Slavit & Kennedy, 2009; Vescio, Ross & Adams, 2007).

**Teacher Self-Efficacy Beliefs: a Significant, but Often Overlooked Factor in studies of Small Learning Communities**

At a granular level, the success of any instructional reform initiative depends upon how it is implemented by each classroom teacher. Some research, for example, has shown that successful implementation depends on whether or not teachers receive helpful initial and ongoing support and appropriate professional development (Supovitz & Christman, 2005). Such support influences not only teachers’ attitudes toward a particular reform, but also their beliefs about their ability to enact the reform (Spraker, 2003).

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3 Between 2000 and 2008, the Bill and Melinda Gates Foundation alone awarded $1 billion through grants to create smaller learn communities within large, comprehensive high schools (Hoff, 2008).
According to some researchers, teachers’ beliefs about their self-efficacy have an influence on student achievement (Woolfolk, Rosoff, & Hoy, 1990). Particularly influential are teacher’s beliefs about their ability to teach all students, use motivational strategies, and function within the schools in which they are employed (Midgely et al., 2000; Newman, 2002; Pajares, 2002; Woolfolk Hoy & Davis, 2006).

Teacher self-efficacy beliefs implicate these educators’ perceptions about their responsibility for student achievement—for example, the belief that teaching can counteract negative life influences and make a positive impact on students (Woolfolk et al., 1990). Self-efficacy beliefs are also related to teachers’ perceptions about whether or not all students can learn. Some research, moreover, has suggested that teachers’ self-efficacy beliefs may vary according to student characteristics. Tucker and associates (2005) found that teachers who work with culturally diverse students do not typically have the same level of confidence in their efficacy with students from all of the different backgrounds represented in their classrooms. Teachers’ lower self-efficacy with regard to working with students from culturally diverse backgrounds is evidenced, according to these researchers, by their inconsistent expectations for and different ways of interacting with students with different background characteristics. Tucker et al.’s study also demonstrated that many teachers believe that they lack the skills needed to work with struggling students, a circumstance that results in the over-referral of students from certain backgrounds to special education programs.

Numerous studies have evaluated the impact of TSE on the behavior and achievement of students (Ames & Ames, 1986; Ashton & Webb, 1986; Goddard et al., 2000; Guskey, 1982, 1988). Tucker and associates (2005), for example, found a
significant positive relationship between teachers’ beliefs about their efficacy and student achievement on the Metropolitan Achievement Test. According to Pajares, 2002, teachers’ beliefs about their own efficacy are linked to student academic achievement, because teachers who believe that they can teach students from all different backgrounds establish learning environments in which all students are able to flourish.

**Statement of the Problem**

SLCs have been touted as providing the structural changes needed to simulate the culture and climate of naturally occurring small schools in attempt to duplicate their successes (Cotton, 1996b, 2001). These successes seem to center on the character of student-teacher interactions (Cutshall, 2003; NWREL, 1996). In turn, these interactions seem to depend on teachers’ beliefs about their own competence. Notably, teachers interact more productively with students when they hold the belief that their skills and abilities will reliably function to support students’ achievement (Ashton & Webb, 1986; Gibson & Dembo, 1984; Tucker et al, 2005; Woolfolk, Rosoff, & Hoy, 1990).

**Research Question**

This study will contribute to the literature by examining the predictive ability of SLC factors of common planning time, professional development (PD) as a support for SLC practice, and participation in professional learning communities (PLC) on self-efficacy beliefs in high school teachers. To address this purpose, this study sought to answer the following research question:

Do large public high schools that use the collaborative practices associated with SLC also have teachers with a higher sense of self-efficacy?
Significance of the study. SLCs, teaming, manufactured small schools, and similar high school reform efforts have been studied in various ways in urban and rural environments, but few with an explicit focus on exploring linkages between collaborative learning communities and teacher efficacy results. As stated before, few research studies discuss teacher efficacy in SLCs (Wasley et al., 2000). Teacher self-efficacy represents an important dynamic to examine, but little empirical work focuses on its relationship to small-school reforms (Lee & Smith, 2001; Murata, 2002; Tucker et al., 2005; Zvock, 2006). The link between teacher efficacy and achievement is well documented (Ashton & Webb, 1986; Gibson & Dembo, 1984; Goddard, Hoy, and Woolfolk Hoy, 2000; Woolfolk & Hoy, 1990.) In this era of high-stakes testing and school report cards that document achievement data, it is important to find solutions that improve student achievement.

This study will help fill this gap by examining the relationship between SLC components and teachers’ beliefs about their own efficacy as teachers. Studying this association allowed for the researcher to disclose and describe reported levels of teacher efficacy in SLC schools versus non-SLC schools, PLC and non-PLC schools and to investigate other school characteristics (e.g., student attendance, student socioeconomic status, discipline rates, graduation rates and high stakes testing achievement) associated with efficacy.

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4 A search of standard databases using the terms “small learning communities” and “teacher efficacy” yielded no empirical reports.
Study Delimitations, Limitations, and Threats to External Validity

The study was delimited to a single state; thus, findings are not immediately generalizable to other states. States vary considerably with regard to their education policy contexts, which impacts generalizability. States may have different teacher education programs that alter the teaching and learning interactions in a classroom. Finally, some states have adopted changes based upon Elementary and Secondary Education Act, formerly No Child Left Behind, while others have rejected the mandated requirements and funding from the government. And finally, during the data collection period of this study, Ohio enacted Senate Bill 5, which reduced public teachers’ ability to negotiate with the school board. This was a highly visible and controversial bill that may have influenced how respondent’s answered survey items. It was repealed after this study was conducted.

The sample is further delimited to public, non-charter, non career-tech high schools with enrollments of 1,000 or more, serving 9-12th grades in Ohio, due to the fact that SLCs are typically found in larger high schools (Cotton, 2001). This research was conducted using the (2009-2010) enrollment district data for the state of Ohio. There were 556 public high schools with enrollments under 3,000 students and 161 with enrollments above 1,000 that were invited to participate in this research. No high schools in Ohio had enrollment above 3,000. This study did not include any schools under 1,000 enrollment and all of the large high schools in the state did not participate, which delimits the number of teachers who completed the survey.

The study is limited by various issues related to data collection and specifics regarding implementation of SLCs. One limitation was variability in the number of
surveys completed by the faculty at each school. There was no method available to
directly email each teacher, so the survey was sent through the principal. This method did
not allow for subsequent follow-up emails to individual teachers requesting their
response, except in the case of non-response by an entire school. It was not possible to
ascertain whether the respondents were in the same SLCs, were the only ones in SLCs, or
were the only ones not in SLCs. Limitations related to implementation stem from the
potential variety of SLC components adopted.

Some schools may have had teaming, but not PLCs. Others may have had
extensive professional development prior to implementing SLC. Some teachers may have
served in the SLC since inception, while others were new to this concept and structure.
These examples depict the potential variability of each model. Because of this variance,
teachers were asked if they participated in SLCs and, if so, were asked if they teamed
with other teachers, shared common planning time or participated in PLCs. They were
also asked if they had professional development related to SLC efforts.

This was an exploratory correlational study, and so did not allow for manipulating
variables. No causal inference can be made between SLC and teacher efficacy. There are
many factors that may influence teacher efficacy. The culture of the school remains an
important component to teachers’ beliefs about instructional and behavioral supports and
expectations. Teachers who may have selected to teach in SLCs may have higher levels
of efficacy. Principals who created or led SLCs may also have been inclined to recruit
teachers that displayed signs of self-efficacy. Strong cultures may have encouraged,
supported and had high expectations of each student’s learning, regardless of challenge
(Chester & Beaudin, 1996; Weiss, 1999).
This study used a self-report instrument to measure teachers’ self-efficacy beliefs, and elicited pertinent demographic data. The researcher created an electronic survey of the instrument for distribution through principals to teachers who teach in large high schools across the state of Ohio. Early efforts were made to obtain teacher emails, in order to survey them directly, but it was not possible to obtain all of the teacher emails from the school websites or from ODE, as they are not consistently available. Technical difficulties were a possibility, as respondents completed the survey using a computer. This had potential for inaccurate responses depending on whether or not the teacher completed the electronic survey appropriately. A limitation was that principals could choose particular teachers as recipients of the survey. The researcher worked to reduce this limitation by asking the principals to send the survey to their entire teaching faculty. There were incentives for schools with the largest percentage of involvement.

Limitations of self-report surveys are effect of social desirability bias. This bias, defined as, “bias in the results of …surveys that comes from subjects trying to answer questions as “good” people “should” rather than in a way that reveals what they actually believe or feel” (Vogt, 1999, p. 268). Teachers may have realized that particular answers lead to a definition of a better teacher and attempted to provide that answer, rather than the answer that truthfully acknowledges their thinking. There was also a possibility for inaccurate answers with self-reporting instruments, as the subject may have chosen to inflate responses when asked value-laden questions, or marked the answers haphazardly, because of time constraints or lack of interest (Tuckman, 1999). Another limitation was the potential for selected teachers to have limited technological skills, a lack of access to a computer or technical difficulties in responding to the instrument. On a positive note,
self-administered surveys do have the benefit of reducing social desirability bias by providing an element of privacy for the participants (F. Fowler, 1993).

Other potential limitations were caused by non-response rate. The sampling frame was contingent upon the data retrieved from the Ohio Department of Education (2010) database. This database was created by merging all of the schools reported data in the Educational Management Information System, which relies on schools to submit according to protocols. The selection process of schools is based upon the use of this same database. The selection of schools was intended to be inclusive to the desired requirements; however, the principal had the ability to determine whether or not to participate in the study, by forwarding the survey link to the faculty. Dillman (2000) stated that the three strategies to improve the response rate are to establish trust, increase rewards, and reduce social cost. The researcher contacted all previous personal colleagues and educational friends, to determine those that had a connection with one or more of the principals on the sampling list. These mutual names were used in telephone calls and emails which assisted in establishing trust and reducing social cost. One hundred-eight of the 161 principals had a mutual contact with the researcher. The potential non-response rate was mitigated by following a process that required calling each principal prior to sending the email, and then repeated calling and emailing principals to invite their teachers to participate, employing up to five total telephone and five total email attempts to ensure participation, unless the principal stated that her or his school would not be participating.

Principals were told all participating schools would be entered into a raffle for one $100 VISA card. The school with the largest response rate would automatically
receive a $250 VISA card. The principals were told that they would receive the final summary of this research, for use in guiding their practice. Based upon their comments, there was far more interest in receiving the results than in receiving the financial reward. Both of these strategies were used in order to increase the reward element (Dillman, 2000). The financial incentive was intended to increase the participation rate of teachers, as both incentives were described in the introduction of the survey.

A large response rate was required to obtain an adequate sample size. Tuckman (1999) provides guidance for surveys stating that an adequate sample size has been obtained with 50 responses, plus eight more for each predictor variable tested. Hence, this study included four predictor variables requiring data from 82 schools.

One of the limitations of the study may be related to the origination and funding of the SLC model. It was possible that schools who received grant money to begin work in SLCs may have had a different level of commitment to either ensuring changes within the school culture (than schools that have received no such funding), or in sabotaging the effort, if it was a “top down” mandated model. Teachers who ask for and promote SLCs may have more involvement than those that are administrator led.

Another possible threat to internal validity was the Hawthorne effect (Mayo, 1933; Tuckman, 1999). On the other hand, teachers who are required to participate in a reform effort without desiring this reform may negatively interfere with the efforts (Galletta & Ayaly, 2008). Teachers who were new to the school or to the district may have no information regarding origins or funding of the SLC. The survey did not request information regarding funding or origin of the SLC structure, as the researcher wanted to
promote consistency in the survey by asking only questions related to personal perceptions and personal demographics.

**Definitions of the Variables**

All of the variables are listed in Appendix A and defined in Appendix B.

**Definition of Terms**

*Professional learning community* is typically defined as a group of academic content teachers, which may include fine arts teachers, intervention specialists and other teachers, who meet on a regular basis to examine academic student outcomes and instructional practice (Lee, Smith & Croninger, 1995; Oxley, 2005; Wallach, 2002).

*Small schools* are defined as typically rural, extant in their setting, with enrollments under 400 (Joftus, 2003).

*Small learning community* is defined as a separate learning group within a larger school setting, with teachers scheduled to share the same students, as well as a common space within the school (Cotton, 2001). Academic core teachers, who typically include language arts, social studies, science and mathematics teachers—are scheduled to share the same pool of students, typically at a ratio of 125:4 (Sammon, 2000). Teachers will be provided this definition and respond yes or no to the question, “Do you team with a group of teachers and share a group of students?”

*Teacher’ Sense of Self-efficacy*, as the dependent variable, was defined as a personal belief that the teacher has the capability to engage students, increase student learning, and effectively manage the classroom and can “bring about desired outcomes of student engagement and learning, even among those students who may be difficult or unmotivated” (Tschannen-Moran & Woolfolk Hoy, 2001, p. 783). Bandura (1997) stated,
“Teachers with a high sense of instructional efficacy operate on the belief that difficult students are teachable through extra effort and appropriate techniques and that they can …overcome negating influences through effective teaching” (p. 240). The teachers' sense of efficacy was based on the teachers' responses to 12 items on a 9-point Likert-type summative rating scale from 1 = Nothing, to 9 = A Great Deal. The Teachers' Sense of Efficacy Scale (TSES) measures the constructs of student engagement, instructional strategies and classroom management.

Teacher’s Sense of Efficacy in classroom management is the extent to which teachers believe they are able to control classroom behaviors, ensure that students follow rules, create and maintain a classroom management system, and follow daily routines (Tschannen-Moran & Woolfolk Hoy, 2001).

Teacher’s Sense of Efficacy in instructional practices is seen when the teachers are able to ascertain the extent to which they vary assessments, explanations, questions, and lessons for students in the classroom (Tschannen-Moran & Woolfolk Hoy, 2001).

Teacher’s Sense of Efficacy in student engagement is the extent to which teachers believe they can help students value learning, believe they can do well, motivate all students, support students who are failing, and work with families to help students do better in school (Tschannen-Moran & Woolfolk Hoy, 2001).

Traditional non-teamed high school classes are found in a school structure in which students attend core and elective classes, with no assignment to a team of teachers.

Summary

This chapter has outlined common adjustment and performance difficulties experienced by adolescents as they enter large, comprehensive high schools. Research
shows that the transition from middle to high school is a critical time for students and that they need purposeful structures to help them achieve success. Student attendance, achievement, grade point average, dropout rates, and sense of belonging are all implicated when freshmen enter predominately large high schools.

One approach to improving the quality of the high school experience involves the establishment of SLCs and PLCs within large high schools. Through this approach, educators attempt to replicate student support mechanisms that occur naturally in smaller schools. Within the smaller unit, teachers share a group of students—an approach that has the potential to increase students’ sense of personal accountability. Schools with higher academic achievement are purported to have higher levels of teacher self-efficacy. The intent of this study was to determine if there is a relationship between SLC components and teacher efficacy. The next chapters will provide a literature review of SLCs, the methodology used for this study, the findings and the recommendations for future research.
CHAPTER 2
Review of Relevant Literature

This exploratory correlational study investigated the relationship between small learning communities (SLCs) and self-efficacy beliefs of teachers. The development and implementation of SLCs as a reform strategy reflected the desire to reproduce the benefits of smaller schools (Cotton, 1996b, 1998). Among those benefits are improved teacher attitudes and feelings of satisfaction (Ayers, Bracey, & Smith, 2000; Lee & Loeb, 2000, Wasley et al., 2000).

Smaller scale schooling, including existing small schools and those created through SLCs are associated with desirable socio-affective student outcomes. These include relational improvements, such as teachers knowing students well, students reporting a stronger sense of accountability, and belonging (Raywid, 1999; Wasley et al., 2000). Recent studies regarding academic improvement depict school environments that are radically improved (Wasley et al., 2000; Wolfe, 2010), and others where achievement scores remain neutral (Hoff, 2008; Levine, 2010), however, no studies show a decline in academic achievement (Butin, 2000; Duke, DeRoberto & Trautvetter, 2009). Student attendance, grade promotion, engagement, and other success indicators also show improvements in these environments (Hoff, 2008).

Teachers’ feelings of personal efficacy have been shown to contribute to more effective interactions with students (Benz, Bradley, Alderman, & Flowers, 1992; Guskey, 1982; Protheroe, 2008; Ross, 1998; Woolfolk & Hoy, 1990). Teachers’ effective interactions with students result in improved achievement and reduced dropout rate (Hoy
& Woolfolk, 1993; Ross, Hogaboam-Gray, & Gray, 2004; Rubie-Davies et al., 2006; Tschannen-Moran et al., 1998; Tucker et al., 2005; Woolfolk Hoy & Davis, 2006). In fact, Goddard, Hoy, and Woolfolk Hoy (2000) found that a one unit increase in efficacy equated to a 40% increase in a standard deviation in student achievement. Research reported by Pittman and Haughwout (1987) showed a dropout rate in large high schools that was nearly double that of small schools containing less than 667 students.

The findings on teacher efficacy and student achievement are compelling individually, and suggest the potential for investigating their possible association. The goal of this study was to explore the relationship between SLC characteristics, school characteristics and teacher self-efficacy beliefs, in order to examine whether schools that utilize more SLC components tend to have teachers with a higher sense of self-efficacy.

Following this introduction, the chapter will review relevant research findings that are purported to be present in effective small schools. Discussion leads to comparisons of small and large schools, with restructuring efforts as key to the creation of a parallel environment between these settings. The potential pitfalls and benefits of the creation of SLCs are described in detail. The salient points involve the potential improvement in larger restructured high schools when the small school model is employed through SLCs.

Each of these benefits and key features are markers of effective teaching and learning: higher student engagement in learning, increased school safety and order, higher graduation and reduced dropout rates, team delivery of instruction, collegiality among teachers, the use of PLCs, and higher levels of teacher efficacy. The concluding section of the review discusses teachers’ sense of self-efficacy as an essential, but
understudied influence on students’ success in SLCs. The scale selected for the measurement of teacher efficacy is discussed at the conclusion of the chapter.

**Small vs. Large Schools: Definitions and Debates**

Over the past decade, researchers have debated the issue of effective and appropriate school size. There seems to be no agreement upon one “ideal size” for a high school, but typically the writing on small schools recommend for total high school enrollments ranging from 400 to 900 students (Cotton, 1998; Raywid, 1999). In some studies, however, high school enrollments of fewer than 400 students have been found to assist in ameliorating the problems found in large schools (Joftus, 2003). Nevertheless, the question of how small is small enough has been answered by educators in different ways. Those who favor the notion of the school as a community tend to recommend enrollment levels at the lower end of the range, while those who emphasize academic comprehensiveness (e.g., the ability to offer a wide variety of courses) tend to advocate higher enrollments (Raywid, 1999).

The average high school enrollment has increased over the past 40 years, as fewer but larger high schools have been built. Research from 2000 showed that 25% of high schools at that time enrolled 1,000 students or more (McComb, 2000). One rationale for larger schools has been that they provide a more favorable cost-per-benefit ratio, because of the economies of scale from which large schools are able to benefit, such as curricular options and extracurricular choices. More recent research, however, suggests that the cost of the problems created by large schools may offset any savings realized through economies of scale (Bingler et al., 2002; Ready, Lee, & Welner, 2004). Cotton’s (1996a) study reviewed 103 documents on school size, finding that the quality of curriculum is
not correlated to larger school size. The following section discusses what research has to say about benefits associated with naturally occurring small schools.

**Benefits Associated with Naturally Occurring Small Schools**

Researchers have found that small schools tend to confer benefits both to students and teachers (Howley, 1994; Howley & Bickel, 2000). An early study conducted by Barker and Gump (1964), which included four small schools and a large high school, showed that the small schools were better able than the large ones to foster student satisfaction, student participation in school activities, and coursework completion. Fowler and Walberg (1995) noted, however, that Barker and Gump’s (1964) statistical analysis was limited, but subsequent studies using widely accepted methods have identified similar benefits (Cotton, 1996b; Fowler, 1995; Howley, 1994). Research on small schools in rural communities, much of it conducted in the 1990s, showed consistently that smaller schools had proportionally fewer discipline referrals, less violence, and less social disruption than larger schools (Gregory, 1992; Joftus, 2003; Raywid, 1999; Ready et al., 2004). Haller (1992) found that school size and location had a profound effect on school disorder. His regression analysis measured discipline issues and size, and found that size explained 3.4% of the variance, with $R^2 = .082$, at $p < .01$. According to McComb, (2000) dropout rates in Oregon were shown to go from 5.66 percent in small schools, with less than 500 students to 6.39 in schools with over 1000 students.

Small schools appear to be especially beneficial to students in lower socioeconomic groups. Research has consistently shown that, on average, student achievement among students of poverty is comparatively higher in small schools than in larger ones (Bickel, Howley, Williams, & Glascock, 2000; Fowler, 1995; Howley, 1996,
Howley, Strange, and Bickel (2000) conducted a cross state study of ninth grade student achievement scores correlated to socioeconomic status and found that in Ohio, “Between 41 and 90 percent of schools (depending on grade level tested) would likely produce "lower" average scores if the schools were larger, or (in these schools) higher scores if they were smaller” (p. 4). Johnson, Howley & Howley (2002) conducted a regression analysis comparing SES and achievement of students across the state of Arkansas, both in large and in small schools. There was strongest statistical significance regarding the relationship between large school size, low SES and low achievement, particularly at the tenth grade. Ready and associates (2004) found that high schools enrolling fewer than 1,000 students were more equitable for all students, including those who were minorities and at risk, than high schools enrolling more than 1,000 students. In their study, small schools were found to have higher average student achievement scores than large schools in core academic areas, and the higher student scores were more equitably distributed among students of different races, classes, and ethnicities (Ready et al., 2004). Student achievement is related to not only high test score attainment on high-stakes tests, but student grade attainment, which supports persistence through high school (Corbin, 1998; Jerald, 2006).

Although much of the research on small schools has focused on rural schools (Howley & Harmon, 2000), a study conducted by Wasley and associates (2000) documented student achievement benefits in purposely created small urban schools as well. The two-year mixed methodology study involved 150 schools established in Chicago’s poorest neighborhoods between 1990 and 1997. Each school enrolled between 200 and 400 students. The research team evaluated the influence of school size on student
achievement using hierarchical linear modeling, by analyzing the small schools attendance and the larger school in which they are housed. The researchers controlled for student demographics such as socioeconomic status, special education status, and race. The team used four indicators of school performance: dropout rate, attendance, retention, and standardized test scores. The study found that, compared to larger schools, the small schools posted higher attendance, grade point averages, and graduation rates; and students in the smaller schools were less likely to fail core academic courses.

Benefits associated with small schools appear to extend to the staff as well. Although small schools have a limited number of staff, researchers have found that these educators generally exhibit higher levels of behaviors associated with collective efficacy, which is the belief that the faculty works together toward student success (Goddard et al., 2000). Evidence of collective efficacy can be seen in levels of collegial engagement, involvement with planning, and lesson sharing (Cotton, 1998; Darling-Hammond, Ancess, & Ort, 2002; Gregory, 1992; Oxley, 2005). Moreover, teachers in small schools are more likely to report being satisfied in areas associated with teacher efficacy, such as collaborating with and learning from colleagues, engaging in professional development, taking on leadership responsibilities, participating in PLCs, and working together to create appropriate educational programs for students between disciplines (Wasley et al., 2000). McComb’s (2000) review of the literature found that, in general, attitudes tended to be more negative and morale tended to be lower among both teachers and administrators in larger schools.
Key Features of Small Schools

Some research has identified features of small schools that may contribute to the positive student outcomes that such environments seem to produce. Many of the positive outcomes reported in research on small, rural high schools (e.g., high levels of student attendance, achievement, participation, engagement, and graduation) seem to be related to the sense of community created within those schools (Gregory, 1992). Student engagement describes the motivation and participation of the student in the classroom tasks (Skinner & Belmont, 1993). Many students in these schools report that they have strong relationships with teachers who hold high standards and refuse to allow students to give up or to turn in mediocre work (Capps & Maxwell, 1999; Cushman, 1999; McAndrews & Anderson, 2002). Compared to students in large schools, students in small schools more often report feeling a sense of belonging and say they are more connected to their schools (Cotton, 2001). They are able to get to know their teachers more readily and establish positive relationships with them. In turn, teachers know their students by name, maintain on-going connections to students’ families, and understand the circumstances that each student confronts (Cotton, 1996a). These personal relationships seem to promote student success by increasing students’ desire to work hard for their teachers (Goodenow, 1991, 1993; Ma, 2003). Familiarity, it seems, supports students’ psychological and emotional connections to teachers and to the school (Capps & Maxwell, 1999).

Strong teacher-student relationships are one possible explanation for the finding that discipline problems are comparatively fewer in small schools. Because teachers who know their students well are able to notice subtle changes in students’ attitudes and
behaviors, they are better positioned to intervene, thereby preempting some potential
discipline problems (Capps & Maxwell, 1999; McAndrews & Anderson, 2002).

Ready et al., (2004) observed more enhanced personal interactions between
students and teachers in small schools, than in larger ones. Students in small urban
schools in Chicago remarked that teachers were highly focused on student success;
teachers in these schools knew students well, held high expectations, fostered critical
judgment in their students, and used a broad range of strategies to engage students.
Adolescents in these schools said that they “feel safer in their small schools because they
are learning the skills of conflict management and democratic citizenship” (Wasley et al.,
2000, p. 35). By contrast, according to several researchers, adolescents in large high
schools seem to feel disconnected from their teachers and rarely maintain positive
relationships with them (Cotton, 1998, 2001; McAndrews & Anderson, 2002; McComb,
2000).

Collectively, the features of small schools described above may help explain the
finding that individual students’ needs are better met in these schools than in larger ones
(Allen & Steinberg, 2004). As various studies suggest, students with academic challenges
and those who are disadvantaged are able to obtain more support in small school
environments (including both naturally occurring small schools and schools-within-
schools) than in large, traditional settings (Williams, 2004). Because teachers in small
high schools know their students well and typically collaborate in finding ways to support
those who are struggling, students who attend such schools are likely to benefit from the
individualized attention that is made available to them (Allen & Steinberg, 2004;
McComb, 2000). When these supports are used and students respond positively to them,
performance in core academic subjects tends to improve, grade point averages increase, and dropout rates decrease (Cotton, 2001; Wasley et al., 2000).

**Promising Practices of SLCs Schools**

Some researchers have identified benefits associated with SLCs. For example, compared to large schools in Chicago, intentionally small schools of various types (including schools-within-schools) tended to have lower average dropout rates of 5.1% compared to 10.3% and higher attendance rates (Holland, 2002). When South Grand Prairie High School, a suburban school with above-average student achievement, divided the high school with 2,300 students into five smaller schools, enrollment in AP courses increased, as did the graduation rate (Nathan & Hare, 2001). Ysleta Independent School District converted to SLCs and found an increase enrollment in AP and pre-AP classes of 32% since 2004 (Wolfe, 2010).

Some studies of ninth grade academies have revealed promising outcomes. As Jordan (2001) suggested, those that incorporate interdisciplinary team teaching and common planning times may contribute to improved student performance. Other research on ninth grade academies has demonstrated notable reductions in discipline referrals and suspensions, increases in students’ reading ability and retention of knowledge acquired through reading, and improvements in teachers’ knowledge about individual students’ characteristics and needs (Chmelynski, 2004).

When the American Institutes for Research and SRI International (2005) studied the SLC models funded by the Bill and Melinda Gates Foundation, their findings surfaced promising examples, as well as areas of concern. In this evaluation, the researchers compared processes and outcomes in newly established small schools with
those in schools restructured into SLCs. Although student support and school learning
culture improved in both newly established and restructured schools, student assignments
given in the new schools were more relevant and rigorous than those created in the
restructured schools, and newly established schools showed faster and more consistent
improvement of student performance. These findings indicate that transforming values
and expectations within an existing facility may pose considerable challenges, especially
when there are no changes in teaching personnel (Borjian, 2008; Rodriguez, 2008; Shear
et al., 2005). The challenge found in the literature about SLC sustainability is the risk of
balkanization within the school culture, which is one of the reasons that SLCs are
sometimes discontinued (Galletta & Ayala, 2008; Ready et al., 2004).

Other findings imply that dividing a larger high school into SLCs is only the first
stage in the implementation of the small-learning-community model. As several
researchers suggest, some large-school conversions (from traditional schools to SLCs)
have little effect on student achievement (Hoff, 2008; Lee & Ready, 2007). For example,
a study of two restructured schools, one in Philadelphia and the other in Cincinnati,
showed how teacher teaming was misdirected toward “administrivia” and other structural
issues rather than appropriately directed toward instructional improvement. When teamed
teachers used prescribed methods of analyzing student work, they found higher levels of
success (Supovitz & Christman, 2005). Conversations about student work are also a
factor in professional learning communities, where teachers meet as colleagues to share
and evaluate better teaching methods (Cowley & Meehan, 2001; Hord, 2009).

These findings point to the link between the fidelity of implementing the reforms
associated with SLCs and desired outcomes (Oxley & Whitney Luers, 2011). Levine
(2010) discussed notable benefits seen across the array of literature regarding SLCs: attendance, graduation rates and student perceptions of support, as well as the challenges of SLCs which include “focusing on instructional improvement and particularly transcending school history” (p. 277). Other research indicates that SLCs are more likely to realize the benefits associated with naturally occurring small schools when staff and administrators participate by choice and when they share a pedagogical mission and philosophical beliefs about students and learning (Lee & Ready, 2007).

The goal of SLCs is for teachers to plan lessons and discuss student needs together, which is meant to promote consistent expectations, innovative lessons, and additional support for students who need remediation (Cotton, 2001). According to researchers, some studies show that the benefits to students who participate in SLCs is evidence of a need to focus in on the techniques used to help SLCs survive and thrive within the culture of a school building (Levine, 2010; Oxley & Whitney Luers, 2011).

Although some diverse and at-risk schools have found SLCs to improve student achievement (Wolfe, 2010), there is increased interest in seeing more examples of improved student achievement, as well as desire to ensure the continuation of SLCs. The U. S. Department of Education (2010) continued to offer SLC grants, with the latest round in late 2010 of the 60 month project period, offered an average size of awards of $2,400,000 for the first 24 months, totaling nearly 33 million dollars of support.

In addition to subdividing a larger school into smaller units, schools-within-schools also involve their educators in the intentional development of community. Sergiovanni (1996) defined community as a place where a group of people work cooperatively and in an interconnected way, sharing common goals and upholding the
priority of the common good. To create a community that supports and engages high
school students, some studies have suggested that schools should establish
interdisciplinary teams and provide common planning time for teachers (Common
planning time heightens teacher efficacy, 2010; Cotton, 1998, 2001; Oxley & Whitney
Luers, 2011; Wolfe, 2010). In addition, some writers have argued that creating and
nurturing a collaborative professional learning community among teachers is essential if
these professionals are to be successful in navigating the new structural arrangements
afforded by small-school conversions (Elmore & Associates, 1990; Holland, 2002;
Lieberman, 1995; Vescio et al., 2007).

Converting Large Schools to Small Learning Communities: Research Findings and
Insights on Restructuring

Some studies have yielded insights that are relevant to efforts to restructure large
high schools to create SLCs—learning environments that educators hope will be similar
to those found in naturally occurring small schools (Meier, 1996; Raywid, 1996).
According to some writers, learning communities of this type fit well with
recommendations for a more personalized approach to education than is possible in many
schools. As Rutter (1988), for example, claimed, schools that aspire to be responsive to
students’ needs should be conceptualized as communities of learners rather than as
impersonal “organizations.” Even the name of the initiative (small learning communities,
as opposed to small learning organizations) implies a shift in the way schools are
conceptualized: The word community implies relationships and interconnectedness,
whereas the term *organization* implies structured arrangements and impersonal rules and procedures (Howley, 1994; Tönnies, 1887/2002).

To advance their efforts to study the effects of various organizational structures on student learning, Lee and Smith (1995) defined “restructuring” as an initiative to transform schools from bureaucratic organizations to communal environments focusing on student learning. According to these researchers, schools with bureaucratic structures use a top-down, specialty-based organizational arrangement. In bureaucratic schools, curricular topics are segmented into discrete content areas, and teachers are grouped by department, with a department head leading each specialized group (Lee & Smith, 1995). By contrast, communal organizations feature shared leadership; interdisciplinary, multidimensional, and cooperative learning; and a personalized environment (Lee & Smith, 1995).

Lee and associates’ (1995) study of 820 secondary schools investigated whether or not schools that had restructured to become more like a community and were more effective and equitable than those that retained a traditional bureaucratic structure. The researcher found that the process of transforming schools from bureaucratic to communal structures created conditions producing improved learning, as seen by a 78 % increase in learning mathematics for eighth through tenth graders, and a twofold increase in science achievement among students in the tenth through twelfth grades.

Other studies (e.g., Allen & Steinberg, 2004; Jof tus, 2003; Johnson, 2002; Lee & Smith, 1995) that document the work of successful SLCs provided evidence of a range of different benefits relating to achievement, equity, safety and order, retention, teacher attitudes, and teacher satisfaction (Cotton, 2001). Not all studies, however, have found
that simply changing to SLCs created similar positive outcomes (Cawelti, 1995; Cramer, 2006; Falls, 2008). It was found to be more difficult to create communities of instructional practice (Supovitz & Christman, 2005).

As the disparate research findings seem to imply, large schools that seek to restructure into SLCs face many challenges. Several studies, for example, suggested that educators who work in schools-within-schools face the challenge of altering the norms and practices of the traditional school culture in order to forge new norms and practices (Ready et al., 2004). After all, teachers, as some writers note, have the ability to reject any reform and may continue to use traditional methods inside the new structure (Anderson, 1998). Perhaps such dynamics are predictable because changes of this magnitude are difficult to realize (Fullan, 2002). Nevertheless, when they do take place successfully, they alter expectations governing the character of relationships among educators and between students and educators and ultimately appear to have a positive influence on student outcomes (McPartland, Legters, Jordan, & McDill, 1996; Ready et al., 2004).

An important basis for the success of SLCs seems to be the active engagement of staff and administrators (Lee & Ready, 2007). As Allen and Steinberg (2004), among others, noted, the creation of a shared mission must be nurtured; it cannot be mandated. The change process depends, from this perspective, on the inclusion of faculty in conversations about instructional practices as well as about their relationships with students (Allen & Steinberg, 2004). Some have also argued that change depends on strong administrative support for teachers’ efforts to learn about and adopt the desired practices (Wallach, 2002).
These researchers acknowledged that restructuring can be accomplished and sometimes result in improvements, but they also reported that it is difficult (Allen & Steinberg, 2004; Wallach, 2002). The following discussion outlines some of the pitfalls associated with restructuring large schools to create SLCs. This discussion is followed by an examination of research reporting on the link between SLCs and a number of valued outcomes.

**Potential Pitfalls of Restructuring Large Schools to Create Small Learning Communities**

Some studies show that effective implementation of small learning community models is not a given (Lee & Ready, 2007). Notably, in these studies, when the model’s integrity was compromised, the results turned out to be less positive than educators had anticipated. These studies also suggested that certain strategies were essential to the success of restructuring efforts. Of particular importance were the following strategies: a shared vision and mission among staff, site-based management, common planning time, interdisciplinary teaming, and heterogeneous student groups.

Oxley’s (2001) analysis of four high schools’ attempts to convert to SLCs also identified several problems with implementation of the model in the schools. For instance, in one school, participation in the new model was mandated via a top-down directive from the superintendent, a leadership strategy that has been found to reduce the likelihood of staff buy-in and therefore willingness to implement reform initiatives. Also, some students who were selected to participate in the small learning community actually enrolled for only one or two courses inside the community. This arrangement defeated one of the primary purposes of the model, which was to enable teachers to establish
relationships with a small group of students and to provide instruction that was responsive to their needs.

Although improved support for academic achievement is a primary reason for creating SLCs, Lee and Ready’s (2007) study of schools-within-schools demonstrated that restructuring does not always promote instructional improvement. Their study did identify several examples of improved teaching and learning, including some efforts designed to help students who were less academically inclined and revealed cooperation and open communication among some staff. In most of the classrooms, however, the researchers saw little evidence of innovation, with teachers continuing to deliver lectures and asking students to respond to low-level questions. Lee and Ready (2007) attributed the lack of expansive pedagogy to limited professional development and lack of institutional support. These findings suggest that structural reforms may not be sufficient to improve student performance. The researchers concluded that, in order to promote improved academic achievement, small school conversions must involve fundamental changes to a school’s technical core of teaching and learning.

**Potential Benefits of Small Learning Communities: Research Findings and Implications**

Adopting a small learning community model does not guarantee success, as evidenced by the above research. Nevertheless, SLCs have been created in urban and suburban schools since the mid-1980s, and some research has clearly identified benefits of the model. In some cases, this research reports associations between restructuring (i.e., small school conversion) and student outcomes. Even though this body of literature may acknowledge that such associations are not direct—but are mediated through instructional
innovations, student-teacher relationships, and other features of teaching and learning—it does not attend explicitly to such dynamics. Other literature, however, focuses more narrowly on the associations between restructuring and changes in the types of dynamics, such as teacher efficacy, that are thought to promote improved student outcomes.

**Student engagement in learning.** Numerous studies have found that student engagement is an essential precursor to improved academic achievement (Bermel, 2009; Maroulis & Gomez, 2008), and some researchers have investigated the influence of SLCs on this outcome. Lee and Smith (1994), for example, compared student engagement and achievement in restructured schools (i.e., schools converted into SLCs) to the engagement and achievement observed in traditional schools. They found that students in the restructured schools showed higher levels of engagement in every subject area (7% higher, on average). According to another research team, student enrollment in Advanced Placement courses—a proxy measure of engagement—increased after a suburban high school divided into five SLCs (Nathan & Hare, 2001).

Conditions productive of improved student engagement also appear to be more prevalent in restructured schools than in traditional ones. According to Lee and associates (1995), for instance, authentic instruction, defined as learning that encourages engagement in sustained, disciplined, and critical thought that leads to real-world problem solving, is more likely to be found in small and restructured schools than in traditional larger schools (see also Cotton, 2001). Course work in these schools is both challenging and compelling, according to some commentators (McAndrews & Anderson, 2002; McComb, 2000; Wasley et al., 2000). Student engagement is also shown to improve when TSE is high (Tschannen-Moran et al., 1998; Woolfolk Hoy & Davis,
Tucker and associates (2005) conducted a study of low performing schools to determine the impact of a series of workshops on teacher efficacy and increased engagement with diverse students. They analyzed the teacher posttest scores against pretest scores through an analysis of covariance and found that the adjusted mean went from 5.93 to 6.21 on the Culturally Sensitive Teacher Self Efficacy (CTSE) instrument.

**School safety and order.** Cotton (2001) summarized a large body of literature that collectively supports SLCs because of their salutary influence on affiliation, safety, and order. Students and teachers in SLCs are purported to have a much stronger sense of affiliation and belonging than those in large high schools (Raywid, 1999; Wasley et al., 2000). A result of students’ heightened feelings of affiliation with peers and the school community in small schools is increased safety and order (Fine & Somerville, 1998; Wasley et al., 2000). Large high schools, by comparison, consistently have more school violence, safety concerns, and discipline problems (McComb, 2000). Gottfredson (1985) conducted a study on school size using a regression analysis to evaluate size against school disorder characteristics such as violence, in sixty-nine schools across seventeen cities. The findings showed that student victimization was significantly related to size ($r=-.49, p<.01$).

**Graduation and dropout rates.** Nationwide, the rate at which students drop out of high school represents a serious educational and social problem (Joftus, 2003; Steinberg & Allen, 2002). A study conducted by the Bill and Melinda Gates Foundation (2005), for example, found that 30% of high school students do not graduate and that as many as 50% of the minority students in some districts do not graduate (Joftus, 2003). Dropout rates, moreover, are higher in larger high schools (Capps & Maxwell, 1999;
Gregory, 1992; Lee et al., 1995; Raywid, 1999). Darling-Hammond (2002) reviewed student outcomes for New York City Schools and reformed high schools, called Coalition Campus Schools and found that the 1-year dropout rate for NYC was on average 4.5% \((p< .01)\) as compared to the CCS with an average of 1.2%. This same study found that attendance was 85% in NYC schools and 86.2% in the CCS. In Supovitz’s (2002) study of the Cincinnati Public Schools, smaller educational environments are associated with reduced dropout rates. Nathan and Hare (2001) documented improvements in graduation rates in an already high-achieving secondary school after the school introduced SLCs.

**Team planning, collegiality, and delivery of instruction.** Teachers tend to work in isolation in many traditional high schools. Some research seems to show that restructuring provides a catalyst for improved collegiality and interpersonal relationships among teachers (Allen & Steinberg, 2004; Gladden, 1998; Visher, Teitelbaum, & Emanuel, 1999). Isolation is less of a problem, because teacher teams share planning time and have greater opportunity to work together (Lee & Smith, 1995). According to some researchers, shared planning time can lead teachers toward better discussions about lesson planning, grading practices, and techniques for helping struggling learners (Allen & Steinberg, 2004; Christman & Macpherson, 1996; Lee et al., 1995; McAndrews & Anderson, 2002; Newmann, Smith, Allensworth, & Bryk, 2001; Oxley, 2005; Steinberg & Allen, 2002). Oxley (2005), moreover, found that, when successful, professional engagement in SLCs supported teachers adopting new ways of thinking about teaching and their role as part of a team. In SLCs, where teachers are encouraged to work together to help students succeed, staff members report higher levels of satisfaction and morale than is typical in large, traditional schools (Lee et al., 1995).
Professional learning communities. Small schools—and perhaps also SLCs within large schools—can provide opportunities for teachers to collaborate on lessons, work more closely with students, and improve academic success (Joftus, 2003). Teachers in small schools are more likely than teachers in large schools to report that they are a part of a strong professional learning community (Wasley et al., 2000). In SLCs, one strategy that has been successful is to create time for small groups of teachers to discuss instructional practices (Louis, Kruse, & Raywid, 1996; Supovitz, 2002). These groups become PLCs by working together through collegial conversations to evaluate lessons and student outcomes and by discussing new ways to support student learning (Lee et al., 1995; Meier, 1996; Oxley, 2005; Wallach, 2002).

Another approach is for teachers with different types of expertise to come together in PLCs to develop interdisciplinary lessons. With this approach, the role of the teacher shifts from that of knowledge bearer to that of a learning facilitator (Oxley, 2001). Studies, however, have not documented consistent improvement through the use of this model, perhaps because team planning does not always translate into improved teaching practice (Lee & Ready, 2007). E. Boatright, researcher of SLCs (Copland & Boatright, 2004), cautioned that when teachers are encouraged to design and deliver interdisciplinary curricula, but are not given the time and resources necessary to enact the curricula, they may revert to the “old ways” rather than using the lessons they created with colleagues (E. Boatright, personal communication, October 10, 2007).

Holland (2002) studied eight small school conversions in Chicago and found that in these small schools teachers were supportive of one another and their students. They seemed to act in ways that were compatible with the professional learning community
model, working to develop meaningful learning experiences and to identify techniques for helping each student succeed. Holland (2002) found evidence that the teachers had abandoned the deficit model as an explanation for students’ poor academic performance and worked as a team to promote student achievement. They established trusting relationships; exhibited a strong sense of shared leadership; and took collective responsibility for students through advisory meetings, curricular conversations, use of effective instructional methodologies, and participation in school governance.

Teacher efficacy. Some studies suggest that teachers in small schools exhibit a greater level of efficacy than those in large schools (Cotton, 1998; Joftus, 2003; McComb, 2000). Cotton (2001) found that teachers in small schools expressed a relatively greater sense of professional satisfaction, perhaps in part because they were better positioned than their counterparts in larger schools to see the results of their efforts. Teachers in small learning environments have also reported feeling more efficacious and more fully supported than their colleagues in traditional schools (Duke & Trautvetter, 2001; Gladden, 1998).

Wasley and associates (2000) studied schools in which SLCs had been instituted. Their city-wide survey included self-reports from teachers—those employed both in small high schools and in traditional high schools. A finding from these self-reports revealed that teachers working in the SLCs worked harder than their colleagues in traditional schools to support students and to find ways to improve learning. The teachers who were working in SLCs attributed their higher levels of engagement to the fact that they felt more efficacious, creative, enthusiastic, and committed within the new school structure (p. 38).
As discussed in Chapter One, however, only a limited body of evidence points to such dynamics. Additional research is needed to determine whether or not involvement in SLCs contributes to teachers’ self-efficacy when other contextual conditions are held constant. For example, few of the extant studies incorporated contextual covariates that enabled the researchers to determine if participation in the small learning community or some other contextual condition was the most likely influence on teachers’ self-efficacy beliefs.

**Teachers’ Sense of Self-Efficacy: Effects on Teaching and Learning**

The quality of teaching has a direct bearing on students’ learning experiences and ultimately on their achievement (Cotton, 2001; Lee & Smith, 2001; Lee et al., 1995; Woolfolk Hoy & Davis, 2006). As previously noted, moreover, small schools and SLCs tend to provide opportunities for teachers to develop personalized connections and create stronger accountability bonds with students (Cotton, 1998; Wasley et al., 2000). Several of the studies discussed in the previous section pointed to the connection between these conditions and teachers’ beliefs about their efficacy. Other research has also demonstrated that teachers who have a high self-concept actually perform more efficaciously than teachers who do not have a high self-concept (Muijs & Reynolds, 2002).

According to Ashton and Webb (1986), “TSE is defined as the extent to which teachers believe they can affect student learning” (p. vii). Furthermore, as Bandura (1997) has explained, “Teachers with a high sense of instructional efficacy operate on the belief that difficult students are teachable through extra effort and appropriate techniques and that they can …overcome negating influences through effective teaching” (p. 240).
Teachers who believe in their own ability to reach students at various levels of performance and bring them to higher levels of performance have stronger efficacy than teachers who doubt their ability to have a positive impact on students (Bandura, 1981). TSE influences not only the degree to which they believe they can have an effect on students, but also whether or not they view teaching as a means to counter negative influences in students’ lives (Woolfolk, Rosoff, & Hoy, 1990). According to numerous researchers, teachers’ sense of self-efficacy is an essential condition for their effective teaching practice (Benz et al., 1992; Edwards, Green, & Lyons et al., 1998; Guskey & Passaro, 1994; Ross, 1998). The linkage between self-efficacy beliefs and performance may result from dynamics such as those that according to Pajares (2002) are people who believe in their own efficacy put more effort toward the accomplishment of their goals, persevere even when confronted with obstacles, and remain resilient despite challenges.

Several studies have examined the effects of teachers’ self-efficacy beliefs on teaching. A study conducted by Ashton and Webb (1986) found teacher self-efficacy beliefs to be related to teachers’ beliefs about, behavior toward, and relationships with students. Teachers with low self-efficacy beliefs viewed students as people who were not to be trusted and tended to blame classroom misbehavior on students rather than to assume responsibility for students’ lack of engagement and their resulting misbehavior. These teachers often used punishment and response cost to discipline students and relied on positional authority to manage their classrooms. By contrast, teachers with a high sense of efficacy thought that personal authority, their own skills and efforts, and supportive relationships with students would inevitably elicit students’ engagement and achievement. These teachers took responsibility for managing classrooms in ways that
limited opportunities for misbehavior and nurtured students’ active participation in the learning process.

Numerous other studies have also evaluated the TSE on the behavior and achievement of students (Ames & Ames, 1986; Ashton & Webb, 1986; Benz et al., 1992; Coladarci, 1992; Dembo & Gibson, 1985; Goddard et al., 2000; Guskey, 1988; Kurtz, 2001; Kurtz & Knight, 2003; Pajares & Urdan, 2006). Some of these studies have found that teacher self-efficacy seems especially relevant to the academic engagement of students from minority and low-income backgrounds (Dembo & Gibson, 1985; Tschannen-Moran et al., 1998; Tucker et al., 2005). Tucker and associates (2005), for example, found that teachers’ low self-efficacy beliefs may have influence on a preponderance of minority students in special education programs (Tucker et al., 2005). What this finding suggests is that general education teachers who feel incapable of teaching minority students tend to refer them for special education services more often than do their colleagues who feel more capable of working with these students. This response from teachers with low self-efficacy beliefs reframes a teacher problem into a student problem, contributing thereby to the possible mis-education of minority children and youth.

Other researchers, for example, Ross, Cousins, and Gadalla (1996), have shown that variance in teachers’ self-efficacy is linked to their characteristics and work assignments. Notably, in this study, secondary teachers in academic disciplines who were teaching advanced students had higher levels of self-efficacy than other teachers. Another study showed that male and female secondary teachers differed in the types of teaching that made them feel most efficacious: whereas female teachers believed they were most
effective in their direct interactions with students, male teachers believed they were most
effective in delivering curriculum in traditional ways and in helping colleagues make
educational decisions (Ross, 1998).

A study conducted by Dembo and Gibson (1985) showed that reported self-
efficacy differed between new teachers and their more experienced colleagues: curiously,
the new teachers had the higher self-efficacy scores, perhaps because the more
experienced teachers had confronted challenges that had given them opportunities to
recognize their own limitations. Hoy and Woolfolk (1990), however, found that more
seasoned teachers whose experience taught them to work with difficult students increased
in reported levels of efficacy. Teachers’ educational attainment and certification or
licensure also appeared in some studies to relate to their reported efficacy. For example,
Ross and colleagues (1996) found that teachers with graduate degrees reported higher
levels of efficacy than teachers with bachelor’s degrees. Ashton, Webb, and Doda (1983)
found that teachers with internal locus of control reported higher levels of efficacy than
those with external locus of control. Enochs, Scharmann, and Riggs (1995) found that
teachers with higher academic achievement in their subject specializations reported
higher levels of efficacy than their less accomplished peers. Whereas numerous studies
have focused on students’ experience with and academic outcomes associated small
school size and SLCs, considerably fewer studies have investigated the associations
between these structural characteristics of schools and teachers’ beliefs about their own
efficacy (Wasley et al., 2000).
The TSES Scale: Its Use and Study

A prominent instrument used for TSE is the Teachers’ Sense of Self-efficacy Survey (TSES) developed by Tschannen-Moran & Woolfolk Hoy (2001). The basis for the TSES (also known as the Ohio State Teacher Efficacy Survey) (Tschannen-Moran & Woolfolk Hoy, 2001) was Gibson and Dembo’s (1984) Teacher Efficacy Scale (Gibson & Dembo, 1984). In 2001, Tschannen-Moran and Woolfolk Hoy reconstructed the original scale into two forms, long and short, through extensive research with teachers and pre-service teachers. Tschannen-Moran and Woolfolk Hoy (2001) demonstrated the construct validity and reliability of the instrument in three separate teacher studies by measuring three sub-scales comprising teacher self-efficacy beliefs: efficacy for instructional strategies, efficacy for classroom management, and efficacy for student engagement. These studies tested the validity by assessing the correlation of this assessment against other measures. The short form of the TSE was found to be positively correlated when examined for validity by assessing against the Rand Organization’s first efficacy study ($r = .18$, $p<.01$), and the Gibson and Dembo (1984) measure of Personal Teaching Efficacy ($r = .61$, $p<.01$) (Tschannen-Moran & Woolfolk Hoy, 2001, p. 801). The reliabilities for the short form were .86 for instruction, .81 for student engagement, and .86 for classroom management with an alpha score for the whole as .90 (Tschannen-Moran & Woolfolk Hoy, 2001). This instrument has been analyzed and utilized extensively in education research since inception (Benton-Borghi, 2006; Fives & Buehl, 2009; Heneman, Kimball, & Milanowski, 2006; Henson, Kogan, & Vacha-Haase, 2001; Klassen et al., 2009). The short version of this instrument will be central to the research of this study.
Analysis

Researchers of SLC’s, and conversion schools, such as Wasley et al. (2000), Raywid (1996), Lee and Loeb (2000), and Lee and Ready (2007) have indicated a potential link between school structure and student achievement. Wasley et al.’s (2000) two-year study provided compelling evidence that improved environment can create stronger teacher and student accountability. This study used both qualitative and quantitative methodologies to evaluate this linkage. Wolfe (2010) reported the results of an SLC study that used student achievement trend data over multiple years to demonstrate significant student increase in AP courses and SAT participation. The linkage between structure, teacher engagement, and student engagement was also evaluated (Darling-Hammond, 2002; Oxley, 2005). Darling-Hammond et al., (2002) conducted a seven-year, mixed-methods analysis using New York City school record data, interviews, meeting notes, student work samples and observations to evaluate the relationship between school structural reform and student demographic data, which included achievement and dropout rates. Teacher efficacy, with implications for higher student achievement (Lee & Smith, 2001; Woolfolk Hoy & Davis, 2006) and teacher beliefs in their abilities (Ashton & Webb, 1986) has not been thoroughly researched in these structures, leading to the need for this new body of research.

Summary

Many small schools have consistently demonstrated higher levels of student achievement, high school graduation rates, higher student satisfaction ratings and other measures. This success led to the creation of restructured large high schools in suburban and urban areas. This effort is an attempt to provide higher quality education for
suburban and urban students. Restructured high schools are challenged to imitate all of the components that naturally occur in small settings. There have been numerous failed attempts at restructuring to mimic small schools due to various factors, such as a lack of support for teachers, and a lack of support for the model by teachers. Nonetheless, teachers in small schools, as well as in some restructured schools are able to provide more interpersonal support and interactions. Many times these factors link to teachers believing themselves to be efficacious.

Teachers in teams are typically able to work together to discuss academic and social challenges faced by students. These communal environments are also found to provide more opportunity for teachers to create higher levels of accountability for students. Efficacious teachers are found to promote increased academic achievement in their students. They have also been found to believe that they can impact most, if not all, students. Because of this, the goal of this study was to evaluate the self-efficacy survey results of teachers who teach in traditional settings and who teach in SLCs. SLCs and restructured high schools have been studied regarding many structural, academic and social factors, yet there is scant evidence of evaluating the predictability of the self-efficacy beliefs of the teacher within this redesigned structure. The research that exists does not evaluate whether this participation, or some other significant factor, influences these beliefs. This study will add to the research base regarding teacher efficacy results, as measured on the TSES (Tschannen-Moran & Woolfolk Hoy, 2001) using data from small school conversions and traditional classrooms.
CHAPTER 3

Methodology

The purpose of this study was to evaluate if characteristics of SLCs are predictive of teachers’ self-efficacy beliefs, as measured by teacher responses to the TSES (Tschannen-Moran & Woolfolk Hoy, 2001). Secondary questions focused on examining if school-level contextual variables (e.g., school size, indicators of socio-economic status) influence any observed relationship between SLCs and teacher self-efficacy.

Research Design

This was an exploratory, correlational study. That is, no variables were manipulated and the focus was on exploring relationships between SLC characteristics, school characteristics, and teachers’ self-efficacy. The study did not test a priori hypotheses, and did not use experimental methods. As an exploratory study, however, it demonstrates associations that future researchers can use in explanatory studies in which they test causal hypotheses, the hypothesis that participation in a small learning community influences teachers’ self-efficacy.

The study used survey responses from Ohio teachers regarding the characteristics of their schools and their self-efficacy, and it also used extant data from the Ohio Department of Education (Ohio Department of Education [ODE], personal communication, July 6, 2010). Key analyses deployed a series of regression techniques to explore the relationship between SLC characteristics and school context, the independent variables, and teachers’ self-efficacy beliefs, the dependent variable. In consideration of school context, the study examined if schools that use more of the practices associated with SLC tended also to have teachers with a higher sense of self-efficacy.
Research Methods

This section of the chapter will describe the intended population for the research, the sample and sampling procedures, and the instrument that was used to collect data. Finally, it will provide information about the data collection and data analysis procedures that the researcher used.

Population, Sample, and Survey Recruitment

For the purpose of this study, the population of significance was teachers who work in Ohio public high schools that serve more than 1,000 students in grades nine through twelve. The researcher was interested in sampling teachers from public high schools of this size, because it is a commonly used threshold to distinguish 1,000 between smaller and larger high schools (e.g., McComb, 2000). Larger schools were the focus of the study, because they are the ones most likely to use some or all of the SLC practices. These practices are typically not needed in small schools, as they already experience the benefits of being small (Hylden, 2004). Although some literature suggests that only the teachers of academic subjects, such as mathematics, social studies, language arts, and science are likely to be included as part of SLCs in many schools (Cotton, 2001; Duke & Tratvetter, 2001; Raywid, 1996; Sammon, 2000), all teachers were eligible to participate in the sampling frame for this study.

In order to identify schools for inclusion in the sample, it was first necessary to identify schools that met the target size criterion. Among the public local, exempted village, and city high schools listed in the ODE (2009) directory, 793 schools contained the ninth grade. Of the 793 high schools, 174 enrolled more than 1,000 students. Schools that contained a grade configuration other than 9-12 (e.g., 8-12 or 7-12) were not
considered for this study, as the enrollment of 1,000 students was inclusive of more than four grade levels. Thus, the targeted sampling frame eliminated 13 schools and included 161 high schools.

Data Collection and Instrumentation

This study involved extracting variables measuring salient characteristics of schools from the ODE (2009) database, and adding them to a database that was accessed through SPSS. The selected variables (see Appendix A) were key descriptors of each of the schools and were used by the ODE (2009) to measure school equality, characteristics and performance. These variables included the student-level socioeconomic status. Also included were the Ohio Graduation Test (OGT) scores, an indicator of achievement for the ODE, student discipline rates, dropout data and graduation data. Finally, data from the survey was collected on SLC indicators, such as whether teachers team, have common planning time, and received professional development for SLC practices, and whether they participated in a professional learning community (Cotton, 1996b). Variable definitions can be found in Appendix B.

The survey was sent via two types of groupings, based upon a linkage between the researcher, a mutual colleague, and the principal. The first group of principals received an email addressed to individual principals, and included the addition of the mutual contact’s name, containing the request for the principal to participate in the research. The second grouping of emails did not have any mutual contacts, but provided all information about the research, and were sent to the principal for forwarding to the faculty. The introductory email embedded a cover letter (Appendix C) that described the reasoning for the research, and provided a link that contained the instrument. The
researcher created a survey using the short form of the *TSES* developed by Tschannen-Moran and Woolfolk-Hoy (2001) combined with items covering demographic questions, (see Appendix D). One question that asked about “children” was adapted by using the word “students” in substitution, as the population of interest involves high school students.

The researcher contacted each principal by telephone prior to sending an email of the survey. The survey was then sent by link through Qualtrics, a web-based survey dissemination and management tool to the principals of the identified schools. They were asked to forward the email to the school’s entire faculty. As the researcher was limited in the ability to ensure that the principals would forward the email, coupled with the large number of emails that high school principals receive daily, there was a need to employ several processes to incentivize the forwarding of the email. One was to use a mutual colleague’s connection to the principal as motivation to forward it to the teachers. The researcher worked to personalize the exchange with the principal by gaining personal contacts to each of the principals of the schools in the study. This allowed the mention of a name of one of the colleagues during the telephone call or voicemail message. The goal was that by making this more personal, the principals would be more likely to forward the email survey to their faculty. Another incentive was to offer to share the research findings directly with the principal, pending that school’s participation. A final incentive was based upon the nature of this survey. The teachers were to complete this survey at their leisure, as it was not in their job description or their work assignment. They were able to complete it at home or wherever they chose. As this was outside of the realm of their role as a teacher, the researcher asked the principals to encourage participation
towards the school’s opportunity for two distinct gifts. The school with the highest number of participating faculty was the recipient of a pre-paid VISA card for $250. All other schools that participated were in a raffle for a donated, pre-paid VISA card for $100.

The beginning of the survey provided the details about the research study, information about risk to the participants, confidentiality, and the researcher’s inability to determine individual responses. Teachers were then asked questions regarding their sense of efficacy. This was followed by items involving gender, age, ethnicity, years of teaching, and grade level taught. Finally, SLC questions were included by asking whether the teacher worked in an SLC, house or a team that shared students, had common planning time, received professional development for being in an SLC, and whether the teacher participated in PLCs. The survey was designed with a “skip logic” feature. Teachers who responded “no” to the question of participation in SLC were automatically skipped past the question of sharing common planning time, and the question regarding PD, to the question regarding participation in PLC, which resulted in teachers not being included in the analysis of common planning time, and PD. This decision was based in the premise that planning time, and PD could have many different structures, and definitions when not linked to SLC.

This research surveyed teachers who shared the same school setting in schools that use SLCs, and in other schools of the same size that did not have SLCs. The instrument included two parts. The first part included items to measure TSE (i.e., their self-efficacy beliefs). The second part included items to elicit information about the teachers themselves. The researcher measured teacher efficacy perceptions by using the
TSES, developed by Tschannen-Moran and Woolfolk Hoy (2001), embedded into the Teachers’ Sense of Efficacy Survey (Appendix E). The basis for the TSES (also known as the Ohio State Teacher Efficacy Survey) (Tschannen-Moran & Woolfolk Hoy, 2001) was Gibson and Dembo’s Teacher Efficacy Scale (1984).

The short form of the instrument includes 12 items, each with a nine-point Likert-type rating scale. Item stems pose the question, “How much can you do?” and the poles of the rating scale provide the following response choices: 1=nothing and 9=a great deal. The three factors of “student engagement, instructional strategies and classroom management” are shown in Appendix F. The construct validity for this instrument demonstrates that it was supported by the factor validity, ranging from 0.64-0.75 for Efficacy in Student Engagement; 0.63-0.75 for Efficacy in Instructional Strategies; and 0.61-0.83 for Efficacy in Classroom Management (Tschannen-Moran & Woolfolk Hoy, 2001).

The intercorrelations between the subscales were .60, .70, and .58 respectively (p<0.001). Short form means for the three subscales were 7.1 for the TSES, 7.3 for instruction, 7.2 for student engagement, and 6.7 for classroom management. The standard deviation for the short form is 1.2 for each of the three areas of instruction, student engagement, and classroom management. Other researchers have also used this instrument in a variety of settings, and countries and have found it to be reliable and valid for assessing teacher self-efficacy (Brown, 2005; Klassen et al., 2009).

Additional Data Collection Procedures

An expedited IRB approval occurred prior to email dissemination and data collection which ensured the fair treatment, and confidentiality of the teachers. The
researcher provided a cover letter embedded in the email (Appendix A), and all instructions, which included the survey process. Principals and teachers who opened the forwarded survey received an electronic cover letter regarding the purpose of the survey, the confidentiality of the survey, and a survey link. Each participant showed consent by pressing the submit button of the electronic survey.

The names of the school districts were not reported, but the names of each of the schools were encoded in the survey. All data was evaluated based upon participation in SLCs or lack of participation in SLCs. The introductory letter to the teachers stated that they may benefit indirectly, and collectively from voicing their beliefs concerning teaching, and that data gathered will be used to inform school leaders about teacher support needs, and teacher education programs. It was anticipated that it would take no more than 10 minutes for the participants to complete the survey, and in actuality, took less than 8 minutes for most teachers, based upon the final survey data. Additional questions on collective efficacy were added to the survey, but were not used in this dissertation (Appendix G). They will be evaluated for future use in extending this research.

**Data Analysis Procedures**

This analysis looked for associations between teacher efficacy perceptions, SLC practices, which included common planning time, professional development, and PLCs. Auxiliary analysis evaluated ODE school-based characteristics. Multiple linear regression was used to identify key variables that appeared to explain variance in the self-efficacy outcome measures.
Survey data was exported to Excel and SPSS to run descriptive statistics, analysis of variance, correlational analysis, and multiple regression analysis. Teacher self-efficacy was predicted (using multiple regression analysis) based upon the components of SLC present in the school, which included SLC participation of teacher, common planning time, professional development, and participation in professional learning communities. SLC participation was the status of the teacher as included in the small learning community. Common planning time was the mutually scheduled block of time for SLC teachers to plan together. Professional development was related to collaborating in an SLC or team. Participation in a professional learning community denoted the teacher’s inclusion in a faculty group that worked to improve student achievement or other school-related needs. The time frame for this survey collection was August through November, 2011.

**Summary**

The research has shown that teachers, and faculty who perceive themselves to be more efficacious have higher levels of student achievement. There is little research, however, on the relationship between different collaborative structures, such as SLCs, on the level of teacher efficacy. This non-randomized correlational study compared teacher efficacy levels in schools that had incorporated components of the structure of SLCs with schools that did not. Teacher-efficacy was measured using the TSES, (Tschannen-Moran & Woolfolk Hoy, 2001). The research data were collected via electronic survey to all public high schools in Ohio that had over 1,000 students in a 9-12 grade configuration.
This research should add to the collective research base regarding teacher self-efficacy. The goal was to conduct an exploratory correlational study to examine SLC characteristics to determine any predictor estimates of teacher efficacy.
CHAPTER 4

Analysis of Data

This study was conducted to explore relationships between teachers’ self efficacy (TSE) and the presence of small learning communities (SLC) components. The primary research question addressed in this study is as follows:

Do large public high schools that use the collaborative practices associated with SLC also have teachers with a higher sense of self-efficacy?

The primary data used in this study were collected from the survey responses of participating teachers in 93 schools. The survey queried them about their sense of self-efficacy, which was categorized into the subcategories of student engagement, efficacy in instructional strategies, and efficacy in classroom management. The survey results obtained from the 93 schools who participated in this study provided information on efficacy perceptions in settings that have one or several SLC practices and those that do not have SLC. The Cronbach’s alpha from this research for the total scale was .87, with Cronbach’s alpha of .75 for instruction, .76 for student engagement and .83 for classroom management.

The survey was disseminated using Qualtrics, a web-based software system used to create surveys, tabulate and store data online. The survey was distributed to the principals of 161 Ohio high schools with an enrollment of over 1,000 students across grades 9-12. The principals were asked via email and phone to forward the survey to their teachers. Principals were reminded up to five times to distribute the survey via follow-up contacts. This netted a response rate of 60.8% \((n = 98)\) of the schools with responses from 2,477 teachers, but five schools had only one response and were eliminated.
Teacher data was then evaluated using Mahalanobis distance and Cook’s Distance to determine outliers in the teacher data. Twenty-one teacher results were then eliminated.

The second source of data used in this study was extant information provided by the Ohio Department of Education (2010). One data set contained school-level Ohio Graduation Test (OGT) results in all five academic core content areas, attendance rates, and graduation rates. There were two additional databases providing information regarding student SES and discipline rates for each school. These datasets were merged and used to investigate whether school-based characteristics had any relationship with teachers’ sense of self-efficacy.

All analyses were conducted using PASW Statistics Gradpack 18 (2009). The analyses evaluated TSE in schools with SLC, and ancillary information regarding school-based performance data. The results are presented showing descriptives for TSE, SLC, and school performance, a series of bivariate correlations, examinations of assumptions required of regression analyses, and results of regression analyses.

**Non-response rates**

Non-response rates, in table 4.1 were higher in schools with low SES status and low Reading OGT scores. The mean of non-participating low SES was 32.56, meaning that nearly 33% of students in the school were at the poverty level, \((SD = 23.35)\). Schools that responded to the survey and had low SES had a mean of 30.3 \((SD = 20.78)\). A mean of 86.05 was found in the Reading OGT achievement scores of non-participating schools, \((SD = 10.1)\), while participating schools mean was 87.12 \((SD = 8.3)\). The total of non-participating schools was \(n = 68\), while those that participated and were included was \(n = 93\). Data suggests that the 68 schools were more heterogeneous. It is more difficult to
make generalizations of this study for the lower SES schools as they are underrepresented in the sample.

Table 4.1

*Descriptives of Responding and Non-responding Schools*

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<th>Variable</th>
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<tbody>
<tr>
<td>Responding Schools with Low SES</td>
<td>92</td>
<td>30.27</td>
<td>20.79</td>
</tr>
<tr>
<td>Non-responding Schools with Low SES</td>
<td>67</td>
<td>32.56</td>
<td>23.35</td>
</tr>
<tr>
<td>Responding Schools with Low Reading OGT</td>
<td>93</td>
<td>87.12</td>
<td>8.34</td>
</tr>
<tr>
<td>Non-responding Schools with Low Reading OGT</td>
<td>68</td>
<td>86.05</td>
<td>10.10</td>
</tr>
</tbody>
</table>

*Note.* OGT = Ohio Graduation Test.

**Descriptive Analyses**

The total number of answered teacher surveys regarding SLC participation and TSE was 2,477. Response sets that did not include answers to the SLC variables, which were common planning time, PD or PLC were omitted from the study ($n = 327$). This is because without these key pieces of information, all other survey data provides little information regarding the issues surrounding SLCs. This missing data was found in different schools.
Survey responses showed that \( n = 702 \) teachers participated in some aspect of SLC behavior while \( n = 461 \) reported having common planning time. Five hundred forty-seven teachers had PD for SLC and 1,873 teachers participated in a PLC. A variable was created in the dataset to differentiate between those teachers who answered all survey questions and those who did not. Pairwise deletion was also conducted in SPSS in order to eliminate survey data with less than eight responses from the potential of twelve TSE questions. Frequency distributions showed that \( n = 702 \) teachers (28.6\%) did participate in an SLC, as shown in Table 4.2. Of these, 66.1\% used common planning time and had participated in PD (78.7\%), as seen in Table 4.3.

Table 4.2

*Frequency Distribution of Teacher Survey Responses for SLC*

<table>
<thead>
<tr>
<th>Variable</th>
<th>( n )</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>SLC-yes</td>
<td>702</td>
<td>28.3</td>
</tr>
<tr>
<td>SLC-no</td>
<td>1754</td>
<td>70.8</td>
</tr>
<tr>
<td>Missing</td>
<td>21</td>
<td>.9</td>
</tr>
</tbody>
</table>

*Note. SLC=small learning community*
Table 4.3

*Frequency Distribution of SLC Teacher Survey Responses for Common Planning Time and PD*

<table>
<thead>
<tr>
<th>Variable</th>
<th>n</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Common Planning Time-yes</td>
<td>461</td>
<td>66.1</td>
</tr>
<tr>
<td>Common Planning Time-no</td>
<td>236</td>
<td>33.9</td>
</tr>
<tr>
<td>PD for SLC-yes</td>
<td>547</td>
<td>78.7</td>
</tr>
<tr>
<td>PD for SLC-no</td>
<td>148</td>
<td>21.3</td>
</tr>
</tbody>
</table>

_Note._ PD= professional development, SLC = small learning community.

PLC appears to be a widely used reform measure, as 75.8% of all the teachers who completed the survey participated in PLC (see Table 4.4). PLCs seem to be used more readily than SLCs, as the ratio of participation is nearly three to one. Five hundred seventy nine teachers participate in both a PLC and in an SLC.

Table 4.4

*Frequency Distribution of Teacher Survey Responses for PLC*

<table>
<thead>
<tr>
<th>Variable</th>
<th>n</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLC-yes</td>
<td>1873</td>
<td>76.3</td>
</tr>
<tr>
<td>PLC-no</td>
<td>572</td>
<td>23.3</td>
</tr>
<tr>
<td>Missing Data</td>
<td>11</td>
<td>.4</td>
</tr>
</tbody>
</table>

_Note._ PLC= professional learning community.
Results in Table 4.5 show that only 14.6% of the teachers in SLC schools were under the age of 30; 13.8% of teachers taught for five years or less and 20.1% reported having between six and ten years of experience. A majority of respondents were female (60.9%) and the vast majority were white, non-Hispanic (95.5%). Any implications regarding ethnicity cannot be measured with such a homogeneous teacher sample.
Table 4.5

*Frequency Statistics for Teacher Demographics*

<table>
<thead>
<tr>
<th>Age</th>
<th>n</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under Age 30</td>
<td>359</td>
<td>14.6</td>
</tr>
<tr>
<td>31-40</td>
<td>749</td>
<td>30.6</td>
</tr>
<tr>
<td>41-50</td>
<td>673</td>
<td>27.4</td>
</tr>
<tr>
<td>Over 50</td>
<td>664</td>
<td>27.0</td>
</tr>
<tr>
<td>Missing</td>
<td>11</td>
<td>0.4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Years Taught</th>
<th>n</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taught for 0-5 Years</td>
<td>337</td>
<td>13.7</td>
</tr>
<tr>
<td>Taught for 6-10 years</td>
<td>490</td>
<td>20.0</td>
</tr>
<tr>
<td>Taught for 11-15 years</td>
<td>535</td>
<td>21.8</td>
</tr>
<tr>
<td>Taught for 16-25 years</td>
<td>644</td>
<td>26.2</td>
</tr>
<tr>
<td>Taught for 26 or more years</td>
<td>434</td>
<td>17.7</td>
</tr>
<tr>
<td>Missing</td>
<td>16</td>
<td>0.7</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Grade</th>
<th>n</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teach in 9th Grade</td>
<td>657</td>
<td>26.8</td>
</tr>
<tr>
<td>Teach in 10th Grade</td>
<td>709</td>
<td>28.9</td>
</tr>
<tr>
<td>Teach in 11th Grade</td>
<td>606</td>
<td>24.7</td>
</tr>
<tr>
<td>Teach in 12th grade</td>
<td>421</td>
<td>17.1</td>
</tr>
<tr>
<td>Missing</td>
<td>63</td>
<td>2.6</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Gender</th>
<th>n</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>1495</td>
<td>60.9</td>
</tr>
</tbody>
</table>
Table 4.5 (Continued)

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>n</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>White, Non-Hispanic</td>
<td>2346</td>
<td>95.5</td>
</tr>
<tr>
<td>Black, Non-Hispanic</td>
<td>21</td>
<td>.9</td>
</tr>
<tr>
<td>All other</td>
<td>60</td>
<td>3.6</td>
</tr>
<tr>
<td>Missing</td>
<td>29</td>
<td>1.2</td>
</tr>
</tbody>
</table>

Teacher data was also analyzed to obtain a more accurate view of TSE than that found using a school aggregate. The means do not show dramatic differences between age groups, seen in Table 4.6.
Table 4.6

*TSE by Teacher Age*

<table>
<thead>
<tr>
<th>Variable</th>
<th>n</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under Age 30</td>
<td>359</td>
<td>7.04</td>
<td>.80</td>
</tr>
<tr>
<td>31-40</td>
<td>749</td>
<td>7.08</td>
<td>.80</td>
</tr>
<tr>
<td>41-50</td>
<td>673</td>
<td>7.01</td>
<td>.87</td>
</tr>
<tr>
<td>Over 50</td>
<td>664</td>
<td>7.05</td>
<td>.88</td>
</tr>
<tr>
<td>Missing</td>
<td>11</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note.* TSE = Teacher Self Efficacy

There is also little difference in the TSE perceptions of female and male teachers, as seen in Table 4.7.

Table 4.7

*TSE by Teacher Gender*

<table>
<thead>
<tr>
<th>Variable</th>
<th>n</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>1495</td>
<td>7.07</td>
<td>.85</td>
</tr>
<tr>
<td>Male</td>
<td>937</td>
<td>7.02</td>
<td>.83</td>
</tr>
<tr>
<td>Missing</td>
<td>24</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note.* TSE = Teacher Self Efficacy
Table 4.8 demonstrates minimal difference between grade levels, but has a small standard mean difference of .26 between twelfth and tenth grade, showing that there is a small, but non-ignorable relationship between these two variables.

Table 4.8

*TSE by Teacher Grade Level*

<table>
<thead>
<tr>
<th>Variable</th>
<th>n</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ninth Grade</td>
<td>657</td>
<td>7.01</td>
<td>.82</td>
</tr>
<tr>
<td>Tenth Grade</td>
<td>709</td>
<td>6.96</td>
<td>.82</td>
</tr>
<tr>
<td>Eleventh Grade</td>
<td>606</td>
<td>7.12</td>
<td>.80</td>
</tr>
<tr>
<td>Twelfth Grade</td>
<td>421</td>
<td>7.18</td>
<td>.84</td>
</tr>
<tr>
<td>Missing data</td>
<td>63</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note.* TSE = Teacher Self Efficacy

Descriptive statistics are presented in Table 4.9, comparing the subject factors of teacher age and teacher experience. Descriptive statistics show that the TSE levels of new teachers in the 0-5 experience group, and under the age of 30 \((n = 241)\), have a mean TSE score of 7.1. This is in contrast to the mean TSE score of 6.6 of the over 50 age group \((n = 11)\) with zero to five years of experience. The group with the highest levels of efficacy were the 31-40 year olds with 16-25 years of experience \((n = 87)\), showing a TSE of 7.3. Research by Dembo and Gibson (1985) showed that less experienced teachers had higher efficacy scores and this research found that teachers in the 0-5 under 30 year old condition concur with that finding. The older teachers with the least experience had the
lowest levels of efficacy. Excluding the 0-5 years experience and under 30 year old condition, those with most experience in each of the other categories have higher levels of efficacy than those with less experience. Cohen’s (1988) approach to standardized mean scores was used to evaluate information between each of the categories in years of experience and in age groups. The standardized difference in means between the 31-40 year olds with the most experience and the over 50 year olds with less than 5 years experience is 0.74, indicating a large and meaningful effect size or a nearly 43% area of non-overlap between scores. Other notable standard mean differences were seen between the 31-40 year old with most experience and several other groups. As compared with the over 50, 11-15 years experience was .38, and 16-25 years experience was .33. The standardized mean differences of the 31-40 year old age group, with 16-25 years experience were calculated against the 41-50 age group with 0-5 years experience, showing a .32 difference, which is a medium effect size. The over 50 age group with 0-5 years experience calculated within the age group against those with the most experience showed a standardized mean effect of .59, which is a reasonably large effect. This age group also had a .54 standardized mean difference between those with least experience and those in the under age 30 group with least experience. All other standardized mean scores between groups were less than .30. Group sample sizes varied, with some being quite small.
Table 4.9

TSE by Teacher Age and Years Experience

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Years Experience</th>
<th>n</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under Age 30</td>
<td>0-5</td>
<td>241</td>
<td>7.05</td>
<td>.83</td>
</tr>
<tr>
<td></td>
<td>6-10</td>
<td>113</td>
<td>7.03</td>
<td>.74</td>
</tr>
<tr>
<td>31-40</td>
<td>0-5</td>
<td>52</td>
<td>6.89</td>
<td>.72</td>
</tr>
<tr>
<td></td>
<td>6-10</td>
<td>275</td>
<td>7.04</td>
<td>.82</td>
</tr>
<tr>
<td></td>
<td>11-15</td>
<td>329</td>
<td>7.10</td>
<td>.77</td>
</tr>
<tr>
<td></td>
<td>16-25</td>
<td>87</td>
<td>7.26</td>
<td>.86</td>
</tr>
<tr>
<td>41-50</td>
<td>0-5</td>
<td>32</td>
<td>6.95</td>
<td>1.19</td>
</tr>
<tr>
<td></td>
<td>6-10</td>
<td>64</td>
<td>7.00</td>
<td>.77</td>
</tr>
<tr>
<td></td>
<td>11-15</td>
<td>131</td>
<td>6.97</td>
<td>.85</td>
</tr>
<tr>
<td></td>
<td>16-25</td>
<td>373</td>
<td>7.03</td>
<td>.88</td>
</tr>
<tr>
<td></td>
<td>More than 25</td>
<td>69</td>
<td>7.11</td>
<td>.74</td>
</tr>
<tr>
<td>Over 50</td>
<td>0-5</td>
<td>11</td>
<td>6.59</td>
<td>1.21</td>
</tr>
<tr>
<td></td>
<td>6-10</td>
<td>37</td>
<td>6.99</td>
<td>1.04</td>
</tr>
<tr>
<td></td>
<td>11-15</td>
<td>72</td>
<td>6.95</td>
<td>.76</td>
</tr>
<tr>
<td></td>
<td>16-25</td>
<td>179</td>
<td>6.99</td>
<td>.81</td>
</tr>
<tr>
<td></td>
<td>More than 25</td>
<td>361</td>
<td>7.12</td>
<td>.89</td>
</tr>
<tr>
<td>Total</td>
<td>0-5</td>
<td>336</td>
<td>7.00</td>
<td>.87</td>
</tr>
<tr>
<td></td>
<td>6-10</td>
<td>489</td>
<td>7.03</td>
<td>.81</td>
</tr>
<tr>
<td></td>
<td>11-15</td>
<td>533</td>
<td>7.04</td>
<td>.79</td>
</tr>
<tr>
<td></td>
<td>16-25</td>
<td>641</td>
<td>7.05</td>
<td>.86</td>
</tr>
<tr>
<td></td>
<td>More than 25</td>
<td>431</td>
<td>7.12</td>
<td>.87</td>
</tr>
<tr>
<td>Missing</td>
<td></td>
<td>26</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. TSE = Teacher Self Efficacy

Dependent variable

The dependent variable for this study was TSE, with three sub-scales efficacy for instructional strategies, efficacy for student engagement, and efficacy for classroom management, as measured by the Teacher Self-Efficacy Scale (TSES:Tschannen-Moran...
& Woolfolk Hoy, 2001). The first dependent variable is an aggregate of the other three sub-scales. The rating scale provided answers with alternating word descriptors, “Nothing”; “Very Little”; “Some Influence”; “Quite a Bit”; and “A Great Deal.” See Appendix E for the complete survey.

The responses for Table 4.10 were aggregated at the school level using means and provide descriptive details of the TSES and subcategories of instruction, student engagement, classroom management and survey responses. Each of the efficacy-based responses was recorded on a nine-point scale, where a “9” represents “A Great Deal.” The TSES and engagement data do not closely approximate a normal distribution, because of this homogeneous population, which may imply a violation of the normality assumption. Examining histograms displayed more scores centered at the mean than would be expected.

The highest rated mean score from the survey was “instruction,” indicating that teachers felt more efficacious regarding instruction with a score of 6.61 on a 9 point scale. Classroom management’s mean was much lower than the other means on the Likert scale at 3.86 out of a possible 9, showing that teachers felt least efficacious in class management, when compared to the responses in the other two subsets of teacher efficacy, instruction, and student engagement. The rotated component matrix that displays factor loading in each of the subscales is seen in Appendix H.
Table 4.10

*Dependent Variable Descriptives*

<table>
<thead>
<tr>
<th>Variable</th>
<th>n</th>
<th>M</th>
<th>SD</th>
<th>Skewness*</th>
<th>Kurtosis*</th>
</tr>
</thead>
<tbody>
<tr>
<td>TSES</td>
<td>93</td>
<td>5.16</td>
<td>.08</td>
<td>2.01</td>
<td>7.18</td>
</tr>
<tr>
<td>Instruction</td>
<td>93</td>
<td>6.61</td>
<td>.17</td>
<td>-.62</td>
<td>2.05</td>
</tr>
<tr>
<td>Student Engagement</td>
<td>93</td>
<td>5.31</td>
<td>.21</td>
<td>.19</td>
<td>13.18</td>
</tr>
<tr>
<td>Class management</td>
<td>93</td>
<td>3.86</td>
<td>.16</td>
<td>.92</td>
<td>.16</td>
</tr>
</tbody>
</table>

Note. TSES = Teacher Self-Efficacy Scale.

Note. * = Measured in z-score units.

A repeated measures profile analysis was conducted for TSE averages in all schools in the sample, $F(2,91) = 5105.69, p<.001$.

The comparison of the TSE beliefs of SLC teachers as compared to those not in an SLC showed a slightly larger mean on the efficacy scale, between $m = 7.12$ SLC teachers and $m = 7.02$ non-SLC teachers. Table 4.11 provides the descriptives of this finding. The standardized difference in means is 0.12, which indicates that there is negligible effect size (Cohen, 1988.)
Table 4.11

*TSE of SLC teachers and Non-SLC teachers*

<table>
<thead>
<tr>
<th>Variable</th>
<th>n</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>SLC teachers</td>
<td>702</td>
<td>7.12</td>
<td>.84</td>
</tr>
<tr>
<td>Non-SLC teachers</td>
<td>1754</td>
<td>7.02</td>
<td>.82</td>
</tr>
<tr>
<td>Missing data</td>
<td>0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note.* TSE = Teacher Self Efficacy, SLC = small learning community

TSE beliefs of PLC teachers had a mean of 7.11, as compared to those not in a PLC with a mean of 6.87. It appears that teachers in PLCs had larger TSE scores than those in SLCs, as shown in Table 4.12. The standardized difference in means is 0.28, which, according to Cohen (1988) is a small, but non-ignorable effect size.
Table 4.1

TSE of PLC teachers and Non-PLC teachers

<table>
<thead>
<tr>
<th>Variable</th>
<th>n</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLC teachers</td>
<td>1873</td>
<td>7.11</td>
<td>.80</td>
</tr>
<tr>
<td>Non-PLC teachers</td>
<td>572</td>
<td>6.87</td>
<td>.93</td>
</tr>
<tr>
<td>Missing data</td>
<td>11</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. TSE = Teacher Self-Efficacy, PLC = professional learning community.

The supportive structures of common planning time and PD, seen in Table 4.13, are shown to only marginally support larger levels of efficacy. Teachers without common planning time had a mean of 7.02 on the TSE, while those with common planning time had a mean of 7.17. Teachers with PD had only slightly larger TSE of 7.17, compared to 6.95. These differences are almost negligible.

Table 4.13

Descriptive Statistics for TSE in Teachers With and Without Common Planning Time and PD

<table>
<thead>
<tr>
<th>Variable</th>
<th>n</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teachers with common planning time</td>
<td>461</td>
<td>7.17</td>
<td>.82</td>
</tr>
<tr>
<td>Teachers without common planning time</td>
<td>236</td>
<td>7.02</td>
<td>.86</td>
</tr>
<tr>
<td>Teachers with PD</td>
<td>547</td>
<td>7.17</td>
<td>.84</td>
</tr>
<tr>
<td>Teachers without PD</td>
<td>148</td>
<td>6.95</td>
<td>.81</td>
</tr>
</tbody>
</table>

Note. TSE = Teacher Self-Efficacy, PD = professional development.
The mean of TSE in SLC with no other support was 6.82, as compared to the means of TSE in fully implemented SLC (7.2), as seen in Table 4.14. The n-size is small, however, and should be considered as a limitation. The TSE results were higher in SLCs that were fully implemented (containing common planning time, PD and PLC) with a mean of 7.2, as compared to those with either common planning time or PD and a mean of 7.1. They had comparable n-size with 262 in either common planning time or PD and 372 in the fully implemented SLC model. There is a medium standardized difference in means with an effect size of 0.45 showing a medium association between being only in an SLC and teaching in a fully implemented SLC model. This indicates that the supportive structures are important to the SLC model.
Table 4.14

Comparison of Means of TSE in SLC Configurations

<table>
<thead>
<tr>
<th>Variable</th>
<th>n</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>SLC alone</td>
<td>61</td>
<td>6.82</td>
<td>.87</td>
</tr>
<tr>
<td>With Either Planning or PD</td>
<td>262</td>
<td>7.08</td>
<td>.82</td>
</tr>
<tr>
<td>Fully Implemented</td>
<td>372</td>
<td>7.20</td>
<td>.84</td>
</tr>
</tbody>
</table>

Note. SLC = small learning community, PD = professional development.

Table 4.15 shows the mean of TSE was 7.17 for teachers who participate in both SLC and PLC, and 6.87 for TSE from teachers who did not participate in either of these collaborative teaching models. This data shows that the standardized effect size is 0.34 between neither and both, indicating a noteworthy difference.

Table 4.15

Comparison of Means of TSE in SLC and PLC Configurations

<table>
<thead>
<tr>
<th>Variable</th>
<th>n</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neither SLC nor PLC</td>
<td>460</td>
<td>6.87</td>
<td>.94</td>
</tr>
<tr>
<td>With Either SLC or PLC</td>
<td>1406</td>
<td>7.06</td>
<td>.80</td>
</tr>
<tr>
<td>Both</td>
<td>579</td>
<td>7.17</td>
<td>.82</td>
</tr>
<tr>
<td>Missing</td>
<td>11</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. SLC = small learning community, PLC = professional learning community.
Further analysis was conducted to determine which of the collaborative models differed in TSE scores. Descriptives showed that the mean of TSE was lowest from teachers who were not included in either model and highest in teachers who were included in both models, as seen in Table 4.16. This table also shows that SLC alone was no better than neither, but seemed to increase TSE when combined with PLC. The standardized mean difference of this comparison is .37, a notable difference, which shows that the participation in both PLC and SLC has the greatest influence on TSE.

Table 4.16

Comparison of Means of TSE in SLC, PLC, Neither and Both Configurations

<table>
<thead>
<tr>
<th>Variable</th>
<th>n</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neither SLC nor PLC</td>
<td>460</td>
<td>6.87</td>
<td>.94</td>
</tr>
<tr>
<td>PLC only</td>
<td>1294</td>
<td>7.08</td>
<td>.79</td>
</tr>
<tr>
<td>SLC only</td>
<td>123</td>
<td>6.86</td>
<td>.86</td>
</tr>
<tr>
<td>Both</td>
<td>579</td>
<td>7.17</td>
<td>.82</td>
</tr>
</tbody>
</table>

Note. SLC = small learning community, PD = professional learning community.

**School-based demographics.** Many schools have made a selection of using SLC based upon low school performance data. School administrators’ have used Cotton’s (1998) meta analysis as a basis for their school’s reform model. As seen in Table 4.17, the average student attendance rate for the participating schools was 94%. The final graduation rate was 92% for students who were seniors during the 09-10 year. Thirty
percent of the students in these schools were economically disadvantaged. In the areas of academic achievement, the OGT showed a reading pass rate of 87%, a writing pass rate of 88%, math and social studies rates of 85%, and a science pass rate of 78%. Forty-four percent of students in these schools were recorded as having received some form of school-based discipline.

Table 4.17

\textit{Descriptive Statistics for School Performance Variables}

<table>
<thead>
<tr>
<th>Variable</th>
<th>( n )</th>
<th>( M )</th>
<th>( SD )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attendance</td>
<td>93</td>
<td>94.06</td>
<td>1.55</td>
</tr>
<tr>
<td>Final Graduation Rate</td>
<td>92</td>
<td>91.60</td>
<td>9.36</td>
</tr>
<tr>
<td>Reading OGT</td>
<td>93</td>
<td>87.12</td>
<td>8.34</td>
</tr>
<tr>
<td>Writing OGT</td>
<td>93</td>
<td>88.07</td>
<td>7.68</td>
</tr>
<tr>
<td>Math OGT</td>
<td>93</td>
<td>85.48</td>
<td>9.42</td>
</tr>
<tr>
<td>Social Studies OGT</td>
<td>93</td>
<td>84.74</td>
<td>9.66</td>
</tr>
<tr>
<td>Science OGT</td>
<td>93</td>
<td>78.48</td>
<td>12.88</td>
</tr>
<tr>
<td>All Discipline</td>
<td>93</td>
<td>43.67</td>
<td>45.50</td>
</tr>
<tr>
<td>SES</td>
<td>92</td>
<td>30.27</td>
<td>20.78</td>
</tr>
</tbody>
</table>

\textit{Note.} OGT = Ohio Graduation Test.
Regression Results of School-based variables

Multiple regression analysis was used to determine whether relationships existed between TSE as a dependent variable with the school-based independent predictor variables of reading, writing, mathematics, social studies, and science OGT scores. As expected, the independent variables of Reading, Writing, Math, Social Studies, and Science OGT scores were highly correlated when included in the regression model, as seen in Appendix I.

This finding was seen because the Variance Inflation Factor ranged from 7.3 and 23.2. To avoid this high level of multicollinearity, the Reading OGT was selected as the sole student achievement predictor. The other achievement variables were removed and are represented as “achievement” by the Reading OGT. The regression \( R^2 = .02, p<.86 \) indicates that this model has a weak predictive relationship. The regression was found to not have significance.

The study also examined related aspects of SLC constructs, (e.g., common planning time, PD, and PLC, along with the contextual variables of Reading OGT, graduation rates, attendance rates, discipline rates, and student (SES) status. The rationale for reviewing school-based contextual variables and TSE is to provide information regarding any other relationships within the context of SLC schools. Recall from Chapter 2 that large schools typically decide to use SLCs when faced with a need for improved achievement, graduation rates, attendance rates, and reduced discipline (Cotton, 1998). The results of this analysis are shown in Table 4.18, showing the Pearson correlation using the percentages of all SLC components, Reading OGT, final graduation rate,
attendance, discipline, and SES. Based on the correlation coefficient table provided, there is not statistical significance of the independent variables to predict teacher efficacy.

The group of predictors including SLC, planning, PD, PLC, reading OGT, attendance, final graduation rate, discipline and SES together do not predict TSE. A regression analysis with TSE and school based performance variables was conducted and was not statistically significant $F(9, 78) = 1.6, p>.10$. Several schools did not report their final graduation rate, SES, and discipline data to ODE, thereby creating the difference in degrees of freedom. Based upon these results, these predictors, as a group, are not effective in explaining TSE.
Table 4.18
Pearson Correlation of TSE, SLC Components and School Characteristics

<table>
<thead>
<tr>
<th>Variable</th>
<th>n</th>
<th>TSE</th>
<th>pSLC</th>
<th>PPlan</th>
<th>PPD</th>
<th>PPLC</th>
<th>Reading OGT</th>
<th>Attendance</th>
<th>Final Graduation Rate</th>
<th>Discipline</th>
</tr>
</thead>
<tbody>
<tr>
<td>TSE</td>
<td>93</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>pSLC</td>
<td>93</td>
<td>0.28**</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PPlan</td>
<td>90</td>
<td>0.25*</td>
<td>0.87**</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PPD</td>
<td>91</td>
<td>0.24*</td>
<td>0.93**</td>
<td>0.88**</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PPLC</td>
<td>93</td>
<td>0.22**</td>
<td>0.33**</td>
<td>0.30**</td>
<td>0.34**</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reading OGT</td>
<td>93</td>
<td>0.04</td>
<td>-0.34**</td>
<td>-0.22**</td>
<td>-0.35**</td>
<td>0.10</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attendance</td>
<td>93</td>
<td>-0.04</td>
<td>-0.43**</td>
<td>-0.30**</td>
<td>-0.41**</td>
<td>-0.01</td>
<td>0.82**</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Final Graduation Rate</td>
<td>92</td>
<td>0.01</td>
<td>-0.34**</td>
<td>-0.30**</td>
<td>-0.36**</td>
<td>0.01</td>
<td>0.79**</td>
<td>0.78**</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>Discipline</td>
<td>93</td>
<td>-0.26**</td>
<td>0.08</td>
<td>0.04</td>
<td>0.09</td>
<td>-0.01</td>
<td>-0.50**</td>
<td>-0.40**</td>
<td>-0.45**</td>
<td>1.00</td>
</tr>
<tr>
<td>SES</td>
<td>92</td>
<td>-0.04</td>
<td>0.34**</td>
<td>0.29**</td>
<td>0.35**</td>
<td>-0.05</td>
<td>-0.89**</td>
<td>-0.79**</td>
<td>-0.81**</td>
<td>0.58**</td>
</tr>
</tbody>
</table>

*Note.* TSE = Teacher Self-Efficacy, SLC = small learning community, PD = professional development, PLC = professional learning community, and OGT = Ohio Graduation Test.

*Note.* Analysis is two-tailed.

*Note.* ** = significance at the .01 level.
The school level data gathered from the surveys, suggests that the respondents taught predominately 9th and 10th grade. The first correlation seen in Table 4.19 evaluated the relationship between the dependent variable TSE, (averaged for participating teachers in each school) and reading OGT scores, attendance, discipline rates, and low SES only; graduation rates were omitted from the model. The graduation rate variable is less important to the study of this group of 9th and 10th graders, than it would have been if most SLCs were in the 11th and 12th grades. Should this study be continued, the graduation rates of the current group of 9th and 10th graders would be important to determine.

A regression demonstrated that there were statistically significant differences $F(4,87)=2.59, p<.05$, between variances in reading OGT, attendance, discipline, low SES, and predictability of TSE, with an $R^2=.107$. This means that 11% of the variance in TSE can be explained by the combination of Reading OGT, Attendance, Discipline and SES. Graduation rate was not calculated in this model, as the teacher survey suggests that most who participate in SLCs teach ninth or tenth grade.
Table 4.19

*Pearson Correlation of TSE and School-based Performance Variables*

<table>
<thead>
<tr>
<th>Variable</th>
<th>n</th>
<th>TSE</th>
<th>Reading OGT</th>
<th>Attendance</th>
<th>Discipline</th>
</tr>
</thead>
<tbody>
<tr>
<td>TSE</td>
<td>93</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reading OGT</td>
<td>93</td>
<td>.04</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attendance</td>
<td>93</td>
<td>-.04</td>
<td>.82**</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>Discipline</td>
<td>93</td>
<td>-.26*</td>
<td>-.50**</td>
<td>-.40**</td>
<td>1.00</td>
</tr>
<tr>
<td>SES</td>
<td>92</td>
<td>-.04</td>
<td>-.89**</td>
<td>-.79**</td>
<td>.58**</td>
</tr>
</tbody>
</table>

Note. TSE = Teacher Self-Efficacy, OGT = Ohio Graduation Test.
Note. Analysis was two-tailed.
Note. * = significance was at the .05 level, ** = significance was at the .01 level.

An ancillary finding showed that discipline, as seen in Table 4.20 has a negative influence on TSES, with a significance of .006.
Table 4.20

*Regression Table with TSE and School-based Variables*

<table>
<thead>
<tr>
<th>Variable</th>
<th>n</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficient</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(constant)</td>
<td>93</td>
<td>6.16</td>
<td>.92</td>
<td>6.64</td>
</tr>
<tr>
<td>Reading OGT</td>
<td>93</td>
<td>0.00</td>
<td>0.00</td>
<td>0.21</td>
</tr>
<tr>
<td>Attendance</td>
<td>93</td>
<td>-0.01</td>
<td>0.01</td>
<td>-0.22</td>
</tr>
<tr>
<td>Discipline</td>
<td>93</td>
<td>0.00</td>
<td>0.00</td>
<td>-0.35</td>
</tr>
<tr>
<td>SES</td>
<td>92</td>
<td>0.00</td>
<td>0.00</td>
<td>0.18</td>
</tr>
</tbody>
</table>

*Note.* TSE = Teacher Self-Efficacy, OGT = Ohio Graduation Test.

*A regression model was created using three sets of predictors to evaluate TSE.

The first grouped those not in an SLC and included grade levels, teacher experience, teacher age, and gender. The second model included these same predictors, but added participation in SLC. The third model included participation in SLC and PLC. The $r^2$ was .01 in the model without SLC, .02 in the model with SLC and .03 in the model with both SLC and PLC. This seems to demonstrate an incremental increase, but the $r^2$ is low, showing weak overall prediction. Nonetheless, there is evidence from the culmination of data showing that participation in both SLC and PLC is related to TSE.*

The primary research question was: do large public high schools that use more of the collaborative practices associated with SLC also have teachers with a higher sense of
self-efficacy? The following independent variables represent the presence of SLCs and related reform components described in the literature of high school reform (Cotton, 1998; Wasley et al., 2000). These include schools (1) with an SLC, (2) who use common planning time, (3) who provide PD for teachers in SLCs, and/or (4) who have a PLC. The results of this study found that the four small learning community components are predictive of TSE when fully implemented together.

**Conclusion**

The purpose of this study was to determine if there was a relationship between teachers’ sense of self-efficacy and small learning community practices. Ninety-eight of the sampled 161 schools responded to the survey; 93 schools were used in the analysis as five of these schools had only one response and were omitted from the study. Teachers (n=703) who responded reported working in SLCs comprised 28.6% of the population in this research. Classroom teachers in this study reported that most work with 9th or 10th grade students. The data showed that SLC were not utilized throughout the school, but were provided to smaller numbers of students in the 9th and 10th grades, with the frequency distribution mirroring these results. This was not a surprising finding, as SLCs are typically utilized for 9th grade only (Manning & Saddlemire, 1996; “Smaller Learning Communities,” 2002).

SLC with common planning time, PD and PLC were found to be small, but not trivial, when used as predictors of TSE. School performance variables of reading OGT, attendance, SES, and graduation rate, which are typical considerations when a school converts to SLC, were not found to be predictors of TSE. Descriptive statistics,
correlations, and regression analysis were utilized to evaluate relationships between the independent and dependent variables.
CHAPTER 5

Summary of Findings, Discussions, and Recommendations

This chapter provides an analysis of the initial goals of the study and interprets the findings of the research. Discussion of those findings follows, along with implications on educational policy in Ohio. Finally, further research recommendations are provided, as well as a chapter summary of this work.

Major Findings

Large public high schools are disadvantaged by size, but have options regarding the implementation of reform models that more closely mimic the success of extant small schools (Cotton, 2001). Literature shows that areas of challenge in these schools may include low graduation rates, lower achievement rates, higher discipline rates and lower attendance rates (Bottoms & Cooney, 2003; Kazis, Pennington, & Conklin, 2003; Martinez, 2005). Many large high schools choose to work towards improvements in these areas by increasing student affiliation and belonging through small learning communities (SLCs; Isakson & Jarvis, 1999; Maroulis & Gomez, 2008). Another area that is thought to ameliorate the above mentioned issues is that of teacher efficacy. Teacher efficacy is shown to have a positive effect on student achievement, success, and persistence (Golden, 2007; Kerley, 2004; Rodriguez, 2008; Ross, 1998; Rubie-Davies, Hattie, & Hamilton, 2006; Woolfolk Hoy & Davis, 2006). It has also been shown to reduce discipline issues, and promote more effective learning environments (Benz, Bradley, Alderman, & Flowers, 1992; Goddard, Hoy, & Woolfolk Hoy, 2000; Ross, Hogaboam-Gray, & Gray, 2004).
This study used the Teacher Self-Efficacy Scale (TSES: Tschannen-Moran & Woolfolk Hoy, 2001) to measure teacher self-efficacy (TSE), embedded in a survey that also contained questions regarding teacher demographics, and SLC components. The principals in 161 Ohio public 9-12 high schools containing over 1,000 students were contacted through telephone and email asking for their participation in forwarding the survey to their teachers. Survey responses were gathered from 2,477 teachers who answered this on-line Qualtrics Survey Software (n. d.).

The survey results were used to analyze the relationship between the dependent variable, TSE, and the predictor variables of SLCs, and collaborative support systems, such as common planning time, professional development (PD), and opportunities with professional learning communities (PLCs). All of the Ohio high schools in the study had a variety of internal structures, with some having SLCs, and some using a traditional high school structure. School-based contextual variables, such as student achievement, graduation rates, attendance rates, discipline rates, and SES status were also included to provide information regarding any other relationships within the context of SLC schools. For purposes of this study, the Reading Ohio Graduation Test (OGT) was used as the sole achievement variable, in order to ensure that there was no multicollinearity with other OGT scores. This selection, however, has limitations, in that the Math OGT had a negative relationship to TSE.

The primary goal of this study was to examine if TSE was higher in schools that contain collaborative learning environments for teachers with SLCs and also provide the added support of common planning time, PD, and PLCs. Of the teachers that responded, 28.6% reported participating in SLCs, with 66.1% of those reporting having common
planning time as SLC teachers. Within that same SLC cohort, 78.7% reported having professional development related to SLC. All respondents were asked about their participation in PLCs and results showed that 76.3% participated in PLCs. When evaluated as participating in PLC only, the TSE mean was 7.11, as compared to the teachers with no SLC nor PLC participation, showing a TSE mean of 6.87. This finding may have pertinence related to TSE and instruction, as PLCs are designed to assist teachers in evaluating instructional issues (DuFour & Eaker, 1998). Those who participated in both of these collaborative models show a TSE mean of 7.17.

TSE was analyzed in three models. The first model contained SLC with no supporting structures, such as planning time or PD. The second contained SLC with either planning time or PD. The final model analyzed SLC as fully implemented. The first model, with SLC alone had a TSE mean of 6.82, as compared to the second model of SLC with either planning time or PD (\(m=7.08\)). The final model of SLC with common planning time, PD and PLC, had a TSE mean of 7.17. These findings showed that fully implemented SLCs with the support of professional development, common planning time and the collaborative structure of professional learning communities tended to have higher mean scores on TSE.

Teachers with common planning time reported TSE with a mean of 7.17, as compared to those without planning time with a mean of 7.02. Teachers who received PD had a mean TSE of 7.17, while those without PD reported a TSE of 6.95. Although the standardized effect sizes were small, they are meaningful in that they demonstrate that efforts towards collaborative instructional models and opportunities with PD can be seen in slightly higher levels of teacher efficacy. As a correlational observational study, it
would be unlikely to discover large differences. These differences, though subtle, are important, particularly since there was no treatment of any group.

School-based performance data, which includes student achievement as measured by the reading OGT, attendance, discipline, graduation rate, and SES, were correlated with TSE. TSE was found to have a moderate and negative correlation to discipline, showing that as discipline increased, TSE decreased. There was also a weak and negative relationship between TSE and attendance and low SES. This may mean that students with poor attendance, more discipline issues and those with lower SES have challenges that interfere with teachers’ sense of self efficacy.

**Interpretation and Discussion**

This research was rooted in literature that reviewed issues surrounding school outcomes. As discussed in chapter two, the challenges inherent in large high school size have led to reform models that mimic smallness. The focus of this work is on SLCs and other supportive structures and their relationship to teacher efficacy. The following section will situate the research findings within the existing literature.

Smaller scale schooling, such as those created through SLCs, are associated with desirable student outcomes. These include improved relations with teachers, and students reporting more accountability and community (Wasley et al., 2000). Some studies have shown that academic improvement occurs in these environments (Wolfe, 2010), but others show that achievement remains neutral (Levine, 2010). There are no studies to date that depict an academic decline in SLCs. There have been reported improvements in other indicators, such as student attendance, and grade promotion (Hoff, 2008).
Many of the models for SLC used a multi-layered approach for teacher support and acclimation (Cotton, 1998, 2001). The findings in this study showed that teachers who were in SLCs and had common planning time, as well as PD and PLC had the highest levels of TSE, showing that SLC, with common planning time, PD and PLC show a relationship to TSE. This may be interpreted to mean that even with a small effect size, when teachers are in SLCs and given PD, common planning time and the expectation of participation in a PLC, they obtain an increased sense of efficacy.

It is interesting to note that SLC's combined with common planning time, which is designed to provide teachers the ability to review student work and achievement, as well as discuss methods of creating instruction across content (Cotton, 1998), was associated with TSE. PD, when combined with SLC, also showed a relationship to TSE. Teachers within SLCs who responded to this study did show higher levels of TSE in the area of instruction, and student engagement. These supportive structures may improve the SLC experience. The finding that SLC, in isolation, is a weak predictor of TSE creates interesting questions. TSE for those not in SLC or PLC had a mean of 6.87, which was equivalent to those only in SLC. Perhaps teachers in SLCs with no supportive structures feel less efficacious because they are uncertain as to how to transform from traditional teaching to team-based teaching. On the other hand, although a small standardized mean difference was seen, teacher efficacy was positively related to participation in both SLC and PLC, with a mean of 7.17 in the both (SLC and PLC) category. There seems to be a constructive relationship on teachers obtained through the process of gaining information about students and support from each other.
The findings in this study mirrored earlier research regarding discipline issues (Gottfredson, 1985). TSE was found to have a moderate and negative correlation with discipline, and had a statistically significant relationship showing that as discipline increased, TSE decreased. It is unknown as to the cause of the discipline relationship to TSE. Speculation may point to experience levels or the age range of the students. More than one-third of the teachers in this study have taught for less than 10 years, which could contribute to disciplinary challenges. Teachers in this study were primarily ninth and tenth grade teachers (55.7%). Tenth grade teachers had the lowest levels of TSE at 6.96. School administrators may choose to use this information for teacher assignment and PD decisions to provide stronger support for teachers who have classroom management challenges. TSE was also negatively related to low SES and low attendance. Both of these issues are prevalent in large urban schools. Teachers in a low SES high school with lower attendance rates have lower TSE.

Implications for Educational Policy in Ohio

Policy recommendations. High school reformers may use this research to determine methods of increasing teaching efficacy through more collaborative internal school structures. The research showed that even with a small effect size, the more collaborative supports, the higher the TSE. School districts with negative school results, such as low graduation rate, low attendance rate, low achievement scores, and other indicators may use the results of this study to determine new methods of serving students. Large high schools in Ohio are challenged to ensure a high quality education to the many varied students that attend. Teachers need new support systems to assist them in learning students’ needs, as statewide school performance expectations continue to require more
improvements in educating all students. These expectations include measurable increases in graduation rates, achievement rates, and attendance rates.

**Recommendation 1.** Ensure that all high schools with over 1,000 students in Ohio have information about the creation of SLCs in the early high school grades, 9-10. Improved learning has been found in the ninth and tenth grade in schools that have created community structures (Lee, Smith, & Croninger, 1995; Levine, 2010). The finding that TSE is has a positive relationship with SLC and PLC is an important one and may point to an environment that may increase TSE. TSE is shown to increase student achievement (Midgely et al., 2000; Newman, 2002; Woolfolk, Rosoff, & Hoy, 1990; Woolfolk Hoy & Davis, 2006).

**Recommendation 2.** Ensure that SLCs are created with the support of professional development, with the ongoing support of common planning time with other team members and with professional learning communities of other academic teachers. Earlier studies have suggested that schools should provide common planning time for teachers for increased effectiveness in teaching (Common planning time elevates teacher efficacy, 2010; Jordan, 2001; Oxley & Whitney Luers, 2011). SLC was also positively correlated with PD, which mirrors earlier research (Supovitz & Christman, 2005). This study found that adding common planning time, PD and PLC, as well as SLC showed a significant predictive relationship to TSE, as compared to SLC alone, or SLC with only partial components.

**Recommendations for Further Research**

The subtle, yet notable differences between the efficacy means of teachers in collaborative environments and those without these supports are worthy of further
exploration. Common planning time and PD seemed to support higher efficacy ratings, as did teacher participation in both SLC and PLC. The model containing all of these structures was the most compelling, and had an effect size of .37, is not trivial. These findings demonstrate merit for further exploration of strategies to initiative and sustain collaborative structures for teachers.

It is clear from the research that there could be wide-ranging definitions of SLC, common planning time, PD and PLC. Future research should explore concrete definitions of these aspects of high school reform, in order to glean more exact analysis of their relationship with TSE. Another unknown factor is the exact number of teachers who participate in SLC, who participate in common planning within their SLC and who received PD for SLC. Another unknown is whether teachers received PD for being in a PLC. These self-reported numbers are not verified by others in the school, so need more study, in order to provide a more accurate analysis for the linkages.

These findings create further questions about how teachers use that time. Perhaps they have a formalized process or certain expectations required from the use of common planning time. Further research may delve into whether teachers have specific topics or tasks to accompany this group time, to enhance accountability and focus towards certain goals, or whether they include things such as guided dialogue or work toward thematic lessons that span the academic content areas to create methodological improvements that actualize to the classroom.

This exploratory study demonstrates relationships between the variables that require further testing and analysis. Research is also needed to determine the appropriate types of support to provide for teachers as the school moves to reform its practice. It
could be important to determine the type of timeline that is best to scaffold new support structures. Determining whether to provide professional development first or common planning time first, in order for SLCs to show higher TSE results could have positive associations on the long-term results of implementing SLCs. The type and amount of PD should be explored, as it could have reaching implications regarding the effectiveness of SLC and its linkage to TSE. More research on the linkages described above, such as linkages between SLCs with PLCs and TSE, and between TSE and student achievement, might ultimately lead to improvements in school structures and practices that give students the types of support needed to assure their success. Further study should also be done regarding SLCs and PLCs and their relationship to final graduation rates.

A hierarchical linear analysis of all the collected data would ensure that each teacher’s voice would be a distinct unit of measure and could contribute to a more thorough understanding of high school reform and teacher efficacy linkages. This study would also be enhanced if coupled with qualitative research, by observing participating schools. This would permit future researchers to determine the definitions used for the small learning community structure, which would ensure more continuity in the model. The culture and practices of the SLC, and the school could be reviewed, in order to secure new information that may lead to TSE.

Another area of needed research related to teacher efficacy is school culture. School culture can have a significant impact on teachers’ feelings of efficacy. Teachers who feel valued and those who are encouraged to serve as leaders may have a stronger sense of their efficacy than those who work in a culture that provides them with less support (Elmore & Associates, 1990; Lieberman, 1995). School culture, however, is not
the same thing as school organizational structure; theoretically the two might even be orthogonal. In other words, some schools with SLCs might have supportive cultures and weak organizational structures while other such schools might not. Similarly, some large traditional schools might have supportive organizational structures, and weak school cultures. Nevertheless, previous research does suggest that there is actually a relationship, though not total correspondence, between structure and culture (Galetta & Ayala, 2008; Oxley, 2001; Strike, 2008). Without introducing a measure of school culture and possibly also creating a nested model, however, the researcher was unable to distinguish differences caused by structure and those caused by culture.

Senate Bill 5, a measure that was passed in Ohio in April, 2011, limited collective bargaining structures for teachers across the state and increased the school superintendent’s ability to create stronger academic accountability structures in the district. It was in effect when teachers completed the survey. This bill heightened concerns about the relative stability and security of being a teacher and may have influenced this study, both in response rate and in content. It was repealed by a wide margin in November, 2011. Several of the tenets of SB 5 were built into the state budget, after repeal. This type of political issue may have impact on teacher efficacy and should be studied further.

**Summary**

This chapter discussed the findings of this study, which was to determine if there was a relationship between TSE and SLCs and the support structures of common planning time, PD and PLC in the largest public high schools in Ohio. Multiple regression and correlational analysis were conducted on the teacher survey data regarding
school SLC status and teacher sense of efficacy. Major findings were that TSE was most positively associated with SLC when provided in tandem with PLC and the other collaborative reform efforts. PLC also showed a positive relationship to TSE, even when provided in isolation. Implications of this finding were discussed, with several recommendations being made for Ohio policy-makers. The final section of this chapter highlighted recommendations for further research as related to areas of need that became evident in the study findings.
REFERENCES


Common planning time elevates teacher efficacy (2010). *Pro Principal, 6*, 3.


promotion. Baltimore, MD: Johns Hopkins University, Center for Research on the Education of Students Placed at Risk.


Queen, J. (2002). *Student transitions from middle to high school: Improving achievement and creating a safer environment.* Larchmont, NY: Eye on Education.


### APPENDIX A: VARIABLES

*Table A1. Variables.*

<table>
<thead>
<tr>
<th>Variable Name</th>
<th>Variable</th>
<th>Value</th>
<th>Category</th>
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<tbody>
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</tr>
<tr>
<td></td>
<td></td>
<td>1=yes</td>
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</tr>
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<td></td>
<td></td>
<td>2=unknown</td>
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<tr>
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<td>Ordinal</td>
</tr>
<tr>
<td>Student Discipline Data 2009-2010</td>
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<td>Ordinal</td>
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<td>numeric</td>
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<td>at or above proficient</td>
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<tr>
<td>------------------------</td>
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<td></td>
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<tr>
<td>Percentage of student attendance in 2009-2010</td>
<td>PctAttend09 10</td>
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<td>Ordinal</td>
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<tr>
<td>Final graduation rate in 2008-2009</td>
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<td>Ordinal</td>
</tr>
<tr>
<td>Discipline rates in 2009-2010</td>
<td>Alldisctypesper100</td>
<td>numeric</td>
<td>Ordinal</td>
</tr>
<tr>
<td>Percentage of low socioeconomic status</td>
<td>pctecondis</td>
<td>numeric</td>
<td>Ordinal</td>
</tr>
</tbody>
</table>

*Note.* OGT = Ohio Graduation Test.
APPENDIX B: VARIABLE DEFINITIONS

*Small Learning Community status* shows which schools have reported having or not having small learning communities.

Each of the following variables will be researched based upon the data found in the Ohio Department of Education Report Card statistics (Ohio Department of Education).

*Reading OGT 2009-2010 scores that are at or above proficient* indicates the number of tenth grade student test scores that are above the statewide requirement of 75% in reading in 2009-2010.

*Mathematics OGT 2009-2010 scores that are at or above proficient* indicates the number of tenth grade student test scores that are above the statewide requirement of 75% in mathematics in 2009-2010.

*Writing OGT 2009-2010 scores that are at or above proficient* indicates the number of tenth grade student test scores that are above the statewide requirement of 75% in writing in 2009-2010.

*Social studies OGT 2009-2010 scores that are at or above proficient* indicates the number of tenth grade student test scores in that score that are above the statewide requirement of 75% in social studies in 2009-2010.

*Science OGT 2009-2010 scores that are at or above proficient* indicates the number of tenth grade student test scores in that score that are above the statewide requirement of 75% in 2009-2010.
**Percentage of student attendance in 2009-2010** indicates the percentage of students who attended school, as compared to the student body, in 2009-2010.

**Final graduation rate in 2007-2008** is the number of students who graduated from high school at the end of the 2007-2008 school year.

**Percentage of low socioeconomic status of students in the school** is a proxy measure of the relative level of socioeconomic status of the student population of a school based upon student Free and Reduced Lunch participation.

**All discipline types** is a measure that indicates the number of discipline incidents, such as expulsion, out of school suspensions, and other discipline per 100 students.
Letterhead for Study

Date:

Subject: Share your voice about teacher needs

Teachers in Ohio are challenged to meet the needs of a growing diverse population with multiple learning needs and abilities. This research through Ohio University, Teachers’ Sense of Efficacy Survey, will assist in examining teacher perceptions about the classroom, the student and the role of the teacher.

Data gathered will inform Colleges of Teacher Education and school districts about methods that can impact the teaching environment. You may participate by completing the online survey titled: Teachers’ Sense of Efficacy Survey. The instrument will take approximately ten minutes to complete and is totally confidential. To access the survey, click on this link ________________.

The principal investigator, Jerry Johnson, Ed.D., johnsoj9@ohio.edu, or the co-investigator, Maryalice Turner, M.Ed., mt188800@ohio.edu, will answer any questions that you may have about the study. Thank you for sharing your valuable opinions.

Jerry Johnson, Ed.D.                     Maryalice Turner,
M.Ed.                                  mt188800@ohio.edu
Johnsoj9@ohio.edu
APPENDIX D: TEACHER LETTER FOR STUDY

Letterhead for Study

Teachers’ Sense of Efficacy Survey

Thank you for your participation in the Teachers’ Sense of Efficacy Survey, which adds your voice to the improvement of teacher education and teacher needs.

Teachers are challenged with meeting the needs of students from a variety of backgrounds and abilities. This survey research will examine teacher beliefs and attitudes regarding the challenges they face teaching each day.

This survey contains a question about teaming with other teachers and sharing a group of students. This question is asking if you work in a small learning community or a specific team that shares a common group of students. You may or may not have common planning time with these teachers.

Data gathered will be used to inform teacher education programs and school leaders about teacher support needs.

Your participation in this study only requires the completion of a voluntary, anonymous on-line survey that should take approximately 8-10 minutes to complete. After reading the informed consent information, you may proceed to the Teachers’ Sense of Efficacy Survey. Once you have completed the inventory, please click the submit button, which indicates your consent to participate in the study. Your participation is anonymous and your identity will remain confidential.

Teachers may benefit indirectly and collectively from voicing their beliefs concerning teaching. There are no known risks associated with completing this inventory, because your identity is not linked to your responses. You may decide not to participate or to answer any or all of the questions at any time prior to submitting your completed survey. The confidentiality of your participation is the highest priority.

The principal investigator, Jerry Johnson, Ed.D., (johnsonoj9@ohio.edu), Ohio University or the co-investigator, Maryalice Turner, M.Ed. (mt188800@ohio.edu) will answer any questions that you may have about the study. For questions about your rights as a participant in this study and/or to discuss concerns or complaints with someone who is not part of the research team, contact the Office of Research Compliance, (740)593-0664.

Thank you for sharing your valuable opinion from the teacher’s perspective.
APPENDIX E: TEACHERS' SENSE OF EFFICACY SURVEY

Q1 How much can you do to control disruptive behavior in the classroom?
   (1) Nothing
   (2)
   (3) Very Little
   (4)
   (5) Some Influence
   (6)
   (7) Quite a bit
   (8)
   (9) A Great Deal

Q2 How much can you do to motivate students who show low interest in school work?
   (1) Nothing
   (2)
   (3) Very Little
   (4)
   (5) Some Influence
   (6)
   (7) Quite a Bit
   (8)
   (9) A Great Deal

Q3 How much can you do to get students to believe they can do well in school work?
   (1) Nothing
   (2)
   (3) Very Little
   (4)
   (5) Some Influence
   (6)
   (7) Quite a Bit
Q4 How much can you do to help your students’ value learning?

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

Q5 To what extent can you craft good questions for your students?

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

Q6 How much can you do to get students to follow classroom rules?

(1) Nothing
(2)
(3) Very Little
(4)
(5) Some Influence
Q7 How much can you do to calm a student who is disruptive or noisy?
- (1) Nothing
- (2)
- (3) Very Little
- (4)
- (5) Some Influence
- (6)
- (7) Quite a Bit
- (8)
- (9) A Great Deal

Q8 How well can you establish a classroom management system with each group of students?
- (1) Nothing
- (2)
- (3) Very Little
- (4)
- (5) Some Influence
- (6)
- (7) Quite a Bit
- (8)
- (9) A Great Deal

Q9 How much can you use a variety of assessment strategies?
- (1) Nothing
- (2)
- (3) Very Little
Q10 To what extent can you provide an alternative explanation or example when students are confused?

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

Q11 How much can you assist families in helping their children do well in school?

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

Q12 How well can you implement alternative strategies in your classroom?

- (1) Nothing
Q13 Teachers in the school are able to get through to the most difficult students.

1. Strongly Disagree
2. Disagree
3. Somewhat Disagree
4. Somewhat Agree
5. Agree
6. Strongly Agree

Q14 Teachers here are confident they will be able to motivate their students.

1. Strongly Disagree
2. Disagree
3. Somewhat Disagree
4. Somewhat Agree
5. Agree
6. Strongly Agree

Q15 If a student doesn't want to learn, teachers here give up.

1. Strongly Disagree
2. Disagree
3. Somewhat Disagree
4. Somewhat Agree
5. Agree
Q16 Teachers here don't have the skills needed to produce meaningful student learning.
(6) Strongly Agree
(1) Strongly Disagree
(2) Disagree
(3) Somewhat Disagree
(4) Somewhat Agree
(5) Agree
(6) Strongly Agree

Q17 Teachers in this school believe that every student can learn.
(6) Strongly Agree
(1) Strongly Disagree
(2) Disagree
(3) Somewhat Disagree
(4) Somewhat Agree
(5) Agree
(6) Strongly Agree

Q18 These students come to school ready to learn.
(1) Strongly Disagree
(2) Disagree
(3) Somewhat Disagree
(4) Somewhat Agree
(5) Agree
(6) Strongly Agree

Q19 Home life provides so many advantages that students here are bound to learn.
(1) Strongly Disagree
(2) Disagree
(3) Somewhat Disagree
Q20 Students here just aren't motivated to learn.

(1) Strongly Disagree
(2) Disagree
(3) Somewhat Disagree
(4) Somewhat Agree
(5) Agree
(6) Strongly Agree

Q21 Teachers in this school do not have the skills to deal with student disciplinary problems.

(1) Strongly Disagree
(2) Disagree
(3) Somewhat Disagree
(4) Somewhat Agree
(5) Agree
(6) Strongly Agree

Q22 The opportunities in this community help ensure that these students will learn.

(1) Strongly Disagree
(2) Disagree
(3) Somewhat Disagree
(4) Somewhat Agree
(5) Agree
(6) Strongly Agree
Q23 Learning is more difficult at this school because students are worried about their safety.

☐ (1) Strongly Disagree
☐ (2) Disagree
☐ (3) Somewhat Disagree
☐ (4) Somewhat Agree
☐ (5) Agree
☐ (6) Strongly Agree

Q24 Drug and alcohol abuse in the community make learning difficult for students here.

☐ (1) Strongly Disagree
☐ (2) Disagree
☐ (3) Somewhat Disagree
☐ (4) Somewhat Agree
☐ (5) Agree
☐ (6) Strongly Agree

Q25 What is your age group?
☐ under 30
☐ 31-40
☐ 41-50
☐ over 50

Q26 What is your gender?
☐ Female
☐ Male

Q27 What is your primary Ethnicity?
☐ White, Non-Hispanic
Q28 How many years have you been a teacher?
- 0-5
- 6-10
- 11-15
- 16-25
- more than 25

Q29 Which grade do you primarily teach?
- Ninth grade teacher
- Tenth grade teacher
- Eleventh grade teacher
- Twelfth grade teacher

Q30 Do you team with a group of teachers and share a group of students? (This might be called smaller learning communities or houses.)
- Yes
- No

Q31 Do you share and use common planning time with a group of teachers to discuss your shared students?
- Yes
- No

Q32 Have you received professional development related to collaborating in a small learning community/team, or teacher collaboration techniques?
- Yes
- No
Q33 Do you participate in professional learning communities with other teachers?

☐ Yes
☐ No
APPENDIX F: THE THREE FACTORS OF THE TEACHER SENSE OF EFFICACY SCALE

Efficacy in Instructional Strategies:
Item 5 To what extent can you craft good questions for your students?
Item 9 How much can you use a variety of assessment strategies?
Item 10 To what extent can you provide an alternative explanation or example when students are confused?
Item 12 How well can you implement alternative strategies in your classroom?

Efficacy in Student Engagement:
Item 2 How much can you do to motivate students who show low interest in school work?
Item 3 How much can you do to get students to believe they can do well in school work?
Item 4 How much can you do to help your students’ value learning?
Item 11 How much can you assist families in helping their children do well in school?

Efficacy in Classroom Management:
Item 1 How much can you do to control disruptive behavior in the classroom?
Item 6 How much can you do to get children to follow classroom rules?
Item 7 How much can you do to calm a student who is disruptive or noisy?
Item 8 How well can you establish a classroom management system with each group of students?

Subscales within TSES, (Tschannen-Moran, & Woolfolk Hoy, 2001.)
APPENDIX G: CE SCALE

Short Form
Directions: Please indicate your level of agreement with each of the following statements about your school from strongly disagree to strongly agree. Your answers are confidential.

Responses are:

Strongly Disagree
Disagree
Somewhat Disagree
Somewhat Agree
Agree
Strongly Agree

1. Teachers in the school are able to get through to the most difficult students.
2. Teachers here are confident they will be able to motivate their students.
3. If a child doesn’t want to learn teachers here give up.
4. Teachers here don’t have the skills needed to produce meaningful student learning.
5. Teachers in this school believe that every child can learn.
6. These students come to school ready to learn.
7. Home life provides so many advantages that students here are bound to learn.
8. Students here just aren’t motivated to learn.
9. Teachers in this school do not have the skills to deal with student disciplinary problems.
10. The opportunities in this community help ensure that these students will learn.
11. Learning is more difficult at this school because students are worried about their safety.
12. Drug and alcohol abuse in the community make learning difficult for students here.

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APPENDIX H: ROTATED COMPONENT MATRIX

Table A3.

Rotated Component Matrix

<table>
<thead>
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<th>Component 1</th>
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<th>Component 3</th>
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<td>How much can you do to calm a student who is disruptive or noisy?</td>
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<tr>
<td>How much can you do to help your students value learning?</td>
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<td>.775</td>
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<td>How much can you assist families in helping their children do well in school?</td>
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<tr>
<td>How much can you use a variety of assessment strategies?</td>
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<td>.744</td>
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<td>How well can you implement alternative strategies in your classroom?</td>
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<td>.702</td>
</tr>
<tr>
<td>To what extent can you craft good questions for your students?</td>
<td>.236</td>
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<td>.634</td>
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Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 5 iterations.
### APPENDIX I: PEARSON CORRELATION OF TSE AND SCHOOL ACHIEVEMENT

*Pearson Correlation of TSE and School Achievement*

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<th>Variable</th>
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<th>TSE</th>
<th>Reading OGT</th>
<th>Math OGT</th>
<th>Writing OGT</th>
<th>Social Studies OGT</th>
<th>Science OGT</th>
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<tr>
<td>Math OGT</td>
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<td>.00</td>
<td>.95**</td>
<td>1.00</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Writing OGT</td>
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<td>.02</td>
<td>.92**</td>
<td>.90**</td>
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<td>.95**</td>
<td>.96**</td>
<td>.88**</td>
<td>.95**</td>
<td>1.00</td>
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</tbody>
</table>

*Note.* TSE = Teacher Self-Efficacy, OGT = Ohio Graduation Test.

*Note.* Analysis is two-tailed.

*Note.* ** = significance at the .01 level.