Professional Learning Communities, Self Efficacy, and Collaborative Learning in the Elementary School

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PROFESSIONAL LEARNING COMMUNITIES, SELF EFFICACY, AND COLLABORATIVE LEARNING IN THE ELEMENTARY SCHOOL

by

Diana Provancha Sweigart

Abstract of a Dissertation
Submitted to the Graduate School
of The University of Southern Mississippi
in Partial Fulfillment of the Requirements
for the Degree of Doctor of Philosophy

December 2012
ABSTRACT

PROFESSIONAL LEARNING COMMUNITIES, SELF EFFICACY, AND COLLABORATIVE LEARNING IN THE ELEMENTARY SCHOOL

by Diana Provancha Sweigart

December 2012

The United States of America used to have the best high school graduation rate in the world. However, by 2006, the U. S. was ranked 18 out of 26 among industrialized nations (Organization for Economic Co-operation and Development, 2010) with three out of every ten public school students failing to complete high school with a diploma (DuFour and Marzano, 2011). This urgent, pressing issue warrants continuing research to discover what does and does not work in educating our children. Numerous empirical and scientifically-based research studies continue to show the validity of several teaching methods; one such strategy is cooperative learning, a variety of collaborative learning.

However, research is starting to reveal that collaborative learning is not being utilized in today’s classrooms. The purpose of this study was to determine if there is a significant relationship between the use of collaborative learning by elementary classroom teachers and participating in Professional Learning Communities (PLCs), teacher efficacy, knowledge of collaborative learning, and perceived barriers to implementation of collaborative learning. A questionnaire was completed by kindergarten through sixth grade teachers from elementary schools located in two southern Gulf Coast states. The questionnaire consisted of five parts: utilization of collaborative learning, participation in professional learning communities, teacher efficacy, knowledge of collaborative learning, and perceived barriers. Data were analyzed using linear multiple regression to determine
if a significant relationship existed between the utilization of collaborative learning and professional learning communities, teacher efficacy, knowledge, and perceived barriers to implementing collaborative learning. Results of the data analyzed indicated a weak linear relationship between teacher knowledge of collaborative learning (CL) and implementation. However, there was not a significant relationship between utilization of CL and teacher perceived barriers to implementing CL. A moderate correlation existed between participation in PLCs and implementation of CL, and a weaker correlation was found between teacher self-efficacy and implementation of CL. Yet, there was not a significant difference in the correlation between participants and nonparticipants of PLCs and teacher sense of self-efficacy. The results of this study revealed that PLCs and teacher self-efficacy could be an effective approach to increasing the implementation of collaborative learning in our classrooms.
The University of Southern Mississippi

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December 2012
DEDICATION

I dedicate this dissertation to my three “little women,” Kristy, Amanda, and Katelyn; to my two “cherubs,” Cole and Ava; and to the “love of my life,” Michael. All of you are my inspiration and my reason for living. Thank you my dear sister and friend in Christ, Paula Russell. I thank God for your devotion of time, friendship, and prayer.
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CHAPTER I
INTRODUCTION

Background

The pressing issues of the New Common Core Standards, Federal regulations, and the continuous comparisons between other countries and the United States of America (U. S.) warrants continuing research to discover what does and does not work in educating the students of our nation. The Programme for International Student Assessment (PISA) indicated that U. S. students ranked 12\textsuperscript{th} in reading literacy, 17\textsuperscript{th} in science literacy, and 25\textsuperscript{th} in math literacy, out of 34 Economic Cooperation and Development (OCED) countries on the 2009 assessments (National Center for Education Statistics, 2010). In the past, the U. S. enjoyed possessing the top high school graduation rate in the world; however, by 2006, the U.S. was ranked 18 out of 26 industrialized nations (Organization for Economic Co-operation and Development, 2010). Three out of every 10 students in America’s public schools still fail to finish high school with a diploma (DuFour & Marzano, 2011). As a result, these high school drop outs have a negative effect on the U. S. economy. The leaders of our nation must act swiftly to incorporate effective approaches to increase our graduation rate. Unable to pass the test of time, countless teaching strategies have come and gone. Educators now need to research and incorporate different teaching strategies into our nation’s schools.

Numerous empirical and scientifically based research studies continue to prove the validity of several teaching methods; one such strategy is cooperative learning, a variety of collaborative learning. This teaching technique dates back to at least the 1700s when Lancaster and Bell used it to teach in England. In 1806, these gentlemen
introduced cooperative learning when they opened the Lancastrian School in New York City (Johnson, Johnson, & Holubec, 1994).

Following Lancaster and Bell’s work on cooperative learning, Lewin, a Gestalt psychologist from Poland, brought his interdependence theory and heterogeneous cooperative groups to America in the 1930s. Lewin taught his theories to Deutsch, who in turn taught the theories to his students, including one of the Johnson brothers (Sherman, Schmuck, & Schmuck, 2006). A string of educators continued to use cooperative learning from Colonel Parker in the latter part of the 19th century to Dewey in the 20th century to the Johnson brothers, Kagan, and Slavin in the 21st century. Actual psychological research began in the 1920s; however, specific research on the academic success of cooperative learning (CL) didn’t take place until the 1970s (Slavin, 1995).

The terms cooperative learning and collaborative learning are often used interchangeably (Falk-Ross et al., 2009; McWey, Henderson, & Piercy, 2006; Ruys, Van Keer, & Aelterman, 2011). However, McWhaw, Schnackenberg, Sclater and Abrami (2003) list several differences between the two: (1) cooperative learning is more structured and is controlled by the teacher, whereas collaborative is less structured and controlled by the students; (2) cooperative learning is geared toward elementary children, whereas collaborative is better suited for high school and college; and (3) cooperative learning is more for knowledge, whereas collaborative is for higher order thinking. Nevertheless, the authors cautioned that the differences described are often controversial, and many educators still refer to the names interchangeably. Team-based learning and problem-based learning are seen as adding “complexity” to cooperative learning and are considered a variety of collaborative learning (Gomez, Wu, & Passerini, 2010, p. 383).
Others believe the only difference lies in that cooperative learning is more structured than collaborative learning (Millis, 2010). For this research study, the two terms will be used interchangeably.

Researchers past and present primarily study the concept of CL through the educational theories of Vygotsky and Bandura. Vygotsky’s social development theory proves that processing information in order to learn requires social interaction, which is a foundational component of CL (McWhaw et al., 2003). Vygotsky believed that learning was a natural social act in which students talked among themselves to gain knowledge (McWhaw et al., 2003). In addition, Vygotsky believed that the possibility of cognitive development was limited to a certain time span which he labeled the “Zone of Proximal Development” (Hertz-Lazarowitz & Miller, 1995, p. 18). He believed that this zone measured the distance between what learners could accomplish individually and what they could accomplish together in a group setting (Hertz-Lazarowitz & Miller, 1995).

Bandura (1977), through his social learning theory, proved that human behavior is learned from observing others and modeling their behavior. He believed that the person, the behavior, and the environment have an impact on learning. In order to learn the behavior, the participant must give his or her attention to the behavior, remember it, and be motivated to replicate it. In addition, people could be taught more effectively if they were in a social environment (Bandura, 1977).

The Johnson brothers, along with Holubec, give credit to Lewin’s social interdependence theory (Johnson et al., 1994). This theory explains that at the heart of a group is interdependence and intrinsic motivation among the group members, which will then produce the accomplishment of common goals (Sherman et al., 2006). The Johnson
brothers theorize that the structuring of social groups leads the participants to experience either positive or negative interdependence. They consider positive interdependence to be cooperative, where students encourage and persuade group members to succeed in solving problems, and negative interdependence to be competitive, where students hinder and dissuade members in their efforts to succeed (Johnson et al., 1994).

A contemporary of the Johnson brothers, Slavin, believes that the theories of CL should be categorized into two arenas: motivational and cognitive (Slavin, 1995). Slavin recognizes Bandura’s social learning theory as the rationalization for the motivation to succeed in cooperative groups. Furthermore, Slavin tends to back the cognitive theories of Vygotsky, most pointedly his zone of proximal development. He promotes the idea that students in the same zone can work together to solve problems and understand concepts. In addition, students close to the same zone can assist the lower or higher zone student to achieve understanding (Slavin, 1991). Kagan concurs with Slavin in that he also endorses the theories of Vygotsky (Kagan, 1994). In addition, he supports Gardner’s multiple intelligence theory that students possess strengths and weaknesses in seven different areas of intelligence, and these should be addressed during learning. Kagan (1994) believes that group work encourages students to seek the diverse abilities of their peers and therefore appreciate each other’s differences. Kagan feels that learning should be a mixture between competitiveness and individualism. He creates his CL program to promote the theories of Vygotsky, as well as those of Gardner (Kagan, 1994).

The theory backing this study is a mixture of Bandura’s social learning theory, Vygotsky’s social development theory, and Lewin’s social interdependence theory. Children, as well as adults, need social interaction through observation and modeling in
order to process information and, ultimately, apply old and new knowledge to enrich their intellectual and social processing skills. Beginning in preschool and extending through high school, our students need to learn and practice educational skills that will ultimately result in a high school diploma. An increase in high school graduation rates will result in a better educated U.S. citizenry that is more prepared to enter into a global marketplace.

Through collaborative learning, these skills can be introduced, refined, and applied.

CL can be as simplistic as placing students in small groups of three to four and allowing the participants to work collaboratively in solving a simple problem. CL can also be as elaborate as grouping the participants in yearlong small groups in which each group member is responsible for the learning and retention of skills and information of every member in the group. The premise is that students who are allowed to participate in cooperative groups encourage and motivate each other to reach a common goal and can build on each other’s ideas to construct new knowledge, skills, and perceptions.

Strategies used to implement CL vary by the type of method supported by the instructor. Four contemporary researchers, generally accepted as expert promoters of CL in the field of education, are Kagan, Slavin, and the Johnson brothers. Their schools of thought on CL vary; however, they have three areas of common ground in which all variations of CL used today are based. The first area includes positive interdependence, which refers to each group member recognizing that they are part of a group and are responsible for each member learning the information. Positive interdependence is cultivated by students working in the direction of a common purpose by depending on each other for assistance and encouragement. The second area, individual and group accountability, proposes that each member is held accountable for his or her share of the work and acknowledges that
each member is accountable to the group. Encouraging, helping, and working together through group interaction, is the third commonality of CL (Johnson, Johnson, and Stanne, 2000; Kagan, 1994; Slavin 1995).

Kagan promotes a structured approach (Kagan, 1994). He has identified many different structures for learning groups. An example of a simple structure is a three-step interview in which student A interviews student B, student B interviews student A, and then they share their interviews with another pair of students. A complex structure involves students forming groups around common areas of interest. Once the groups are formed, students plan and carry out research, synthesize the information, and present it to the class (Cornelius-White & Harbaugh, 2010; Kagan, 1994).

Slavin endorses his multiple techniques such as Student Teams Achievement Divisions (STAD) where students are in mixed-ability groups to learn the lesson, then complete individual quizzes (Slavin 1995). Another technique is Teams-Games-Tournaments (TGT) where the lesson mimics STAD; however, the students are involved in weekly tournaments instead of quizzes. In Team Assisted Individualization (TAI), students follow an individualized sequence, yet their team members assist them when they encounter difficulties. A team score is assessed through individual test grades. In Cooperative Integrated Reading and Composition (CIRC), teachers instruct through basal readers and novels. Group members assist each other with reading instruction, and group scores are based on tests and quizzes. TAI is used primarily for math, whereas CIRC is used primarily for reading (Cornelius-White & Harbaugh, 2010; Slavin 1995).

The Johnson brothers advocate their learning together approach, which includes informal and formal groups (Johnson et al., 1994). Informal groups last for only a few
minutes or up to an entire class period and are usually used while teaching through demonstrations. Formal groups last for a few days or up to several weeks and are utilized while teaching specific content. The Johnson brothers also contend that, in order for CL to be effective, students must enlist five essential elements. These elements include (a) positive interdependence, (b) individual and group accountability, (c) face-to-face interaction, (d) a development of social skills, and (e) group reflection on the collaborative effort (Johnson et al., 1994).

In 1990, Sharan published his book, Cooperative Learning: Theory and Research. Eleven research articles proving the positive effects of cooperative learning are shared and critiqued in this 300 page volume of studies (Sharan, 1990). The Johnson brothers, along with Stanne, conducted a mega-analysis on cooperative learning in 2000 (Johnson et al., 2000). This analysis involved 158 studies from 1970 through 1999. The settings ranged from elementary schools through institutions of higher learning and were conducted in North America, as well as in Asia, the Middle East, Europe, and Africa. Participants included mixed gender and minority groups. Their results, without a doubt, sanctioned the belief that cooperative learning is effective in increasing student achievement (Johnson et al., 2000). Gillies, noted Australian educator, compiled and addressed current research in her book, Cooperative Learning: Integrating Theory and Practice (Gillies, 2007). In her recent book, Evidence-Based Teaching: Strategies that Promote Learning, Gillies presents research and evidence that demonstrates support for using CL in a variety of classroom settings (Gillies, 2009). Millis, director of the Teaching and Learning Center at the University of Texas, San Antonio, recently edited the book, Cooperative Learning in Higher Education: Across the Disciplines, Across the
The book compiles 10 articles by master teachers who have effectively used CL in their classrooms. Millis (2010) examines the current use of CL and includes research studies from the past five years that validate the perception that CL leads to increased learning in the educational setting. Numerous studies continue to validate the success of CL for increasing academic gains in our children (Acar & Tarhan, 2007; Chen & Chuang, 2011; Madrid, Canas & Ortega-Medina, 2007; Nuntrakune & Nason, 2009; Tarim, 2009; Tsay & Brady, 2010; Vaughn et al., 2011; Wilson-Jones & Caston, 2004).

Along with findings validating the success of CL are studies that reveal that it is not being utilized in today’s classrooms (Abrami, Poulsen, & Chambers, 2004; Lopata, Miller, and Miller, 2003; McKinney & Frazier, 2008; Valli & Buese, 2007). In addition, several studies reveal barriers in choosing whether to implement CL as a teaching strategy. Some common barriers include inadequate teacher knowledge and training, non-supportive administrators, preparation of extra materials, lack of student social skills, and difficulty in forming student groups (Ding, Li, Piccolo, & Kulm, 2007; Fish, 2006; Gillies & Boyle, 2010; Koutselini, 2008-2009; Shimazoe & Aldrich, 2010; Thanh, 2011; Zakaria & Iksan, 2007). Each of these studies recommends more research on barriers to implementing cooperative learning. Gillies reiterates that “although the benefits of cooperative learning are well documented, implementing this pedagogical practice in classrooms is a challenge” (Gillies, Ashman, & Terwel, 2007, p. 2).

Increasing learning in the educational setting is the premise of another type of group learning: professional learning communities (PLCs). The belief of well-known educators, DuFour, DuFour, Eaker and Marzano is that student achievement can be raised
through teacher education programs, specifically, professional learning communities (Dufour, Eaker & DuFour, 2005; Dufour & Marzano, 2011). Their belief is grounded in the concept that improving student achievement should be a collaborative effort of the entire faculty and staff of each school, as opposed to the idea of teacher isolation. They envision the image of “a group of teachers who meet regularly to share, refine, and assess the impact of lessons and strategies continuously to help increasing numbers of students learn at higher levels” (DuFour et al., 2005, p. xiv). DuFour, DuFour, and Eaker (2008) identify six characteristics of PLCs:

1. Shared mission, vision, values, and goals—all focused on student learning;
2. A collaborative culture with a focus on learning;
3. Collective inquiry into best practice and current reality;
4. Action orientation: learning by doing;
5. A commitment to continuous improvement; and
6. Results oriented. (pp. 15-17)

Along with the above characteristics, there are three underlying operational principals necessary to effectively support the efforts of a professional learning community:

1. Ensuring all students learn at a high level;
2. Supporting and promoting ongoing teacher collaboration and teacher professional development; and
3. Focusing on student results. (DuFour et al., 2008, pp. 15-17)

DuFour and Marzano (2011) explain that through PLCs, educators are organized into collaborative teams in which the members “work interdependently to achieve common goals for which they are mutually accountable” (p. 24). Others believe that, at
their core, PLCs lean on the supposition of improving student learning by improving teaching practice (Vescio, Ross, & Adams, 2008; Craig & Deretchin, 2009), and they have been described as a way of “freeing teachers from their isolation with productive collaboration” (Carroll, Fulton, & Doerr, 2010, p. 2). Mike Schmoker believes that PLCs encourage teachers to “recognize and share the best of what they already know” (Schmoker, 2006, p. 109). The impact of PLCs on student learning and on potential increases in teacher efficacy have been substantiated through research (Akerson, Cullen, & Hanson, 2009; Eaker & Keating, 2009; Falk-Ross et al., 2009; Gates & Watkins, 2010; Lomos, Hofman, & Bosker, 2011; Maloney & Konza, 2011; Shernoff et al., 2011; Vescio et al., 2008).

Following this rationale, research also supports the possible relationship between teacher efficacy and growth in student achievement (Bruce, Esmonde, Ross, Dookie, & Beatty, 2010; Hoy & Spero, 2005; Lakshmanan, Heath, Perlmutter, & Elder, 2011; Pella, 2011; Ross & Bruce, 2007; Tschannen-Moran & Johnson, 2011; Ware & Kitsantas, 2007; Zambo & Zambo, 2008). The concept of self-efficacy is based on one’s belief that he or she possesses the ability to perform a specific task. This concept is derived from another theory of Bandura, specifically his social cognitive theory, which explains how people secure and maintain certain behavioral patterns (Bandura, 2000). Bandura (1997) defined efficacy as “beliefs in one’s capabilities to organize and execute the courses of action required to produce given attainments.” (p. 23) Bandura (2000) also believed that behaviors, such as self-efficacy, are subject to change in certain environments and conditions. Teacher efficacy is described as a self-perception, not an objective measure of teaching effectiveness (Ross & Bruce, 2007). Teacher efficacy has been shown to
influence the choices teachers make in deciding which teaching strategies they implement in the classroom (Takahashi, 2011).

Statement of the Problem

Numerous empirical and scientifically based research studies continue to prove the validity of collaborative learning as an effective teaching strategy. Yet additional research suggests that it may not be utilized due to possible perceived barriers. A possible solution could be the implementation of professional learning communities. Research suggests that professional learning communities may increase teacher efficacy, which, in turn, could improve the chance of teachers implementing differentiated teaching strategies. If teacher efficacy is increased through PLCs, participating in PLCs may have an influence on whether teachers choose to use collaborative learning in their classrooms. This study is being implemented to determine if there is a significant correlation between the utilization of collaborative learning and (a) participation in professional learning communities, (b) teacher efficacy, (c) knowledge of collaborative learning, or (d) perceived barriers in implementing CL by elementary classroom teachers.

Research Hypotheses

H1: There is no relationship between the utilization of collaborative learning and participation in professional learning communities of classroom teachers as measured by the Collaborative Learning Scale.

H2: There is no relationship between the utilization of collaborative learning and teacher efficacy of classroom teachers as measured by the Collaborative Learning Scale.
H3: There is no relationship between the utilization of collaborative learning and knowledge of cooperative learning of classroom teachers as measured by the Collaborative Learning Scale.

H4: There is no relationship between the utilization of collaborative learning and perceived barriers of classroom teachers as measured by the Collaborative Learning Scale.

H5: There is no relationship between participation in professional learning communities and teacher efficacy as measured by the Collaborative Learning Scale.

Definition of Terms

The definitions of the following terms are provided for clarification of the vocabulary used in this study.

*Collaborative/Cooperative learning* – instruction organized around work in small groups, following five principles: positive interdependence among members; individual accountability; face to face interaction; use of interpersonal skills; and self-assessment of group functioning (Johnson, Johnson, & Smith, 2007).

*Individual accountability* – each group member is held accountable for his or her work (Johnson et al., 2007).

*Positive interdependence* – group members depend on each other to accomplish their common goal (Johnson et al., 2007).

*Professional Learning Communities* – an ongoing process in which educators work collaboratively in recurring cycles of collective inquiry and action research to achieve better results for the students they serve (DuFour et al., 2008).

*Teacher efficacy* – involves the belief that a teacher possesses the ability to bring
about desired student outcomes (Takahashi, 2011); a teacher’s self-assessment of his or her ability to support student learning (Bruce et al., 2010).

Delimitations

1. Selection of teachers was delimited to those who were teaching kindergarten through sixth grade during the spring of 2012.
2. The sample population was delimited to the geographical region of two southern states. Permission was requested from the superintendents in four states; however, only two granted permission to the researcher to distribute the questionnaires.
3. Data collection was delimited to survey methodology.

Assumptions

The study was conducted with the following assumptions:

1. It was assumed that all participants completed each question with honesty and accuracy.
2. All participants in the study were certified teachers.

Justification

Studies continue to validate that collaborative learning is successful in educating our children. Nevertheless, it appears collaborative learning is not being utilized sufficiently enough to make an impact in the educational realm (McKinney & Frazier, 2008). Possibly, educators do possess enough knowledge to implement collaborative learning in their classrooms, but they are choosing not to implement this strategy. Reasons for not implementing teaching strategies have been discussed and questioned, but no clear consensus has been reached. This study may prove that participation in professional learning communities and enhanced teacher efficacy positively influence a
teacher’s decision in implementing this strategy. Additional barriers to not teaching in collaborative learning groups may be revealed. If the research proves that knowledge is a barrier, then it is essential that higher education institutions enhance their teacher education programs to ensure courses include multiple teaching strategies. In the same respect, if teacher efficacy proves to be a barrier, more vigorous teacher education programs of preservice teachers should be implemented, along with professional development of teaching staff, to increase the level of teacher efficacy. Along this same line of reasoning, if participants in professional learning communities tend to implement collaborative learning more often, then principals and administrators need to invest resources in developing professional learning communities in their schools and districts. If barriers are revealed, then principals can interact with their teachers to start the process of removing these obstacles. Our children need to work in collaborative/cooperative groups in order to prepare for working cooperatively in the 21st century. In this way, they learn how to jointly solve problems by sharing hypothesis, ideas, and constructive criticism with a diverse group of students. As society moves toward a culture dependent on interdependence, children must be taught early how to contribute, thrive, and ultimately reach success in the current revolutionizing environment.
CHAPTER II
LITERATURE REVIEW

Theoretical Foundations

Collaborative learning, professional learning communities, and teacher efficacy all have foundations based on the theories of Bandura, Vygotsky, and Lewin. Lewin’s social interdependence theory originated with his belief that behavior was subject to two sets of influences: internal (the person) and external (the situation). Through his research and theories, he set out to prove that the situation has a more powerful influence than we tend to believe, and what matters is how the person perceives the situation (Mook, 2004). Lewin’s research was directed at solving social problems, and his interest grew around the idea of tensions between the perception of self and one’s environment. Maruyama alleged that Lewin thought that cooperative classrooms were “inherently democratic”, where all students shared thought and power (Maruyama, 1992, p. 163). Hence, the idea of interdependence grew, and the integration of heterogeneous groups working together for a common good developed (Sherman et al., 2006). Lewin taught his students the dynamics behind his social interdependence theory. Deutsch, one of his students, built on Lewin’s research and conceptualized that there were two types of social interdependence: positive and negative (Johnson & Johnson, 2009). Positive correlations resulted in group goal attainment, whereas negative correlations resulted in goal attainment for one member of the group at the expense of the other members. Deutsch maintained that there were three areas in which children needed to be guided in order to develop “values, attitudes, and knowledge that foster constructive rather than destructive relations” (Deutsch, 1993, p. 510). These three areas included conflict resolution, constructive
controversy, and cooperative learning. In order for cooperative learning to be successful in the classroom, Deutsch stressed that the most important element was interdependence. He felt that students must “perceive that it is to their advantage if other students learn well and that it is to their disadvantage if others do poorly” (Deutsch, 1993, p. 510). Deutsch passed on his theories and beliefs about interdependence and working cooperatively in heterogeneous groups to his student, David Johnson. The Johnson brothers continue to use Lewin’s and Deutsch’s influences in incorporating cooperative learning through social interdependence theory into our modern day classrooms.

Bandura (1993) believed that cooperative learning structures in which students work together and help one another tend to promote more positive self-evaluations of capability and higher academic attainments than do individualistic or competitive ones. His social learning theory promotes learning through imitation. Through the well-known Bobo doll experiments, Bandura proved that we tend to imitate behavior that we observe. However, Bandura ascertains four related processes that must be put in action in order for this imitation to ultimately occur (Mook, 2004). The first, attentional processes, refers to the premise that the imitator is actually aware that an action has taken place. The second, retention processes, refers to the knowledge that not only the behavior must be remembered, but also the consequences of the action. The third, skill processes, explains that the imitator must have the necessary skills to replicate the action. The final process, reinforcement, requires the imitator to sense a reward of some type in order to desire replication of the action (Hoy & Spero, 2005). The premise of social learning theory can be applied to children in cooperative groups and to adults as participants in professional learning communities. Self-efficacy also relates quite effectively into Bandura’s theories.
Bandura (1997) describes efficacy as the assessment of one’s capabilities to attain a desired level of performance in a given endeavor. He surmises that efficacy beliefs come from four main sources: mastery experiences, vicarious experiences, social and verbal persuasions, and physiological and emotional states (Gurvitch & Metzler, 2009).

Mastery experiences are direct teaching episodes that may be challenging, yet are still attainable. These experiences are known to have the most impact on self-efficacy. Vicarious experiences are performed by someone else and witnessed by another person. Vicarious experiences are weaker in establishing a person’s efficacy; nevertheless, they contribute to the creation of self-efficacy (Gurvitch & Metzler, 2009). Receiving positive feedback from peers and superiors assists in creating our self-efficacy through social and verbal persuasions. Finally, physiological and emotional states are strengthened through feelings of success and confidence. In the educational realm, the efficacy of teachers is predominately built through mastery experiences (Bruce et al., 2010).

The integration of behavior and consciousness is the essence of Vygotsky’s developmental theories (Eun, 2008). Vygotsky suggested that learning is a social act in which participants talk socially among themselves in order to learn a new skill or concept. When this discourse is among participants of different backgrounds, knowledge, and experience, learning naturally occurs (McWhaw et al., 2003). Vygotsky’s social development theory explains that, as participants interact with their peers, they internalize relevant information, new patterns of thought, and problem-solving strategies to utilize in their daily living. These newfound concepts and skills can be academic or social in nature. His theory implies that, in order to learn, one must process information through social interaction. He believed that children, as well as
adults, could excel at intellectual processes more efficiently with social support through peer interaction and modeling (Wertsch, 1985). Eun understood that Vygotsky believed that it is not memory that develops when learning, but “the relationship between memory and thinking”; that in turn produces logical memory (Eun, 2008, p. 138). The tenets of Vygotsky’s social development theory are not only the basis for cooperative learning, professional learning communities, and ultimately collective efficacy, but they are also essential in producing effective academic outcomes. Through the theories of Bandura, Lewin, and Vygotsky, we can research the educational realm of cooperative learning, professional learning communities, and teacher efficacy. Children, as well as adults, need social interaction through observation and modeling in order to process information and, ultimately, apply old and new knowledge to enrich their intellectual and social processing skills. Through CL, these skills could possibly be introduced, refined, and applied.

Review of the Literature

Research and educators continue to validate CL as an effective instructional strategy in educating our students; however, many are still skeptical about CL and its success as a 21st century teaching strategy. Along with the Johnson brothers, Kagan, and Slavin, 21st century educational leaders and writers encourage educators to utilize CL in their classrooms. During his discussion on research-based effective instruction, Ainsworth (2010) recommends using CL along with eight other strategies. In addition, he advocates using small group instruction and cooperative learning with ELL students (Ainsworth, 2010). In their recent book, Learner-Centered Instruction: Building Relationships for Student Success, Cornelius-White and Harbaugh (2010) offer an entire
chapter on CL. Topics include research-based studies, essential conditions to establishing communities of cooperative peer groups, structured approaches, feedback and assessment, and the technological aspects of CL (Cornelius-White & Harbaugh, 2010). Singh (2010) believes CL can be used to promote environments that assist in deactivating causes of conflict and aggression in students. He reasons that this environment is fostered through positive interdependence, promotive interaction, individual accountability, personal accountability, frequent use of interpersonal and small group skills, along with appropriate social skills. Singh (2010) surmises CL assists students in avoiding isolation and increases their motivation to succeed academically, as well as socially. Bandura (1993) believes that cooperative learning structures in which students work together and help one another tend to promote more positive self-evaluations of capability and higher academic attainments than do individualistic or competitive ones. Harvey and Daniels (2009) discussed their idea of small groups generating energy that is used for challenging work: “Humans are social animals. We like to work together. The interaction we enjoy before, around, beside, during, and after the work helps ideas flow, makes the time go quickly, and leaves us eager for the next gathering” (p. 10). They further proposed that through small groups individuals collaborate and, hence, become smarter together.

Sharan not only states that CL methods and procedures are designed to promote cooperation and mutual assistance among learners, but she also expects the skills learned to carry over to relationships outside the school (Sharan, 2010). Silver, Strong, and Perini (2009), while deliberating which researched-based teaching strategies are appropriate for assorted skills, conveyed the message that today’s productive businesses
have banned “cubicle culture” and reorganized their personnel into groups of teams (p. 183). They continue by alluding to the belief that students who spend their educational years working with their peers in groups solving problems have a distinct advantage over students who spend their time in isolation and independent seatwork. Olivia (2005) believes that the goals of CL are not purely academic, but that they cross over into “group pride, self-esteem, respect for diversity, sense of responsibility, emotional skills, and a willingness to help others” (p. 369). Marzano and Brown (2009) found that the more engaged students are in their own learning the deeper their understanding of concepts. They advocate using cooperative groups and shared experiences to maintain classrooms as active learning environments (Marzano & Brown, 2009). As Millis (2010) expresses, CL can “transform lecture classes into a community of supportive teams” (p. 7). She quoted Finkel in his book, Teaching with Your Mouth Shut as stating that: “Educational research over the past twenty-five years has established beyond a doubt a simple fact: What is transmitted to students through lecturing is simply not retained for any significant length of time” (as cited in Millis, 2010, p. 1).

Research results have consistently indicated that CL, when carried out responsibly, improves students' academic achievement, as well as social interaction. Research studies range from kindergarten children (Tarim, 2009), to third and fourth grade students (Nuntrakune & Nason, 2009), as well as middle school students (Vaughn et al., 2011), high school students (Acar & Tarhan, 2007), and college age students (Tsay & Brady, 2010). In addition, positive academic gains have been shown for African-American elementary age males (Wilson-Jones & Caston, 2004), elementary bilingual labs (Chen & Chuang, 2011).
In a study conducted with kindergarten students, the children in the experimental group not only exhibited greater success in their problem-solving abilities than those in the control group, but they also proved that preschoolers can acquire the proper skills to learn through cooperative learning (Tarim, 2009). Tarim’s (2009) study included two private kindergartens in Turkey, whose students were randomly assigned, one as the control group and the other kindergarten with two experimental groups. There were 54 children selected, including 23 girls and 31 boys mainly from middle and high socioeconomic status families. Teachers at both schools volunteered to participate in the study and acknowledged between 11 to 13 years of teaching experience. The teachers admitted they rarely used small groups for teaching because they experienced too many problems. Before implementation of the experiment, the two experimental teachers attended a five-hour workshop on cooperative learning. Children first worked in pairs, then triads, then in groups of four. They participated in one hour sessions, two days a week for 13 weeks. The same mathematical concept was taught to the experimental groups and the control group. The teacher in the control group taught through whole class instruction with concrete materials and utilized games, songs, stories, and drama activities. The control group teacher never used cooperative groups. A statistically reliable test was administered to all students as a pretest and posttest. Analysis of variance was used to validate no difference between the means of the pretest. However, ANOVA validated a significant difference in the means of the posttest between the control and experimental groups, with both experimental groups outperforming the control group (Tarim, 2009). During observations, children in the experimental groups improved in the following social skills: cooperating and sharing, listening to the teacher,
sharing tasks, and group consciousness. In addition, a positive change in the teacher’s attitude toward cooperative group work was observed (Tarim, 2009). Similar results were revealed in a study in the United Kingdom involving 980 children ranging in age from five to seven years old (Kutnick, Ota, & Berdondini, 2008).

Teacher’s attitudes toward CL can influence the success of their students. Third and fourth grade students, along with their teachers, were observed during a study conducted at a private primary school in Thailand (Nuntrakune & Nason, 2009). Thirty-six girls and 28 boys from mid to high socioeconomic backgrounds with mixed academic ability were participants in the experiment. The third grade teacher held nine years of experience and was open to using cooperative learning. The fourth grade teacher held six years of experience and didn’t believe her extremely competitive students would be successful working in groups. The two teachers participated in a workshop for 1.5 weeks that consisted of five different CL sessions based on theory, practical application, and implementation. Before beginning the study, the students were trained for two weeks in social skills needed to participate in cooperative groups. The students then experienced three CL lessons a week for six weeks. During the lessons, students and teachers were observed. At the conclusion, interviews were used to survey teacher and student attitudes toward cooperative learning groups. All third grade students believed the group had facilitated their learning. However, only the academically low and middle achieving fourth grade students held the same belief. The observer suspected their belief coincided with the observation that the third grade teacher was better at encouraging her students to use their newly acquired social skills and at modeling appropriate behavior.
Nevertheless, most all students appeared to understand and were able to demonstrate the concept of interdependence among group members (Nuntrakune & Nason, 2009).

Working in cooperative groups was the dominant preference for African American males attending a rural school in Mississippi (Wilson-Jones & Caston, 2004). This qualitative study included 16 regular education African American males between the ages of eight and 13. Each boy engaged in six separate 30-minute face-to-face interviews over a three-month period. The students were asked questions pertaining to individual learning styles and their feelings about school, teachers, and themselves. Each interview was tape-recorded then transcribed into a textual format. All 16 boys reported that cooperative learning was their preferred method of classroom learning. Similar results were found in a study of children of color at an elementary school in Bermuda (Vaughan, 2002).

Bilingual children also appear to benefit from CL. Sixteen Hispanic Spanish/English bilingual children participated in a study involving three different types of learning environments: competitive team peer tutoring, cooperative team peer tutoring, and standard teacher-led instruction (Madrid et al., 2007). All 16 children were considered proficient in Spanish and nonproficient in English. The third-grade children, who attended a public elementary school in a low-income area, were assigned to each different learning environment by a randomly selected sequence. Each group received a different type of learning environment for one week at a time, alternating every three weeks, for a total of 15 weeks. A pretest was given on day one and a posttest on day five. The mean percentage gain scores for teacher-led sessions increased from 14% on the pretest to 36.2% on the posttest, a gain of 22.2 points. The mean percentage gain scores
for competitive team peer tutoring increased from 13% on the pretest to 80.2% posttest, a gain of 67.2 points. The mean percentage gain scores for cooperative team peer tutoring increased from 12% on the pretest to 92.8% on the posttest, a gain of 80.8 points. While both groups exceeded the teacher-led environment, the cooperative group increased their scores 12% more than the competitive group. The researchers believe the Hispanic culture emphasizes socially cooperative environments; therefore, cooperative learning is an effective teaching strategy for Hispanic students (Madrid et al., 2007).

An elementary computer lab was the setting for 204 fourth-graders in a study utilizing computers to complete an assigned project (Chen & Chuang, 2011). The students were placed in groups, and then the groups were divided evenly among three different learning formats: individual, group with open-ended discussion, and group with cooperative problem-based discussion format. The collaborative problem-based groups were required to work together. Half of each team consisted of students who possessed high prior-knowledge, and the other half of the team possessed low prior-knowledge. Knowledge levels were based on a 30-minute pretest given in a regular classroom before the study. Each group received the same unit of instructional materials and the same unit test. The unit test consisted of questions that expressed the student’s thoughts based upon his or her understanding of the subject matter and the learning environment. Mean scores were 15.81 for the individual students, 20.05 for the open-ended discussion group, and 29.66 for the cooperative problem-based group. Students in the cooperative problem-based discussion format preferred that format and excelled in comparison to students interacting with computers individually and to students working in groups with an open-ended discussion task (Chen & Chuang, 2011). The researchers asserted the outcome
supports the notion that, through cooperative problem-based discussion strategies, students’ learning skills are facilitated, especially problem-solving skills because students are exposed to multiple solutions for difficult problems.

Reading and understanding difficult texts was the premise for a study of seventh and eighth grade students involved in collaborative English/Language Arts classes at three school districts in Texas and Colorado (Vaughn et al., 2011). Students were randomly assigned to classes, and then classes were randomly assigned to treatment or business-as-usual comparison groups. Eight hundred sixty-six students comprised the 27 comparison and 34 treatment classes (teachers with an odd number of classes were assigned the treatment condition). Children were given a pretest, and no significant differences were noted between the two groups. Teachers were trained in how to teach students in cooperative groups using the collaborative strategic reading model. Students in the treatment classes received the intervention strategy for 50 minutes, 2 days a week, for approximately 18 weeks. Students were assessed four times during the study by trained research personnel who were oblivious to which group the students belonged. Students in the treatment group scored significantly higher on the Gates-MacGinitie Reading Comprehension Test than did students in classes where business-as-usual was conducted (Vaughn et al., 2011).

Researchers in an 11th grade electrochemistry class were interested in the misconceptions of electrochemistry, yet their study was mainly conducted to find the differences in the effect of CL over a teacher-centered traditional approach, along with the students’ and teacher’s perceptions about cooperative learning (Acar & Tarhan, 2007). These participants consisted of 41 eleventh grade students from two science
classes in a high school in Izmir, Turkey. Students were randomly placed in a control group (21 students) and an experimental group (20 students). The CL group members were placed heterogeneously in groups of four, based on achievement on a pretest and their level of social skills. All students were taught by the same teacher for three weeks. The control group was taught with a teacher-centered traditional approach. The experimental group was taught using a constructivist approach, which included cooperative learning. The CL students were trained in how to work in groups based on Johnson and Johnson’s approach (Johnson et al., 1994). Students worked primarily on their own with guidance from the teacher. The analyzed data consisted of interviews and a test administered before and after the lessons. The test was endorsed by specialists in chemistry education and was composed of eight open-ended and 12 multiple-choice questions. Students in the experimental group raised their mean scores by 35.9%, whereas students in the control group raised their mean scores by only 4.4% (Acar & Tarhan, 2007). Based on the effectiveness of cooperative learning, the interviews were conducted individually between the researcher and the teacher, and between the researcher and volunteers from the experimental group. These interviews were recorded and analyzed by researchers. The most significant finding was the teachers’ belief that social skills were improved along with the students’ learning aptitude. Through the interviews, students revealed a longing to continue all instruction with cooperative groups rather than teacher-centered instruction. The students believed CL provided them time to interact with other students by sharing ideas and forming new friendships. These interviews also revealed that the students welcomed their teacher monitoring and guiding their groups. Most believed the teacher’s interaction motivated them to persist in
improving the outcomes of their assignments (Acar & Tarhan, 2007). A similar study with 144 ninth grade students in Brisbane, Australia comparing structured and unstructured science groups revealed that the structured groups were more productive in academics and social skills than the unstructured groups (Gillies, 2008).

The relationship between student involvement in CL and academic performance in an undergraduate communication methods course was the research question for a study at a large Northeastern University (Tsay & Brady, 2010). Twenty-four undergraduate students, 40% male and 60% female, between the ages of 17 and 23 years participated in the study. The ethnicity of the students consisted of 87% Caucasian, 5% Asian, 3% African American, 2% Hispanic, 1% American Indian, and 2% with no indication of race. The four to six member groups remained consistent throughout the four-month study. All students completed a group project and several assessment tests. When assessing group members, each student was instructed to sit apart from his or her group members and use special number codes; in this way, all answers remained anonymous. Group assessments consisted of 13 items including motivation, competition, dependability, accountability, interactivity, and use of collaborative skills. Individual academic performance was measured by a series of readiness assessment tests (RATs). However, once the individual tests were turned in to the professor, the test was retaken as a group effort. The final grade for each student was calculated by taking the average (each worth 20%) of the individual RATs, the group RATs, the final project, mid-semester assignments related to the project, and in-class exercises. Significant positive relationships were found between student involvement in CL and the components assessing academic performance. However, the study did report some “resistance and
hostility from students who believed they were being held back by slower teammates” (Tsay & Brady, 2010, p. 86).

Although many studies appear to validate the effectiveness of CL on student achievement, research is starting to reveal that this strategy is not being utilized in today’s classrooms (Abrami et al., 2004; Lopata et al., 2003; McKinney & Frazier, 2008; Valli & Buese, 2007). In a study of 64 middle school teachers who taught mathematics in high poverty middle schools in a large southeastern metropolitan area, a high percentage of the teachers taught using traditional teaching practices (McKinney & Frazier, 2008). The study described high poverty schools as those in which at least 50% of the students qualified for free or reduced lunch. The group of teachers participated at a NCTM conference. Ethnicity of participants consisted of 24 Caucasian, 28 African-American, nine Hispanic, and four teachers identified as other ethnicity. Forty-three were female and twenty-one were male. Teachers’ years of experience ranged from three to 26 years. The researchers created a five-point Likert scale, which was composed of 44 traditional and alternative teaching practices and the option to write-in any additional practices utilized while teaching. Seventy-three percent of the teachers used drill and practice very frequently, and 59% of the teachers used teacher-directed instruction very frequently. Fifty-seven percent of the teachers used lectures very frequently, whereas only 23% used CL very frequently. Thirty percent seldom used differentiated instruction or cooperative learning. The authors called for changes in the practice of teachers of mathematics to a more student-centered, active-learning environment (McKinney & Frazier, 2008).
In a large school district in a mid-Atlantic state, researchers revealed teachers reporting less control over teaching strategies due to federal, state, and local mandates (Valli & Buese, 2007). One hundred fifty fourth- and fifth-grade teachers from 25 moderate to high level poverty schools were involved in a four-year study analyzing the role changes that took place due to external and internal forces. Teachers took part in interviews and were observed teaching in their classrooms. Interviews were audiotaped, transcribed, and coded through the use of NVivo software. Through the interviews and observations, it was evident that teacher roles had increased, expanded, and intensified. Teachers felt that too many special pullout programs, mandated groupings (not collaborative), pacing guides, and their role as data managers had taken the creativity and professionalism out of their job; hence, their instructional strategies were mandated and not teacher created (Valli & Buese, 2007).

Fish, who is promoting the use of CL for special education students, researched the reluctance of teachers to implement this strategy because he believed that “despite the benefits, cooperative learning is not implemented by a significant number of schools . . .” (Fish, 2006, p. 1). Fish strongly believes that, with the proper support, special education teachers will understand that CL is an effective strategy and a way to positively influence social and academic achievements for students with learning disabilities. After discussing numerous research studies, Fish (2006) concluded that a lack of teacher knowledge and training, a reluctance to change, and nonsupportive administrators hinder the execution of CL.

Social Studies professor, J. E. Schul believes that the barriers to implementing CL far outweigh the benefits (Schul, 2011). Schul (2011) explains that in his experience, the
most common complaint is frustration over some students not completing their tasks. In describing the skills needed to cooperate in a classroom and, ultimately, thrive in a democratic society, Schul (2011) explains that CL addresses the following areas: a concern for others, peaceful confrontation and negotiation, and developing diverse relationships. Schul (2011) believes that CL was designed for students to “overcome differences—whether they be racial, academic, or socioeconomic in nature . . .” (p. 92). In conclusion, he alludes to the belief that the culture of the learning environment is associated with the instructional strategies chosen by the teacher.

Several studies have examined the reasons teachers do not use CL (Ding et al., 2007; Gillies & Boyle, 2008; Gillies & Boyle, 2010; Koutselini, 2008-2009; Shimazoe & Aldrich, 2010; Thanh, 2011; Zakaria & Iksan, 2007). A study focusing on reluctance to implement CL at Chapel Hill in North Carolina reveals that a lack of students’ social skills and student resistance to CL impedes implementation (Shimazoe & Aldrich, 2010). To counter these barriers, the authors suggest taking the time to build well-thought out heterogeneous groups and assign roles to each group member. In addition, social skills should be taught before any CL activities are used in the classroom. The authors also include several benefits to teachers when implementing CL. An excellent example pertains to the idea that CL gives instructors more time to stand back and listen to what their students are saying. In this way, teachers have time to hear and comprehend his or her students’ misconceptions about the subject matter being taught (Shimazoe & Aldrich, 2010).

Barriers to implementation in Vietnamese schools revealed a concern about class size, noise, adequate coverage of recommended curriculum, group social skills, and a
shortage of teaching materials (Thanh, 2011). The study was part of a three-year project undertaken by researchers through the University of Queensland in Australia. Forty teachers and 40 students from 20 universities around Ho Chi Minh City, Vietnam participated in completing questionnaires on their perspectives, experiences, and any barriers they contended with when utilizing CL. When asked if they thought CL was effective, only 40% of the teachers and 35% of the students either strongly agreed or agreed. However, when asked if CL improved their personal skills, such as self-confidence and communication skills, 55% of the teachers and 50% of the students agreed that CL improved these skills. Several reported barriers dealt with traditional Vietnamese culture, such as the teacher holding the only correct point of view, passive attitudes, and the “didactic spoon-feeding” of material from teacher to student (Thanh, 2011, p. 7). Still, other barriers were also present in U. S. classes, such as problems with teachers being able to create effective groups, class size, and students not pulling their weight, known as the free-rider effect. In a reflection on the challenges of implementing CL in Malaysian schools, researchers reported five barriers: preparation of extra materials; anxiety of not covering the curriculum; distrust in students learning knowledge with peers; inadequate knowledge of CL; and absence of essential group skills (Zakaria & Iksan, 2006). The free-rider effect and “social loafing” was also noted in an undergraduate study at Seton Hall University in New Jersey (Stelzer & Coll-Reilly, 2010, p. 12). The study included six teams of five students who participated in the study by completing individual tests and team tests. Teams yielded higher test scores in the beginning of the study; however, by the end, team scores were only 1-2% higher than
individual scores. A disadvantage of the study may have been the decision to group the students alphabetically rather than in heterogeneous groups (Stelzer & Coll-Reilly, 2010).

An intervention study including middle school students discovered a reluctance to use CL based on the difficulty in creating coherent and interdependent groups (Koutselini, 2008-2009). The intention of the action research study was to change teachers’ attitudes and misconceptions of CL. Participants included 94 language, math, and physical education middle school teachers from Cyprus public schools. They met in intervention groups once a week for four hours, for a duration of six weeks. The action study meetings progressed in the following six weekly themes: descriptions of attitudes and misconceptions; completion of checklist pretest; simulation of group work and reflection on effects; actually experiencing cooperative learning; reflection on internal and external aspects of CL; and during the final session they reflected on the process and completed the checklist as a posttest. The Wilcoxon, a nonparametric test, was used to identify the statements that were statistically differentiated between the pretest and posttest checklists. Nineteen of the 23 questions yielded positive statistical differences from primarily negative to primarily positive. Besides the concern over creating coherent and interdependent groups, it was found that teachers feel uncertainty about receiving collaborative support from colleagues and supervisors (Koutselini, 2008-2009).

Grouping students was also cited as a barrier in implementing CL in a study of junior high school teachers in Australia (Gillies & Boyle, 2008). English and technology teachers volunteered to allow their 45-minute CL lessons and activities to be audiotaped. In addition, an observer stationed in the back of the classroom completed a classroom observation report. At the end of the study, one-hour individual interviews were
conducted with each of the teachers. Lessons followed the protocol proposed by the Johnson brothers. After all observations and recordings were transcribed, three themes emerged: group structure, behavior and social skills, and learning and thinking. The majority of issues raised concerned the grouping of students and included the importance of appropriate structuring of teams and teaching interpersonal skills needed to work together effectively (Gillies & Boyle, 2008).

Authors from the Middle School Mathematics Project (MSMP), a five-year longitudinal study for researching instructional strategies, studied videotaped cooperative learning lessons of 6 sixth-grade teachers (Ding et al., 2007). Three of the teachers were from Delaware, and the other three were from Texas. Four teachers held elementary teacher certificates, while the other two were certified at the middle school level. One teacher had a bachelor’s degree; the other five teachers had earned master’s degrees. Lessons ranged from 30 to 50 minutes, and class sizes ranged from 18 to 35 students. In addition to revealing that teachers are challenged in balancing peer resources and students’ independent thinking, the authors noted that teachers’ beliefs in CL as an effective teaching strategy needed to be cultivated. Teachers needed to be assured that CL deepened students’ learning through discovery and construction of their level of knowledge (Ding et al., 2007).

Staff development for teachers was the only characteristic that was correlated with teacher use of CL in a study of 130 teachers from 54 suburban elementary and middle schools in western New York State (Lopata et al., 2003). The study included anonymous surveys, which measured an exemplar teacher’s actual and preferred use of cooperative learning based on the model of David and Roger Johnson. Using a repeated
measure MANOVA, the results revealed that the teachers’ actual use of CL varied considerably from the preferred use of CL. Six characteristics were cross-referenced for association with actual use: school type, number of years teaching, number of years using CL, exposure to CL from books or journals, exposure to CL from graduate school, and exposure to CL through staff development (Lopata et al., 2003). Of these six characteristics, the only one associated with implementing cooperative learning was exposure to CL through staff development. This association, however, was only found for the component on individual accountability. There did not appear to be an association for face-to-face interaction, positive interdependence, or group process. Even though it may prove questionable that exemplar teachers are more likely to attend staff development and, therefore, are more skilled in different teaching strategies, this assumption does not correlate to exemplar teachers who have taken graduate courses. There appears to be a discrepancy between graduate courses and staff development that is not attributed to exemplar teachers. The researchers added that data was not collected on why CL was not used as often as teachers preferred, but they alluded to many factors including class size and students’ problem behaviors. They recommended future studies to search out the precise reasons for nonuse of CL (Lopata et al., 2003).

Utilizing expectancy theory to explain teacher decisions to implement collaborative learning was the basis for a study in Montreal. The results revealed teacher confidence, teacher skill, and student compliance were the keys to successful implementation (Abrami et al., 2004). The researchers included three factors into their theory of expectation: how high the strategy was valued by the teacher, the teacher’s expectancy of success, and whether the teacher believed the benefits offset the cost of
implementation. Nine hundred thirty-three teachers from primary, secondary, social affair, and adult/vocational schools located in Montreal, Quebec completed the cooperative learning implementation questionnaire (CLIQ). One of the most significant components of the CLIQ is that it included a definition of cooperative learning. Eleven percent of the teachers stated they never utilized CL in their classrooms, 61% used it part of the time, and 15% used it most of the time. When asked about individual interdependence, 61% of the respondents stated they utilized the structured approach when grouping their students. Sixty-five percent of the teachers believed their students stayed on task and 54% reported that most of their students completed all tasks (Abrami et al., 2004). Barriers appeared to include lack of knowledge, personal commitment, and support from colleagues. Among the users of CL, it appeared that teachers who believed in their own efficacy as teachers were more likely to implement different teaching strategies. Similar results were found according to a study of 502 teachers in 32 Dutch elementary schools (Thoonen, Sleegers, Oort, Peetsma & Geijsel, 2011). They found that teachers’ sense of self-efficacy was the dominant factor for explaining teaching practices. Furthermore, more experienced teachers tended to show more constructivist teaching practices. These researchers called for further research to examine the relative effects of teacher motivation, professional learning, and selected teaching practices.

This same study involved professional learning communities, which is a variation on collaborative learning, but for teachers. Professional development should take place in “a social and collaborative setting rather than in isolation . . .” (Dufour et al., 2008, p. 370). The Dutch researchers believe their results confirmed that professional learning communities had a positive effect on teacher motivation and teacher professionalism
McLaughlin and Talbert (2006) define professional learning communities as “places where teachers work collaboratively to reflect on their practice, examine evidence about the relations between practice and student outcomes, and make changes that improve teaching and learning for the particular students in their classes” (p. 4). Lieberman and Miller (2008) describe PLCs as groups where “new ideas and strategies emerge, take root, and develop, and where competence can be truly cultivated and nurtured” (p. 2). DuFour and DuFour (2005) emphatically proclaim, “researchers and professional organizations alike have come to endorse the professional learning community as our best hope for sustained, substantive school improvement” (p. 2). The National Commission on Teaching and America’s Future (NCTAF) encourages educators to transform their schools from “teaching organizations into learning organizations that can prepare today’s students for 21st century college, work, and civic engagement” (as cited in Carroll et al., 2010, para. 1). NCTAF’s research has shown the positive effects of PLCs on teacher collaboration and student achievement. In addition, the Commission’s belief is that teachers in weak communities prefer isolation, whereas teachers in strong communities are energized through collegiate support. Community is defined as “a group of educators who possess shared experience, offer mutual assistance, exhibit a common identity, agree on a joint vision, and espouse similar values” (Gates & Watkins, 2010, p. 272). Lumpe, editor of the Journal of Science Teacher Education, reports that school districts spend millions of dollars on “one shot” professional development workshops, which his research has shown to be ineffective (Lumpe, 2007, p. 125). He proposes that districts move toward professional learning communities. Lumpe (2007) describes how the Southwest Educational Development Laboratory (SEDL) has
identified the following attributes of professional learning communities: shared and supportive leadership, shared values and vision, collective learning and application, supportive conditions, and shared personal practice. Utilizing these five components, members of PLCs agree on the changes and improvements that need to be undertaken in order to attain the shared beliefs, visions and values of the group. Furthermore, they consent to supporting the school’s leadership by becoming actively involved in the collaborative effort of enacting these changes. Members advocate the use of student data to guide decisions and transformations to improve student learning. Lastly, teachers are encouraged to observe their colleagues’ teaching practices and to mentor each other in improving teaching techniques, strategies, and possibly increasing teacher efficacy.

Bandura (2000) conveys that as the perceived collective efficacy of a group increases so does the motivation, staying power, and accomplishments of the group. An advocate of Bandura’s theory, Lumpe (2007) has found that in professional learning communities a sense of collective efficacy is created, promoting an atmosphere that should result in creating a productive learning environment.

DuFour et al. (2005) believe that PLCs are characterized by three main “big ideas”: insuring that students learn, a culture of collaboration, and a focus on results (p. 32). Teacher surveys suggest, according to The American Institute of Research, that the majority of teachers appreciate meaningful collaboration with their colleagues (as cited in Coggshall, Behrstock-Sherratt, & Drill, 2011). In addition, schools report a higher achievement rate when teacher collaboration is high and strong professional communities are enacted (Coggshall, et al., 2011).
According to McLaughlin and Talbert (2006), most school systems fall into three categories: weak community, strong traditional community, and professional learning communities. It is relatively evident, as the name implies, that weak communities are more than likely unsuccessful schools. The critical comparison is that between the strong traditional community and the professional learning community. PLC schools believe that all children can achieve at high standards, whereas traditional communities believe the children differ in their ability to succeed. PLC schools believe children should take an active role in their learning versus a passive role. Pedagogy is not based on teacher transmission but on student knowledge and strategies such as cooperative learning. Assessments are based on performance and rubrics, not merely on paper and pencil tests. Professionally, teachers collaborate on teaching strategies, expertise, and mentoring rather than relying on testing policies and subjective area knowledge. Hord (2008), the SEDL administrator, advocates measuring the effect of a PLC by asking and discussing three questions:

1. What are you learning?
2. Why are you learning that?
3. How are you learning it?

She advocates that, if members discuss these questions in depth, the ensuing decision should improve student learning. In an article on research regarding professional development, five research analysts discuss several different studies that reveal that professional development should be “school-based” or “integrated into the daily work of teachers” (Wayne, Yoon, Zhu, Cronen, & Garet, 2008, p. 470). Furthermore, the team’s analysis of nine studies on the duration of professional development validated, with the
exception of one study, that at least 30 hours is needed to show a positive effect on student achievement. Researchers in Canada found that professional development resulted in increased student achievement when “the whole social context of the classroom becomes the primary and legitimate site of teacher professional learning on an ongoing basis” (Bruce et al., 2010, p. 1599).

A review of 11 studies describing the impact of PLCs in teaching practices and student learning validated that well-developed PLCs have a positive impact on both teaching practice and student achievement (Vescio et al., 2008). The review included a large study conducted by the faculty at the Universities of Bristol, Bath, and London which was published by the Department for Education and Skills in England. The research spanned a seven-year time frame and consisted of 10 American studies and one English study. The American studies included campuses of mixed-aged groups and low achieving African American children in elementary schools; several multisite studies that consisted of a total of 40 elementary, middle school, and high schools; and a study commissioned by the Annenberg Institute for School Reform. The studies ranged from early childhood, elementary, middle school, and high school teachers to college level professors. The premise of the study was to research in what ways teaching practices change as a result of participation in PLCs and what exactly supports these changes. Surveys and interviews were used to compare experimental groups to control groups, higher levels of participation to lower levels, and characteristics of PLCs across schools. All 11 studies referred to empirical data signifying a change in the professional culture of the school. Four areas were recognized as promoting a change in the teaching culture of the schools: collaboration, a focus on student learning, teacher authority, and continuous
learning of teachers (Vescio et al., 2008). Eight of the studies revealed significant gains in student achievement. These studies involved rural elementary school students, struggling second and third grade African American children, and underachieving middle school students. It appeared the strength of the PLCs had a direct effect on the level of student achievement: the stronger the PLC, the higher the student improvement. In all eight studies, it appeared that the common thread was a persistent focus on student learning and achievement by the teachers in the PLCs (Vescio et al., 2008).

The White River School District in Buckley, Washington transformed their entire school system into professional learning communities. Deputy Superintendent Keating spearheaded the effort after testing results and district scores in 2006 revealed their school system among the lowest in the state (Eaker & Keating, 2009). Following the design created by DuFour and Eaker, the school system created PLCs in each school. The results were overwhelming. By 2009, their students’ third-grade math scores and fourth-grade reading scores were ranked first out of 15 school districts. In addition, students’ third-grade reading and fourth-grade math scores were ranked second. Fifth-grade reading and math scores were ranked third out of the 15 districts. Furthermore, between 2006 and 2009 attendance in high school AP courses rose from 60 students to over 400 (Eaker & Keating, 2009). Graduation rates between 2007 and 2011 increased from 82.5% to 92% (Sexton, 2012). Deputy Superintendent Keating believes the results clearly stem from the implementation of PLCs across the district (Eaker & Keating, 2009).

The incentive for creating a professional learning community at Berrivale Primary School in Australia was to create a shared vision and to develop a whole-school approach
for their early childhood education program (Maloney & Konza, 2011). Twelve teachers and eight educational assistants, who taught 4 to 8 year olds, participated in an 18-month research project. Two researchers from Edith Cowan University and the deputy principal of the primary school served as cofacilitators. The first session took place on a Saturday at Edith Cowan University; subsequent sessions took place at Berrivale Primary School during the school day. A collaborative research grant paid for the out-of-school sessions and for substitutes during the school day sessions. Complications arose, such as the reluctance of some of the teachers to share their unpopular beliefs, some teachers who took a passive role while others dominated the discussions, and the lack of attendance by those who were least dedicated to the group. Nevertheless, for most teachers, the result was self-reflection and a renewed professional investment in impacting student outcomes. In addition, the original goal of the professional development was accomplished by developing an information book, which described effective early childhood practices at Berrivale. The information book was then distributed to families. The researchers at the university called for an increase in studies that researched professional learning communities and their impact on student achievement (Maloney & Konza, 2011).

One of the concepts explored in a study of two K-5 elementary schools located in the state of Washington was the divergence of community heteronomy and teacher autonomy (Gates & Watkins, 2010). While emphasizing the importance of teacher autonomy, the notion that the interest of individual teachers should benefit the community of learners established the foundation of both schools’ professional learning communities. After a reform movement, which created the PLCs in both elementary schools, reading and math scores increased during an eight year period. At the first
school, Discovery, 60% of the students were eligible for free and reduced-price lunch. Ethnicities included 55% Hispanic, 40% Caucasian, and 5% other. Reading scores increased from 45% meeting standard in 2000, to more than 80% meeting standard in 2007. Math scores increased from 20% meeting standard in 2000, to almost 60% in 2007. The second school, West Bend, reported similar outcomes. The student population of West Bend was comprised of 75% Hispanic, 20% Caucasian, and less than 5% of other ethnicities. Eighty percent of the student population was eligible for free and reduced-price lunch. Their reading scores increased from 30% meeting standard in 2000 to 70% in 2007. Their math scores jumped from less than 10% meeting standard to almost 60% meeting standard (Gates & Watkins, 2010). The researchers were mostly interested in which elements of the PLCs may have caused an increase in student achievement. After 30 formal open-ended interviews and over 100 hours of observations, a synthesis of the data revealed three recurring themes: emergent practice, congruent practice, and aligned practice. During weekly PLC meetings, the teachers engaged in discussions on how to modify their lessons, yet still benefit from teacher expertise to conform to state mandates and district adopted programs. In addition, they merged the concepts of teacher interest in student achievement with expected student outcomes of the district. Through aligned practice, they were motivated to search for differentiated instruction to promote individual student growth.

Still other studies continue to validate the potential for PLCs to affect student learning (Akerson et al., 2009; Falk-Ross et al., 2009; Lomos et al., 2011; Shernoff et al., 2011). An elementary school and a middle school in a suburban area south of Chicago conducted a study for one full year with three reading specialists and two
speech/language pathologists (Falk-Ross et al., 2009). The children were from families ranging from lower to upper-middle class, and ethnicities consisted of 60% African American, 32% Caucasian, and 10% Hispanic. Teachers met once a week for one to three hours to review, compare, and discuss student and teacher strengths and weaknesses, in addition to discussing strategies and supportive lessons. After discovering the advantages of sharing information, the teachers became more productive and provided more effective classroom-based reading strategies for the students. In addition, the experimental group, which received reading instruction followed by collaborative and cooperative instruction, earned significantly larger gains in test scores than did the comparison group (Falk-Ross et al., 2009).

Similar results were revealed in a 12-month professional development program for 15 K-6 science teachers. The teachers taught in three school districts located in rural and suburban Indiana, with a large percentage of their students qualifying for free and reduced-price lunch. Researchers developed a Community of Practice (CoP) based on a PLC model (Akerson et al., 2009). The group met regularly over an extended period of time, creating and sharing common goals and collaborating on work. They reportedly focused on teacher and student learning, teacher and staff goals, and support for each other’s ideas and endeavors. Also, the program included summer workshops and monthly workshops to emphasize ideas and encourage discourse among the members of the professional community. Teachers believed the support they received in their community of learners assisted in their growth and development as more effective science teachers (Akerson et al., 2009).
Concerned with teacher attrition at high-poverty urban schools in the Chicago area, the Institute of Education Sciences funded a three year study which created a multicomponent professional development model for urban early career teachers (Shernoff et al., 2011). The multi-components were group seminars, coaching, and PLCs and were based on Bandura’s social learning theory. The first year concentrated on the efforts to build the program at a kindergarten through eighth grade elementary school. Student demographics were described as 98% African American and 99% free and reduced-price lunch. The PLCs included all staff members and met once a month. Along with the PLCs, teachers were involved in group seminars and were mentored by coaches. After each PLC meeting, participants completed a 17-item yes/no checklist. At the conclusion of the first year, attendance records, fidelity tools, and coaching logs were scrutinized to check for implementation of the three components. Completion rates for PLCs were 88% and checklists indicated that more than 90% of the planned instructional strategies were utilized by the teachers. After final analysis of teacher reflection, three main themes emerged. These themes included teachers’ “belief that they were treated as professionals with expertise to share,” that they were given an opportunity to share ideas with colleagues, and that their time was respected (Shernoff et al., 2011, p. 13). In the second year of the study, two more schools were added to the model, which was revised by adding changes learned through the first year of implementation. The research study is currently making changes and implementing them across the schools in the experimental study. The schools’ “overarching theme” clearly indicated that all faculty members were responsible for the learning and teaching of each individual colleague (Shernoff et al., 2011, p. 6).
Supporting colleagues was the basis for a study involving math teachers and their students at 117 Dutch schools in the Netherlands (Lomos et al., 2011). The research was based on data from the TIMSS 2003 report and included test data for 2,706 students and 117 teachers. Based on the Mathematics Teacher Questionnaire and School Questionnaire, the researchers described the typical Dutch school: 54% of teachers discuss how to teach certain topics with their colleagues two or three times a month; 49% prepare materials together two or three times a month; 10% of the teachers observe colleagues teaching lessons; 55% believe a shared sense of purpose and a focus on student learning were moderately important in their schools; and 30% believed these two characteristics were extremely predominant in their schools. The schools were placed in four different categories dependent on their participation level in the five areas that define professional learning communities (Lomos et al., 2011). The first group, Professional community schools, comprised 34% of the schools. These schools scored high on shared sense of purpose, were intensely dedicated to student learning, shared reflective dialogue and collaborative practices with their colleagues, and met frequently to discuss best practices and prepare materials. The second group, Deprivatization of practice schools, represented only 11% of the schools. As the name describes, these schools scored high in deprivatization; therefore, their teachers emphasized collaboration in observing their colleagues’ teaching practices. The third group, Collaborative activity schools, was represented by 28% of the schools. The teachers in these schools scored minimal on four of the five professional learning community characteristics. Collaborating on preparing teacher materials was the only area in which they appeared to interact with one another. The last group, Non-professional community, made up 27% of the schools. As the name
implies, these teachers did not portray any of the five characteristics of PLCs. After using hierarchical linear modeling (HLM) to investigate the relationship between mathematics professional communities and student achievement, the *Professional community* schools’ students scored higher than students in the other groups. Additionally, the *Non-professional community* students scored the lowest out of the four groups (Lomos et al., 2011).

PLCs appear to create more effective teachers, possibly by improving their teacher efficacy to influence student learning (Akerson et al., 2009; Bruce et al., 2010; Ross & Bruce, 2007). In the 1970s, the RAND study, which was created to access the reading practices of teachers of low-income and minority children, revealed the concept of teacher efficacy (Tschannen-Moran & Johnson, 2011). Teacher efficacy involves the belief that a teacher possesses the ability to bring about desired student outcomes (Takahashi, 2011). It is a teacher’s self-assessment of his or her ability to support student learning (Bruce et al., 2010). It tends to be more a perception of ability rather than the actual extent of the teacher’s ability. Bandura (2006), through his social cognitive theory, indicates that self-efficacy is compliant and can undergo positive and negative changes dependent on circumstances. Teachers with high teacher efficacy believe that they can positively impact student achievement despite a possible range of perceived challenging circumstances, such as low socio-economic status of a student or a lack of resources. They believe they will be successful; therefore, they set higher goals for themselves, and their students try harder to achieve those goals. On the other hand, teachers with low efficacy believe that they have a limited ability to influence student learning and achievement. Since they believe they will fail, these teachers avoid expending effort
because failure after trying hard threatens self-esteem (Ross & Bruce, 2007). However, teacher efficacy does not directly create higher achievement. It operates indirectly by influencing teachers’ goal setting and persistence to use challenging teaching strategies that benefit students (Bruce et al., 2010). Studies have shown that collective teacher efficacy predicts higher student achievement regardless of socioeconomic status of students (Goddard, Hoy & Hoy, 2000).

Teacher efficacy usually falls within three categories: (a) duty, (b) interpersonal, and (c) organizational (Cayci, 2011). The first category, duty, pertains to writing lesson plans, creating ways to motivate students, and completing day to day activities. Interpersonal activities involve relationships with staff, faculty, and principals, as well as with students. The last, organizational, revolves around beliefs about the teaching profession. Elementary teachers’ self-efficacy appears to correspond with their attitudes towards the teaching profession; the more positive the attitude, the higher the teacher efficacy (Cayci, 2011). This belief was evident during a study conducted with 366 teacher candidates who attended the Nigde University Faculty of Education Elementary Teacher Training. Teacher candidates completed the Teacher Efficacy Scale by Gibson and Dembo and the Attitude Scale Regarding the Teaching Profession by Ozgur. First through fourth-year students completed the scales. As the teachers progressed through the program, their efficacy and attitudes increased at similar rates (Cayci, 2011).

Student teachers tend to improve their teacher efficacy during their student teaching experience (Evans, 2011; Gurvitch & Metzler, 2009; Ng, Nicholas, & Williams, 2010). However, research also reveals that self-efficacy declines during the first year of teaching. In a study of 53 prospective teachers in the Master’s of Education program at a
major mid-western public university, an increase in teacher efficacy during teacher preparation and student teaching was revealed. However, teacher efficacy decreased during the first year of teaching (Hoy & Spero, 2005). The average age of the participants was 25 years for the females (71%) and 30 years (29%) for the males. Out of the 53 prospective teachers, only 40 were teaching one year after completing their student teaching program. Questionnaires concerning teacher efficacy after the first year of teaching were returned by 29 of the 40 teachers. Student teachers completed the following questionnaires at the beginning of their teacher preparation program, after student teaching, and after their first year in the classroom: the Gibson and Dembo short form, the Teacher Efficacy Scale short form (created by Goddard, W. K. Hoy and A. W. Hoy), the Bandura Teacher Self-Efficacy Scale, and a researcher-created Teacher Confidence Scale. Participation was voluntary, and, to ease cross-referencing, participants created codes to print on each assessment scale. All four measures revealed a significant increase in efficacy from the beginning of the preparation program to the culmination of student teaching. Three of the four measures revealed a significant decrease in teacher efficacy after the first year of teaching. Only the researcher-created scale revealed a stabilization of efficacy after the first year of teaching (Hoy & Spero, 2005). In the same respect, a study of 648 teachers from 20 elementary schools in the states of Arkansas, Kansas, and Virginia suggested that novice teachers who start with a strong self-efficacy usually deepen their efficacy throughout their teaching careers. In contrast, teachers who start with a low self-efficacy tend to maintain this level throughout their careers, unless a strong intervention program is put in place (Tschannen-Moran & Johnson, 2011). Teachers completed the Teacher Sense of Efficacy Scale (TSES) and
Teacher’s Sense of Efficacy for Literary Instruction (TSELI). ANOVA and multiple regression were used to analyze the data. Demographics and number of years teaching did not appear related to teacher efficacy. However, vicarious experiences and verbal persuasion, especially those integrated into university courses, had strong correlations with increased teacher efficacy (Tschannen-Moran & Johnson, 2011).

Teacher and collective efficacy beliefs and how they relate to predicting commitment to the teaching profession were conducted through George Mason University (Ware & Kitsantas, 2007). The participants were 26,257 teachers and 6,711 principals who responded to the *Public School Teacher Questionnaire* and the *Public School Principal Questionnaire*. The authors quoted research that validated a teacher’s quality of performance and commitment to work is related to his or her level of motivation to influence student learning. They developed two efficacy scales: a *Collective Efficacy Scale* and a *Teacher Professional Commitment Scale*. After several levels of factor analyses using SPSS, a multiple linear regression was used to analyze the information. Results indicated that “commitment is enhanced when teachers believe they have efficacy to a) enlist the support of their principals, b) influence policies at their schools, and c) control their instruction” (Ware & Kitsantas, 2007, p. 305).

Improvements in teacher efficacy and professional actions are mutual, according to a study exploring the relationships between teacher professional learning, teaching efficacy, and student achievement (Bruce et al., 2010). The study took place in Canada and involved 88 teachers and 524 students from 46 schools in 15 school districts. Quantitative data included student achievement tests, teacher surveys at the beginning of the program, and teacher surveys at the end of the program. Qualitative data included
classroom observations, participant interviews, and notes from school and classroom-based professional development sessions. Professional development occurred through six, two-day sessions during the school year. The teachers, along with a facilitator, and at times, principals and superintendents, collaborated on learning goals and lesson plans. In addition, times to observe each other teaching common lessons were scheduled into the school day. After these observations, teachers discussed the outcomes, restructured the lessons, and taught the concept again. The authors of this study chose two distinct school districts out of the study to compare and contrast. Both districts were similar in size and both sets of teachers were apprehensive about the study. District A had started implementing PLCs in their district four years prior to this study, whereas District B’s professional development resembled the traditional approach. On the pretest, District B teachers revealed a higher teacher efficacy, and their students earned higher achievement scores than the students in District A. However, the posttest revealed that District A teachers gained more from the professional development than did District B teachers. In addition, District A students showed a larger increase in achievement than students in District B. Furthermore, scores of the students in District B flatlined from pretest to posttest. Through the observations and interviews, researchers noted an increase in contributions from the first to the last session from teachers in District A. Statistically, the facilitator decreased her talking time from 58% of the time to 41% and the teachers oral contributions increased from 9% to 36% (Bruce et al., 2010). Through the same qualitative data, District B teachers revealed an increase in their knowledge of how to implement a three-part lesson plan, including an activation stage, an action stage, and a consolidation stage. In addition, their discourse moved away from negative student
behavior to student mathematical reasoning. The researchers reason that District B’s teachers didn’t know enough about differentiated teaching practices to realize their knowledge base was low; therefore, they exhibited inflated teacher efficacy due to erroneous self-appraisal. For these teachers, professional learning was not as successful in improving their teaching abilities. In the same manner, District A teachers had previous knowledge of differentiated teaching practices and were more aware of their weaknesses (Bruce et al., 2010).

After participating in a two-year professional development study, only two out of four teachers emerged with a greater belief in their students’ potential for success; however, all four exhibited an increase in their feelings of self-efficacy (Pella, 2011). Four middle school language arts teachers, who were involved in their schools’ PLCs, were selected to participate in a two-year study designed by the Cooperative Research and Extensive Services for Schools (CRESS). The study took place during the 2008-2009 and 2009-2010 school years and involved the creation of lesson plans for teaching writing. The four teachers were selected from four diverse school districts. One was from a highly affluent upper class school district; one from a middle to upper class school district; one from a lower to middle class district; and the last from a lower class school district. The study was based on Vygotsky’s social learning theory and situated cognition theory, both of which are based on the premise that teaching and learning are social and situational. All participants met monthly, created lesson plans and teaching strategies, observed each other’s lessons, and communicated through email. Activities were audiotaped and monitored through extensive notes. Participants “synthesized and created
an equilibrium” of the diverse ideas exchanged, and they each “transformed” their ideas and perceptions of the pedagogy of learning and teaching writing (Pella, 2011, p. 122).

Increasing the teacher efficacy of mathematics teachers through a professional development study was conducted in a school district in Canada (Ross & Bruce, 2007). The study was a randomized field trial, which consisted of 106 grade six mathematics teachers. Their students came from average income homes, were mixed gender, with 15% considered special needs children, and 1% ELL. Teachers were involved with one full day of professional development, followed by three 2-hour after school sessions. After each session, each teacher taught his or her lesson using the information gleaned from the professional development, and then collected student data to share at the next session. Teacher efficacy levels were tested before the professional development and at the end of the professional development. Treatment teachers outperformed control-group teachers on three of four measures of teacher efficacy. They exhibited better classroom management and tended to set higher academic standards for all students, even the low achievers. In addition, teachers who scored higher on the teacher efficacy measures were more inclined to engage in innovative and novel teaching ideas, particularly strategies that are challenging and require that control of the classroom environment is shared with students (Ross & Bruce, 2007).

Merely increasing teacher efficacy may not be the answer. Teacher efficacy increased during a summer workshop developed to investigate individual and collective efficacy between two different types of school districts. However, it didn’t necessarily raise their belief in influencing student achievement (Zambo & Zambo, 2008). The study involved two groups of fourth- through tenth-grade teachers. Thirty-two teachers from a
low-performing school district and 31 from a high-performing school district participated in the two-week summer workshop on mathematical problem solving. Participants completed the *Collective Efficacy Questionnaire* designed by Goddard, Hoy, and Woolfolk-Hoy to measure group competence and contextual influence. The questionnaire was modified by inputting the word “math” for each question. To measure personal competence and personal level of influence, the teachers completed *Enoch & Riggs Elementary Science Efficacy Questionnaire*. The questionnaire was modified by inserting the word “math” in place of the word “science.” In addition to the two Likert-scale questionnaires, the teachers also participated in interviews with the researchers. Both groups indicated a significant gain in personal competence from the pretest to the posttest. However, only the low group had significant gains on group competence. Even though results show that the teachers gained personal efficacy, there was not a significant gain in the belief that they could influence an increase in student achievement (Zambo & Zambo, 2008).

A decrease in teacher efficacy in relation to an increase in the pedagogy of CL appeared in a study of 105 student teachers (Ruys et al., 2011). The teachers completed a questionnaire on self-efficacy, conceptions about CL, and knowledge of CL. After four 2-hour training sessions the teachers implemented the strategy. They completed the questionnaires four times during the one-year implementation period. Even though a small increase in teacher efficacy was evident, overall teacher efficacy decreased as the rate of implementation increased. Researchers believe that, as the teachers learned more about CL, they rated themselves as less positive in implementation. However, as skill development increased, so did teacher efficacy; the study appeared to yield mixed results.
The authors called for more research in the area of the knowledge and implementation of CL and teacher efficacy (Ruys et al., 2011).

Through a three-year Mathematics and Science Partnership grant by the U. S. Department of Education, 107 elementary and middle school science teachers participated in a professional learning communities study in North Carolina (Lakshmanan et al., 2011). Teachers participated in content area courses during the summer and met with their PLC group on a regular basis during the fall and spring. The study was initiated to investigate four main questions:

1. How did personal science teaching efficacy of participant teachers change over the duration of the professional development program?
2. How did science teaching outcome expectancy change during this time?
3. How did teacher instructional practice change over the duration of the program?
4. How were the changes in teacher efficacy and outcome expectancy related to the changes in instructional practice? (Lakshmanan et al., 2011, p. 535).

Teacher efficacy was assessed five times with the Science Teacher Efficacy Beliefs Instrument (STEBI). A total of 146 classroom observations were used to assess instructional practice of the teachers. Furthermore, surveys, focus groups, and interviews were conducted during the study. The PLC had a positive correlation with a higher level of self-efficacy and an enhanced desire to implement inquiry-based instruction. In other words, the collaboration that was shared through the PLC influenced teacher efficacy, which influenced teachers to choose differentiated teaching strategies. Studies similar to
this study, alluding to participation in PLCs influencing the choice of implementing different strategies, such as CL, are scarce in the literature.

Collaborative learning is a strategy that research has shown to be effective in successfully teaching our children. Research has pointed to several barriers to implementing CL; however, nothing appears to be consistent in why teachers choose not to use this strategy. A current trend today is the creation of professional learning communities. Research is starting to reveal how PLCs impact student learning and possibly increase teacher efficacy. Increased teacher efficacy may increase a teacher’s decision to implement differentiated teaching strategies including collaborative learning. However, studies suggesting the correlation between PLCs and an increase in teacher efficacy, which, in turn, could potentially influence a teacher’s decision to implement different teaching strategies, are missing from the research literature.
CHAPTER III

METHODOLOGY

Introduction

Collaborative learning is a strategy that research has shown to be effective in successfully teaching our children (e.g., Acar & Tarhan, 2007; Chen & Chuang, 2011; Kutnick et al., 2008; Madrid et al., 2007; Nuntrakune & Nason, 2009; Singh, 2010; Tarim, 2009; Tsay & Brady, 2010; Vaughn et al., 2011; Wilson-Jones & Caston, 2004). However, some studies assert CL is not being used enough in our classrooms (e.g., Abrami et al., 2004; Lopata et al., 2003; McKinney & Frazier, 2008; Valli & Buese, 2007). Recently, research has pointed to several barriers to implementing CL; however, it is unclear why teachers choose not to use this strategy (e.g., Ding et al., 2007; Fish, 2006; Gillies & Boyle, 2008; Koutselini, 2008-2009; Shimazoe & Aldrich, 2010; Thanh, 2011; Zakaria & Iksan, 2007). Some research has shown that teacher efficacy may play a part in which types of strategies a teacher uses in her classroom (e.g., Abrami et al., 2004; Lakshmanan et al., 2011; Ross & Bruce, 2007; Takahashi, 2011; Thoonen et al., 2011).

A current trend today is the creation of PLCs (e.g., Carroll et al., 2010; DuFour et al., 2005; DuFour & Marzano, 2011; Maloney & Konza, 2011; Vescio et al., 2008) and emerging research is beginning to reveal how PLCs impact student learning (e.g., Akerson et al., 2009; Bruce et al., 2010; Coggshall et al., 2011; Eaker & Keating, 2009; Falk-Ross et al., 2009; Gates & Watkins, 2010; Lomos et al., 2011; Shernoff et al., 2011; Vescio et al., 2008) and the possibility of increasing teacher efficacy (e.g., Bruce et al., 2010; Pella, 2011; Ross & Bruce, 2007; Takahashi, 2011; Tschannen-Moran & Johnson, 2011; Ware & Kitsantas, 2007). This study was designed to determine if a relationship
exists between the use of collaborative learning and participation in PLCs, teacher efficacy, knowledge of CL, or perceived barriers in implementing CL.

Research Design

The design of this research was quantitative and correlational. Multiple regression was used to analyze data for possible correlations between utilization of collaborative learning, the dependent variable, and the four independent variables: participation in PLCs, teacher efficacy, knowledge of CL, and perceived barriers in implementing CL. The sampling techniques utilized were convenience and voluntary.

Participants

The participants targeted were certified elementary school teachers in the states of Alabama and Mississippi. Schools were chosen by colleagues of the researcher who worked in the different school systems represented by their participants. Participation was voluntary.

Instruments

The researcher-created questionnaire *The Collaborative Learning Scale* (Appendix A), was utilized to measure the rate of utilization of CL and the four variables: participation in PLCs, teacher efficacy, knowledge of CL, and perceived barriers in implementing CL. The first section of the scale, questions one through five, was included for demographic purposes. The researcher was able to describe the participants in the areas of certification, number of years in teaching experience, and which grades they currently taught.

The second section of the scale, questions six through 10, was included to measure teacher knowledge of CL. Protocols of CL were taken from the practices of the
Johnson brothers (Johnson et al., 1994), Slavin (Slavin, 1995), and Kagan (Kagan, 1994), all of whom are recognized for their research in the field of CL. Question 6 referred to rules of usage while implementing CL. Question 7 was related to the assigning of student grades. Questions 8-10 pertained to group work versus collaborative group work. Questions 6-10 offered answer choices of yes, no, and not sure.

The third section of the scale, questions 11-14, were included to measure the utilization of CL. The answers to these four questions were essential while running the correlations between utilization of CL and the other four dependent variables. Question 11 determined how many years the educator had taught utilizing CL. Question 12 measured how often CL was implemented during the day. Question 13 determined how many days a week CL was implemented. Question 14 measured how often the educators shared their CL lesson plans with their colleagues.

Questions 15-20 were included strictly based on the literature review. Barriers which were common among several studies were incorporated into the questionnaire (Ding et al., 2007; Gillies & Boyle, 2008; Koutselini, 2008-2009; Shimazoe & Aldrich, 2010; Thanh, 2011; Zakaria & Iksan, 2007). Question 15 pertained to a lack of resources; question 16 to a lack of time to prepare; question 17 to a lack of time during the day to implement CL; question 18 referred to student behavior; question 19 to administrative support; and question 20 referred to the respect of colleagues. Teachers were instructed to choose one response that correlated to their rate of perception of each barrier. Questions 15-20 offered answer choices of strongly disagree, disagree, agree, or strongly agree.
Question 21 was included to measure whether a teacher participated in PLCs. If the respondent answered “yes,” they were instructed to answer questions 22-24, which were included to measure the connection between participation in PLCs and the use of differentiated teaching strategies. Questions 22-24 offered answer choices of strongly disagree, disagree, agree, or strongly agree. Research studies from the literature review suggested that teachers who participated in PLCs were more likely to use differentiated teaching strategies including CL (Coggshall et al., 2011; Thoonen et al., 2011; Vescio et al., 2008). If respondents answered “no” to question 21, he or she were instructed to skip questions 22-24 and move to question 25.

Questions 25 through 36 were taken directly from the Teacher’s Sense of Efficacy Scale (Appendix B) created by Megan Tschannen-Moran and Anita Woolfolk Hoy, from Ohio State University (Tschannen-Moran & Hoy, 2001). This scale was utilized to measure the degree of teacher efficacy of individual teachers (independent variable). The creation of this scale began by modifying items from the original Gibson and Dembo Teacher Efficacy Scale. Additional items were added after referring to a panel of experts in teacher efficacy research (Goddard et al., 2000). Tschannen-Moran and Hoy piloted their efficacy scale at 46 schools. After they completed their pilot study, the panel agreed the scale was a valid and reliable measure of teacher efficacy. After the initial pilot study, an additional study was conducted to test the criterion-related validity, predictive validity, and reliability of scores. Participants included 452 teachers in 47 randomly selected elementary schools in the Midwest. The alpha coefficient of reliability score was .96 (Goddard et al., 2000). The scale included 21 questions; however, in 2001 a short form of the test was developed with only 12 items. It was piloted and the validity
and reliability results were equivalent to the long form (Tschannen-Moran & Hoy, 2001). The short form of the *Teacher’s Sense of Efficacy Scale* was utilized in this study. Efficacy in student achievement was answered with questions 26, 27, 28, and 35. Efficacy in instructional strategies was answered with questions 29, 33, 34, and 36. Efficacy in classroom management was answered with questions 25, 30, 31 and 32.

*The Collaborative Learning Scale* questionnaire was sent to a panel of experts, which included a special education teacher, a classroom teacher, a social worker, and an elementary school principal. Changes were suggested and recommendations were implemented before IRB approval. After IRB approval for pilot and study from The University of Southern Mississippi (Appendix C), a pilot study of 20 teachers was conducted. To establish validity and reliability, data collected from the pilot study was entered into SPSS and a Cronbach’s alpha score of .744 was calculated.

**Procedures**

Permission to distribute and collect completed questionnaires was received from the superintendents of five school districts in the states of Alabama and Mississippi. The researcher visited each of the participating schools and presented either the principal or the designated teacher representative with the questionnaires, along with pencils, a sealed container for completed questionnaires, a self-addressed mailing envelope and a dish of candy. In two of the school districts, the researcher returned to the schools ten days after leaving the questionnaires and retrieved the sealed containers. In the other three districts the sealed containers were mailed back to the researcher in self-addressed stamped mailing boxes.
Six weeks after distributing the questionnaires, the researcher sorted the completed questionnaires into two groups: acceptable or unacceptable. Those deemed unacceptable contained at least one unanswered question. Three percent of the completed questionnaires were not used due to incomplete answers. Acceptable questionnaires were numbered in the upper right hand corner and data were entered into an excel document.

Data Analysis

Data were transported to an SSPS statistical software file, variables were coded and a multiple regression analysis was executed. Data and correlations were analyzed and interpreted using a criterion of significance set at an alpha of .05 and analyzed to answer the following questions:

1. Is there a relationship between the utilization of collaborative learning and participation in professional learning communities of classroom teachers as measured by The Collaborative Learning Scale?

2. Is there a relationship between the utilization of collaborative learning and teacher efficacy of classroom teachers as measured by The Collaborative Learning Scale?

3. Is there is relationship between the utilization of collaborative learning and knowledge of collaborative learning of classroom teachers as measured by The Collaborative Learning Scale?

4. Is there a relationship between the utilization of collaborative learning and additional perceived barriers of classroom teachers as measured by The Collaborative Learning Scale?
5. Is there a relationship between participation in professional learning communities and higher teacher efficacy as measured by *The Collaborative Learning Scale*?
CHAPTER IV
ANALYSIS OF DATA

Introduction

The purpose of this study was to determine if a correlation existed between the use of collaborative learning (CL) and either participation in professional learning communities (PLCs), teacher efficacy, knowledge of CL, or perceived barriers in implementing CL. The study included one dependent variable, utilization of CL, and four independent variables. The dependent variables were participation in PLCs, level of teacher efficacy, knowledge of CL, and perceived barriers in implementing CL. One hundred twenty-nine kindergarten through sixth-grade teachers from five school districts in two southern states completed the researcher-created *The Collaborative Learning Scale* and Hoy’s *Teacher’s Sense of Efficacy Scale* (short version). Four questionnaires were incomplete and therefore not included in the study.

Descriptives

Descriptive statistics for the 125 participants are displayed in Table 1 and Table 2. Respondents were instructed to choose all categories that applied to their current teaching situation. A smaller proportion of the teachers (42%) taught Kindergarten through grade two, while a little more than half (58%) of the teachers taught third through sixth grade. Approximately half of the teachers (46%) had taught for 1-10 years, with slightly more than half (54%) having taught for 11-20 plus years. A larger percent (56.8%), possessed a bachelor’s degree, with less than half (43.2%) possessing a degree beyond a bachelor’s. The majority of teachers (77%) earned their degrees in the past 20 years and, within this
group, half graduated in the past 11 years. Three-quarters of the teachers possessed at least elementary regular education certification.

Table 1

Descriptive Data for Participants (Single Response)

<table>
<thead>
<tr>
<th>Years Taught</th>
<th>n</th>
<th>%</th>
</tr>
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<tbody>
<tr>
<td>1-3</td>
<td>15</td>
<td>12.0</td>
</tr>
<tr>
<td>4-6</td>
<td>16</td>
<td>12.8</td>
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<tr>
<td>7-10</td>
<td>26</td>
<td>20.8</td>
</tr>
<tr>
<td>11-19</td>
<td>41</td>
<td>32.8</td>
</tr>
<tr>
<td>20+</td>
<td>27</td>
<td>21.6</td>
</tr>
</tbody>
</table>

Degree

- Bachelor: 71, 56.8%
- Master: 52, 41.6%
- Specialist: 2, 1.6%

Year Degree Earned

- Earlier than 1970: 7, 5.6%
- 1970-1979: 4, 3.2%
- 1980-1989: 18, 14.4%
- 1990-1999: 32, 25.6%
- 2000-2011: 64, 51.2%
Table 2
*Descriptive Data for Participants (Multiple Responses)*

<table>
<thead>
<tr>
<th>Grade Taught</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>K</td>
<td>23</td>
<td>14.0</td>
</tr>
<tr>
<td>1&lt;sup&gt;st&lt;/sup&gt;</td>
<td>24</td>
<td>14.6</td>
</tr>
<tr>
<td>2&lt;sup&gt;nd&lt;/sup&gt;</td>
<td>22</td>
<td>13.4</td>
</tr>
<tr>
<td>3&lt;sup&gt;rd&lt;/sup&gt;</td>
<td>26</td>
<td>15.9</td>
</tr>
<tr>
<td>4&lt;sup&gt;th&lt;/sup&gt;</td>
<td>30</td>
<td>18.3</td>
</tr>
<tr>
<td>5&lt;sup&gt;th&lt;/sup&gt;</td>
<td>28</td>
<td>17.1</td>
</tr>
<tr>
<td>6&lt;sup&gt;th&lt;/sup&gt;</td>
<td>11</td>
<td>6.7</td>
</tr>
</tbody>
</table>

Certification

<table>
<thead>
<tr>
<th>Certification</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elementary</td>
<td>71</td>
<td>39.2</td>
</tr>
<tr>
<td>K8</td>
<td>65</td>
<td>35.9</td>
</tr>
<tr>
<td>Special Education</td>
<td>17</td>
<td>9.4</td>
</tr>
<tr>
<td>Other</td>
<td>28</td>
<td>15.5</td>
</tr>
</tbody>
</table>

Four questions pertained to teacher utilization of collaborative learning:

1. Approximately how many years have you taught using CL?
2. Approximately how many lessons a day do you use CL in your classroom?
3. Approximately how many days a week do you use CL in your classroom?
4. Approximately how many times a week do you share CL lesson plans with your colleagues?

Out of the 90% of teachers who utilized CL, two-thirds reported utilizing it for at least one lesson, three or more times per week for at least five years. However, one-third of the teachers admitted they did not share their lesson plans with their colleagues. Table 3 displays a summary of these data.

Table 3

*Utilization of CL*

<table>
<thead>
<tr>
<th>Question</th>
<th>None</th>
<th>1-2</th>
<th>3-4</th>
<th>5+</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lessons a day</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td></td>
<td>14</td>
<td>11.2</td>
<td>78</td>
<td>62.4</td>
</tr>
<tr>
<td>Days a week</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td></td>
<td>12</td>
<td>9.6</td>
<td>35</td>
<td>28.0</td>
</tr>
<tr>
<td>Share plans</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td></td>
<td>45</td>
<td>36.0</td>
<td>60</td>
<td>48.0</td>
</tr>
<tr>
<td>Years of use</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td></td>
<td>12</td>
<td>9.6</td>
<td>20</td>
<td>16.0</td>
</tr>
</tbody>
</table>

Five questions pertained to teacher knowledge of collaborative learning:

1. Collaborative learning requires a teacher to strictly follow a set of regulations (the answer is “no”).

2. When a teacher implements CL in the classroom, all the students in a group must share the same grade (the answer is “no”).
3. A teacher places her students in groups and shows a movie; are they using
CL? (the answer is “no”).

4. A teacher places her students in planned heterogeneous groups, teaches a
lesson, and allows the students to assist each other in completing their
assignment; are they using CL? (the answer is “yes”).

5. A teacher places her students in groups, distributes manipulatives, and
instructs her students to solve math word problems individually; are they
using CL? (the answer is “no”).

Approximately 75% of the teachers correctly answered all five questions.

However, depending on the question, between 8-15% did not answer each question by
indicating they were not sure of the answer. Table 4 displays a summary of these data.

Table 4

*Knowledge of CL*

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
<th>No</th>
<th>Not Sure</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
</tr>
<tr>
<td>Strictly follows a set of rules</td>
<td>14</td>
<td>11.2</td>
<td>92</td>
</tr>
<tr>
<td>Must share the same grade</td>
<td>4</td>
<td>3.2</td>
<td>107</td>
</tr>
<tr>
<td>Groups plus movie</td>
<td>13</td>
<td>10.4</td>
<td>93</td>
</tr>
<tr>
<td>Groups and no assistance</td>
<td>21</td>
<td>16.8</td>
<td>94</td>
</tr>
<tr>
<td>Groups and assistance</td>
<td>101</td>
<td>80.8</td>
<td>13</td>
</tr>
</tbody>
</table>
Six questions pertained to perceived barriers in implementing CL:

1. If there were more resources available, I would implement this strategy more often.
2. If there was more time available to prepare for CL instruction, I would implement it more often.
3. If I had more time during the day to implement CL, I would use it more often.
4. If I was not concerned with student behavior while implementing CL, I would use this strategy more often.
5. Even if my administration did not support CL, I would still implement this strategy in my classroom.
6. The opinions of my colleagues prevent me from implementing CL.

More than two-thirds reported that four of the stated barriers prevented them from implementing CL. However, less than 25% reported administration as a barrier and even fewer (4%) believed their colleagues’ approval was a barrier. Table 5 displays a summary of these data.

Table 5

Perceived Barriers to Utilization of CL

<table>
<thead>
<tr>
<th>Question</th>
<th>S. Disagree</th>
<th>Disagree</th>
<th>Agree</th>
<th>S. Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>Resources</td>
<td>6</td>
<td>4.8</td>
<td>22</td>
<td>17.6</td>
</tr>
<tr>
<td>Preparation</td>
<td>5</td>
<td>4.0</td>
<td>13</td>
<td>10.4</td>
</tr>
</tbody>
</table>
Table 5 (continued).

<table>
<thead>
<tr>
<th>Question</th>
<th>S. Disagree</th>
<th>Disagree</th>
<th>Agree</th>
<th>S. Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>Time during</td>
<td>4</td>
<td>3.2</td>
<td>11</td>
<td>8.8</td>
</tr>
<tr>
<td>Student behavior</td>
<td>5</td>
<td>4.0</td>
<td>34</td>
<td>27.2</td>
</tr>
<tr>
<td>Administration</td>
<td>3</td>
<td>2.4</td>
<td>21</td>
<td>16.8</td>
</tr>
<tr>
<td>Colleagues</td>
<td>47</td>
<td>37.6</td>
<td>73</td>
<td>58.4</td>
</tr>
</tbody>
</table>

Four questions pertained to participating in professional learning communities (PLCs):

1. I participate in PLCs at my school.
2. I use more differentiated instruction because of participating in PLCs.
3. I enjoy encouraging other teachers to implement CL because of participating in PLCs.
4. I believe in my abilities to teach with new strategies because of participating in PLCs.

Sixty percent of the teachers participated in PLCs. Of these teachers, an average of 80% reported that PLCs made a positive impact on the three areas included on the questionnaire. Table 6 displays a summary of these data.
Table 6

*Participation in PLCs*

<table>
<thead>
<tr>
<th>Question</th>
<th>Disagree</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$n$</td>
<td>$%$</td>
</tr>
<tr>
<td>Differentiated Instruction</td>
<td>13</td>
<td>17.6</td>
</tr>
<tr>
<td>Encouraging Colleagues</td>
<td>14</td>
<td>18.9</td>
</tr>
<tr>
<td>Increased Abilities</td>
<td>9</td>
<td>12.2</td>
</tr>
</tbody>
</table>

Hoy’s *Teacher’s Sense of Efficacy Scale* (short version) consisted of 12 questions:

1. How much can you do to control disruptive behavior in the classroom?
2. How much can you do to motivate students who show low interest in school work?
3. How much can you do to get students to believe they can do well in school work?
4. How much can you do to help your students value learning?
5. To what extent can you craft good questions for your students?
6. How much can you do to get children to follow classroom rules?
7. How much can you do to calm a student who is disruptive or noisy?
8. How well can you establish a classroom management system with each group of students?
9. How much can you use a variety of assessment strategies?
10. To what extent can you provide an alternative explanation or example when
students are confused?

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

12. How well can you implement alternative strategies in your classroom?

Over 80% of the respondents reported they had “quite a bit” to “a great deal” of control over the 12 targeted topics. The subscale scores for the three main areas of efficacy are displayed in Table 7.

Table 7

*Teacher Efficacy Subscale Means*

<table>
<thead>
<tr>
<th>Question</th>
<th>Very Little</th>
<th>Some</th>
<th>Quite a Bit</th>
<th>A Great Deal</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>Engagement</td>
<td>4</td>
<td>3.2</td>
<td>22</td>
<td>17.8</td>
</tr>
<tr>
<td>Instruction</td>
<td>2</td>
<td>1.2</td>
<td>17</td>
<td>13.4</td>
</tr>
<tr>
<td>Management</td>
<td>1</td>
<td>0.8</td>
<td>13</td>
<td>10.6</td>
</tr>
</tbody>
</table>

Table 8 summarizes the descriptive statistics for the five areas explored on the survey instrument: utilization, knowledge, and perceived barriers to implementing CL, along with participation in PLCs and teacher self-efficacy. The minimums and maximums are in parentheses after each area surveyed. All frequencies are 125 except for PLCs; only those respondents (74) who participated in PLCs completed this section. All standard deviations are less than one, except for knowledge of CL.
Table 8

Means and Standard Deviations of Surveyed Areas

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Utilization (1.0-4.25)</td>
<td>2.58</td>
<td>.72</td>
</tr>
<tr>
<td>Knowledge (0.0-5.0)</td>
<td>3.90</td>
<td>1.16</td>
</tr>
<tr>
<td>Barriers (1.5-3.83)</td>
<td>2.81</td>
<td>.43</td>
</tr>
<tr>
<td>PLC’s (2.0-4.0)</td>
<td>2.96</td>
<td>.41</td>
</tr>
<tr>
<td>Self-Efficacy (5.0-9.0)</td>
<td>7.81</td>
<td>.78</td>
</tr>
</tbody>
</table>

After completing the questionnaire, respondents were given the opportunity to add comments that they believed could supplement or enhance the study. Thirteen respondents (10%) wrote additional comments. Generally, the comments addressed the necessity for PLCs in schools and for ancillary time to implement CL. For example, one teacher commented that she was grateful that her principal was finally taking the time to implement PLCs. Another teacher stated that if she was given more planning time she would implement CL on a daily basis for most of her lessons.

Test of Hypotheses

Hypothesis 1: Is there a relationship between the utilization of collaborative learning and participation in professional learning communities of classroom teachers as measured by The Collaborative Learning Scale?

Results of the analysis indicated a significant relationship between the utilization of collaborative learning and participation in professional learning communities. A
Pearson’s correlation coefficient was calculated for the relationship between utilization of CL and participation in PLCs. A positive correlation was found \( r(72) = .410, p < .001 \), indicating a moderate linear relationship between the two variables.

Hypothesis 2: Is there a relationship between the utilization of collaborative learning and teacher efficacy of classroom teachers as measured by The Collaborative Learning Scale?

Results of the analysis indicated a significant relationship between utilization of collaborative learning and teacher efficacy. A Pearson’s correlation coefficient was calculated for the relationship between utilization of CL and teacher efficacy. A positive correlation was found \( r(123) = .306, p < .001 \), indicating a weak linear relationship between the two variables.

Hypothesis 3: Is there is relationship between the utilization of collaborative learning and knowledge of collaborative learning of classroom teachers as measured by The Collaborative Learning Scale?

Results of the analysis indicated that there was a significant relationship between utilization of collaborative learning and teacher knowledge of collaborative learning. A Pearson’s correlation coefficient was calculated for the relationship between utilization of CL and teacher knowledge. A positive correlation was found \( r(123) = .226, p < .001 \), indicating a weak linear relationship between the two variables.

Hypothesis 4: Is the re a relationship between the utilization of collaborative learning and additional perceived barriers of classroom teachers as measured by The Collaborative Learning Scale?

Results of the analysis indicated that there was not a significant relationship
between utilization of collaborative learning and teacher perceived barriers to implementing collaborative learning. A Pearson’s correlation coefficient was calculated for the relationship between utilization of CL and teacher perceived barriers. A correlation was not found ($r(123) = -.031, p < .001$), indicating no linear relationship between the two variables.

Hypothesis 5: Is there a relationship between participation in professional learning communities and higher teacher efficacy as measured by *The Collaborative Learning Scale*?

Results of the analysis indicated no significant difference between the two groups ($t(121) = .587, p = .558$). An independent samples T-test was calculated comparing the mean score of self-efficacy for teachers who participated in PLCs to the mean score of self-efficacy for teachers who did not participate in PLCs. The mean of the self-efficacy score for PLC participation ($m = 7.85, sd = .81$) was slightly higher, yet not significantly higher, than the mean of the self-efficacy for PLC nonparticipation ($m = 7.76, sd = .74$).

Statistical analysis was conducted using multiple regression to determine if a significant correlation existed between utilization of CL, the dependent variable, and the four independent variables: participation in PLCs, teacher efficacy, knowledge of CL, and perceived barriers in implementing CL. The model summary indicated that 27% ($R^2=.267$) of the variability in the dependent variable could be explained by the IVs in our model. ANOVA results indicated that the overall model is significant ($F(4,69) = 6.288, p<.001$), meaning that all IVs, considered as a group, have a significant effect on the utilization of CL. PLCs and self-efficacy had the greatest statistical impact on utilization of CL (Table 9).
Table 9

*Coefficients*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Unstandardized Coefficients (B)</th>
<th>Standardized Coefficients (β)</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>-.533</td>
<td>.626</td>
<td></td>
</tr>
<tr>
<td>PLC’s</td>
<td>.530</td>
<td>.313</td>
<td>.006</td>
</tr>
<tr>
<td>Self-efficacy</td>
<td>.271</td>
<td>.316</td>
<td>.006</td>
</tr>
<tr>
<td>Knowledge</td>
<td>.015</td>
<td>.023</td>
<td>.840</td>
</tr>
<tr>
<td>Barriers</td>
<td>-.184</td>
<td>-.101</td>
<td>.370</td>
</tr>
</tbody>
</table>

**Summary**

Results of the data analysis indicated a moderate correlation between participation in PLCs and implementation of CL, and a weak correlation between teacher self-efficacy and implementation of CL. Yet there was not a significant difference in the correlation between participants and nonparticipants of PLCs and teacher sense of self-efficacy. A weak linear relationship did exist between teacher knowledge of CL and implementation, however, there was not a significant relationship between utilization of CL and teacher perceived barriers to implementing CL.
CHAPTER V
DISCUSSION

Introduction

Numerous empirical and scientifically based research studies continue to show the validity of collaborative learning (e.g., Chen & Chuang, 2011; Tsay & Brady, 2010; Vaughn et al., 2011). Along with these findings, some studies reveal CL is being underutilized in today’s classrooms (e.g., McKinney & Frazier, 2008; Valli & Buese, 2007), while other studies (e.g., Gillies & Boyle, 2008; Shimazoe & Aldrich, 2010; Thanh, 2011) reveal barriers in implementing collaborative strategies. The intent of this study was to add to the literature by verifying barriers and potential solutions to overcome these obstacles. Two probable solutions were considered: PLCs and teacher efficacy. Research has shown that teachers who participate in PLCs have the ability to raise student achievement (e.g., Akerson et al., 2008; Bruce et al., 2010; Coggshall et al., 2011). In addition, recent research indicates that a teacher’s self-efficacy plays a role in whether or not the teacher utilizes differentiated instruction (e.g., Lakshmanan et al., 2011; Ross & Bruce, 2007; Thoonen et al., 2011). If research continues to validate a correlation between participation in PLCs and enhanced teacher efficacy, with greater implementation of CL, possibly administration can begin the process of bringing CL into all classrooms.

Based on Bandura’s social learning theory, Vygotsky’s social development theory, and Lewin’s social interdependence theory, this research was conducted to inquire on possible correlations between implementation of CL by elementary classroom teachers and participation in professional learning communities (PLCs), teacher efficacy,
knowledge of CL, and/or perceived barriers in implementing CL. One hundred twenty-five kindergarten through sixth-grade teachers from five school districts in two southern states completed a 30-question survey instrument. The questionnaire covered demographics, use of CL, perceived barriers to CL, participation in PLCs and degree of teacher efficacy.

Interpretation of Findings

This study revealed a moderate correlation between participating in PLCs and the implementation of CL. An increase in participation in PLCs appeared to cause an increase in implementation of CL. Teachers attributed their increase in the use of differentiated instruction, enjoyment in encouraging their colleagues to implement CL, and a belief in their abilities to teach with new strategies, to their participation in PLCs. According to the literature (e.g., Carroll et al., 2010; DuFour et al, 2005; Lieberman & Miller, 2008) adults, just like children, need social interaction through observation and modeling in order to process information and ultimately apply old and new knowledge to enrich their intellectual and social processing skills. As these teachers noted, PLCs offer teachers an engaged time to self-reflect, modify their lessons, benefit from colleague expertise, and motivate each other to search for differentiated instruction (Gates & Watkins, 2010; Maloney & Konza, 2011). PLCs have been described as a way of “freeing teachers from their isolation” (Carroll et al., 2010, p.2) and “encouraging teachers to recognize and share the best of what they already know” (Schmoker, 2006, p. 109). In this way, PLCs offer teachers the opportunity to socialize and ultimately to share their teaching strategies.
This study revealed a significant correlation with enhanced teacher efficacy and the implementation of CL. Teachers’ responses confirmed the research literature in that, as self-efficacy increased, the implementation of CL increased. Respondents rated themselves as high in all three areas of the efficacy scale. It is important to remember that self-efficacy is a measure of perception as opposed to actual level of competence. The majority of the teachers perceived themselves as not only capable of controlling these factors in their school setting, but also, sensing the power to control situations in their current environment.

A correlation between participation in PLCs and higher teacher efficacy was not validated through this study. While separately, self-efficacy and participation in PLCs had the greatest statistical impact on whether or not a teacher implemented CL, they did not correlate with each other. Even though self-efficacy was slightly higher for the group of teachers who participated in PLCs, the difference was negligible. Some research shows that teachers tend to overrate their own self-efficacy (e.g. Cayci, 2011; Ross & Bruce, 2007). However, other studies have indicated that teachers with a higher knowledge base tend to rate themselves lower in self-efficacy due to their belief that they have not attained the level they aspire to accomplish in their teaching skills (e.g., Ruys et al., 2011; Tschannen-Moran & Johnson, 2011). Nevertheless, in this study it appears that PLCs may not actually increase the self-efficacy of teachers.

The majority of teachers reported utilizing CL for at least one lesson, three to four times a week. Research is not consistent on the frequency of utilization; however, various studies (e.g., Madrid, et al., 2007; Nuntrakune & Nason, 2009) indicated that CL needs to be implemented on a consistent daily basis over a period of several weeks to
increase academic gains. Therefore, the limited teaching time revealed through this questionnaire may not be sufficient to attain academic gains in student achievement. However, these data were gathered for use in generating correlations between the dependent variable of utilization to the four independent variables. In this study, approximately 10% of the teachers did not utilize CL and approximately 62% utilized it on a part-time basis. In contrast, a study conducted in 2004 revealed similar statistics (Abrami et al., 2004). At least in these studies, it would appear that the number of teachers utilizing CL did not change between 2004 and 2012. The last question in section four pertained to teachers sharing their lesson plans. The majority of teachers reported that they either did not share their CL lesson plans with their colleagues or only did so once a week. As discussed earlier, teachers who participated in PLCs increased their sharing of lesson plans.

This study validated the literature pertaining to the lack of implementation based on teacher knowledge of CL. As teacher knowledge increased, so did implementation of CL. However, it should be noted that the relationship was weak and a concern involving the answer, not sure, by a small minority of teachers should be noted. Perhaps, if the respondents had not had this option, they would have answered the questions correctly based on their existing knowledge. However, considering they marked the answer, not sure, they may not have known the correct answer. In addition, considering that half of the teachers started teaching in the last ten years, the argument that a lack of teacher experience could contribute to the deficiency in the implementation of differentiated teaching strategies. According to a study in Dutch elementary schools, more experienced teachers tended to show more constructivist teaching practices (Thoonen et al., 2011).
There was not a significant correlation in perceived barriers and implementation of CL, which in some ways validated the literature. The literature continues to be inconsistent on whether barriers actually hinder teachers from implementing CL. However, there seems to be a slight decrease in implementation with an increase in perceived barriers. It should be noted that the majority (80%) of teachers would still implement CL even if their administration did not support it. Furthermore, an even higher percentage of teachers did not believe the opinions of their colleagues prevented them from implementing CL. This information is in direct contrast to what is reported in several of the studies in the research literature (e.g., Abrami, 2004; Thoonen et al., 2011). Perhaps, the answer lies in the high level of teacher efficacy revealed from the respondents in this study. In addition, as Gillies reiterates, “although the benefits of cooperative learning are well documented, implementing this pedagogical practice in classrooms is a challenge,” (Gillies et al., 2007, p. 2) teachers are challenged in implementing CL. Therefore, possibly the lack of teacher knowledge in overcoming these barriers is a probable cause for the lack of implementation. This in turn, supports the recommendation for the enactment of PLCs to increase the knowledge of teachers in collaborative learning instruction.

Limitations
At the beginning of this study, three delimitations were identified:

1. selection of teachers was delimited to those who were teaching kindergarten through sixth-grade during the spring of 2012,

2. the sample population was delimited to the geographical region of two southern states, and
3. data collection was delimited to survey method.

Limitation two was restricted even further when the superintendents from two school districts decided not to grant permission for the study. Therefore, the sample population was actually limited to the geographical region of two southern states. At the completion of the study, through comments written on the questionnaire, it appeared some of the respondents were not familiar with professional learning communities. Therefore, teachers who didn’t actually participate in PLCs may have answered questions erroneously and therefore skewed the results.

Recommendations for Practice and Policy

This research was designed to determine if professional learning communities and teacher self-efficacy were possible solutions to an apparent insufficient use of collaborative learning. Considering the data revealed a moderate correlation between participation in PLCs and implementation of CL, it appears advantageous for administrators to initiate an agenda to include PLCs into their professional development portfolios. Through these PLC sessions, a need for interdependence among teachers and staff should be fostered (DuFour et al., 2005; McLaughlin & Talbert, 2006; Thoonen et al., 2011). A concern revealed through the answers on the questionnaire was the reporting of sharing lesson plans. According to this study, the majority of teachers did not share their lesson plans or did so on a limited basis. Perhaps, through participation in PLC’s, teachers will appreciate the opportunity to collaborate with their colleagues and assist in enriching each other’s lesson plans. According to The American Institute of Research, teachers’ surveys suggest that the majority of teachers appreciate meaningful collaboration with their colleagues (Cogshall et al., 2011). However, Blankstein doesn’t
believe that collaboration was “natural or common” in our schools and asserted that collaboration be cultivated through leadership (Blankstein, 2010, p. 159).

Creating collaborative cultures should start with the superintendents and gravitate down to the principals and directly to the teachers (DuFour et al., 2008; Schmoker, 2006). Research has found an increase in student achievement when schools have created cultures of collaboration (Fullan, 2008). Fullan (2008) states if principals create this culture then they will in turn create a leadership team that will continue this culture for generations. Reeves reiterates with the thought that, collaboration should be the focus of the school district and should be thought of as “the way we do business” (Reeves, 2006, p. 104).

Research has also shown an increase in self-efficacy when teachers come together and collaborate (e.g., Bruce et al., 2010; Pella 2011). Data in this study revealed a correlation between teacher efficacy and an implementation of CL. By enhancing individual self-efficacy, teachers may be able to encourage a stronger collective teacher efficacy. This can be accomplished by providing mastery and vicarious learning experiences. Teachers should be encouraged to accept their role in public accountability and the shared responsibility for student outcomes (e.g., DuFour et al., 2005; Gates & Watkins, 2010; Lumpe 2007). It is through individual motivation that organizations grow to achieve success in envisioned endeavors. As the literature illustrates, collective teacher efficacy is actually more than the sum of the individual members (Bandura, 1997; Goddard et al., 2000).

The majority of respondents graduated with a bachelor’s degree in the past 20 years and at least half in the past 11 years. Considering that the data revealed a
correlation between knowledge of CL and implementation, there appears an implication that university educational programs should educate teacher candidates in collaborative learning styles. As the universities and professors begin to place an emphasis on the importance of differentiated instruction and learning styles, teacher candidates may understand the significance and implication of student academic gains when teaching with different strategies.

According to this study, perceived barriers to the implementation of CL did not appear to correlate with the actual implementation of CL. However, administrators should continue to request and encourage feedback from their faculty concerning barriers and ways to eradicate these obstacles from their campuses. Principals should continually monitor the teaching strategies of their teachers and inspire the implementation of research based approaches in educating our children (e.g., Fullan, 2008; Marzano & Brown, 2009).

**Recommendations for Future Research**

This study revealed areas that the researcher believes require more research. The following concepts are recommended for future research:

1. Self-efficacy development should be studied further to determine whether education preparation courses or staff development has the greatest impact.

2. Future studies could research the possibility of PLCs and the development of collective teacher efficacy as opposed to the development of teacher self-efficacy.

3. Using the short form of this scale revealed a high teacher self-efficacy. Future studies may benefit by utilizing the longer form to validate the high sense of self-efficacy.
4. Studies conducted to research perceived barriers and implementation of CL continue to reveal inconsistencies. Researchers need to continue researching relationships to implementation of differentiated teaching strategies and perceived barriers of elementary teachers.

Summary

Collaborative learning is a researched-based teaching strategy that appears to be underutilized as an effective strategy in some classrooms. Even though the study did not substantiate a significant correlation between perceived barriers and implementation, a slight decrease in implementation was evident as the concept of perceived barriers increased. However, this study revealed that participation in PLC’s, an increase in teacher self-efficacy, and advanced teacher knowledge could possibly intensify the implementation of this teaching strategy.
APPENDIX A

SURVEY LETTER AND INSTRUMENT

Spring 2012

Dear Participant:

I am an educator in the Pearl River County School System and doctoral candidate at the University of Southern Mississippi. My educational interests encompass the area of teaching strategies, specifically collaborative learning. I respectfully request your participation in a study that may reveal correlations between the use of collaborative learning and participation in PLC’s, teacher efficacy, knowledge of collaborative learning and any perceived barriers to implementing collaborative learning in the classroom.

Your participation is completely voluntary and you have the option to withdraw at any time. Participation involves completing the attached questionnaire. Potential risks are considered minimal. The questionnaires will be made available to all faculty members at specific K-6 schools in Mississippi, Alabama, and Louisiana. Questionnaires will be placed in a Principal chosen location at each school for one week or may be presented at a faculty meeting. The estimated time for completion is approximately 15 minutes. Completed questionnaires will be deposited by participants in sealed boxes which will be opened only by the researcher. The questionnaire was created to avoid any questions or answers that would reveal respondents identities. All completed questionnaires will be locked in a filing cabinet at the researcher’s private home and shredded after five years. Results will be revealed at a dissertation defense in the fall of 2012. Potential benefits include an increase in PLC’s and an increase in the implementation of collaborative learning. Data may also be used in further studies by the researcher. All completed questionnaires will be kept confidential.

Any questions may be addressed directly to the researcher, Diana Sweigart through her email address: dianasweigart@gmail.com, or Dr. J.T. Johnson at The University of Southern Mississippi.

By returning the attached questionnaire, you are indicating your consent to participate in this study.

Thank you for your time,

Diana Provancha Sweigart

"This project has been reviewed by the Human Subjects Protection Review Committee, which ensures that research projects involving human subjects follow federal regulations. Any questions or concerns about rights as a research subject should be directed to the chair of the Institutional Review Board, The University of Southern Mississippi, 118 College Drive #5147, Hattiesburg, MS 39406-0001, (601) 266-6820."
THE COLLABORATIVE LEARNING SCALE

The purpose of this questionnaire is to measure the utilization of collaborative learning (CL), reveal the knowledge needed to implement collaborative learning in the classroom, reveal any perceived barriers to implementation, measure participation in professional learning communities (PLC’s) and measure the sense of teacher efficacy. Collaborative learning is defined as student groups encouraging and motivating each other to reach a common goal. Professional learning communities are described as educators working in collaborative groups to enhance the learning of teachers and students.

1. Which grade do you currently teach?
   O K  O 1st  O 2nd  O 3rd  O 4th  O 5th  O 6th

2. How many years have you taught in any grade ranging from kindergarten to sixth grade?
   O 1-3  O 4-6  O 7-10  O 11-19  O 20+

3. What is the level of your last degree earned?
   O Bachelor  O Master  O Specialist  O Doctorate

4. In what year span was your last degree earned?

5. In what areas do you hold certification? You may choose more than one area.
   O Elementary  O K-8  O Special Ed.  O Other _______

6. Collaborative learning (CL) requires a teacher to strictly follow a set of regulations.
   O Yes  O No  O Not sure

7. When a teacher implements CL in the classroom, all the students in a group must share the same grade.
   O Yes  O No  O Not sure

8. A teacher places her students in groups and shows a movie, are they using CL?
   O Yes  O No  O Not sure
9. A teacher places her students in planned heterogeneous groups, teaches a lesson, and allows her students to assist each other in completing their assignment, are they using CL?
   O  Yes  O  No  O  Not sure

10. A teacher places her students in groups, distributes manipulatives, and instructs her students to solve math word problems individually, are they using CL?
    O  Yes  O  No  O  Not sure

11. Approximately how many years have you taught using CL?
    O  none   O  1-2  O  3-4  O  5-9  O  10+

12. Approximately how many lessons a day do you use CL in your classroom?
    O  none   O  1-2  O  3-4  O  5+

13. Approximately how many days a week do you use CL in your classroom?
    O  none   O  1-2  O  3-4  O  5

14. Approximately how many times a week do you share CL lesson plans with your colleagues?
    O  none   O  1-2  O  3-4  O  5+

Please rate the following as you perceive them in your current classroom and/or school.

15. If there were more resources available I would implement this strategy more often.
    O  strongly disagree  O  disagree  O  agree  O  strongly agree

16. If there was more time available to prepare for CL instruction, I would implement it more often.
    O  strongly disagree  O  disagree  O  agree  O  strongly agree

17. If I had more time during the day to implement CL, I would use it more often.
    O  strongly disagree  O  disagree  O  agree  O  strongly agree
18. If I was not concerned with student behavior while implementing CL, I would use this strategy more often.
   O strongly disagree   O disagree   O agree   O strongly agree

19. Even if my administration did not support CL, I would still implement this strategy in my classroom.
   O strongly disagree   O disagree   O agree   O strongly agree

20. The opinions of my colleagues prevent me from implementing CL.
   O strongly disagree   O disagree   O agree   O strongly agree

The following questions refer to professional learning communities. Please answer question #21. If your answer is “no”, you do not use PLC’s, please skip to question #25.

21. I participate in professional learning communities (PLC’s) at my school.
   O yes   O no

22. I use more differentiated instruction because of participating in PLC’s.
   O strongly disagree   O disagree   O agree   O strongly agree

23. I enjoy encouraging other teachers to implement CL because of participating in PLC’s.
   O strongly disagree   O disagree   O agree   O strongly agree

24. I believe in my abilities to teach with new strategies because of participating in PLC’s.
   O strongly disagree   O disagree   O agree   O strongly agree

The following questions are taken from Dr. Anita Hoy’s Teachers’ Sense of Efficacy Scale. Please circle the correct scale number based on this model:

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

25. How much can you do to control disruptive behavior in the classroom?
   (1) (2) (3) (4) (5) (6) (7) (8) (9)
   (1) (2) (3) (4) (5) (6) (7) (8) (9)
<table>
<thead>
<tr>
<th></th>
<th>Nothing</th>
<th>Very Little</th>
<th>Some Influence</th>
<th>Quite a Bit</th>
<th>A Great Deal</th>
</tr>
</thead>
<tbody>
<tr>
<td>26.</td>
<td>How much can you do to motivate students who show low interest in school work?</td>
<td>(1) (2)</td>
<td>(3) (4)</td>
<td>(5) (6)</td>
<td>(7) (8)</td>
</tr>
<tr>
<td>27.</td>
<td>How much can you do to get students to believe they can do well in school work?</td>
<td>(1) (2)</td>
<td>(3) (4)</td>
<td>(5) (6)</td>
<td>(7) (8)</td>
</tr>
<tr>
<td>28.</td>
<td>How much can you do to help your students value learning?</td>
<td>(1) (2)</td>
<td>(3) (4)</td>
<td>(5) (6)</td>
<td>(7) (8)</td>
</tr>
<tr>
<td>29.</td>
<td>To what extent can you craft good questions for your students?</td>
<td>(1) (2)</td>
<td>(3) (4)</td>
<td>(5) (6)</td>
<td>(7) (8)</td>
</tr>
<tr>
<td>30.</td>
<td>How much can you do to get children to follow classroom rules?</td>
<td>(1) (2)</td>
<td>(3) (4)</td>
<td>(5) (6)</td>
<td>(7) (8)</td>
</tr>
<tr>
<td>31.</td>
<td>How much can you do to calm a student who is disruptive or noisy?</td>
<td>(1) (2)</td>
<td>(3) (4)</td>
<td>(5) (6)</td>
<td>(7) (8)</td>
</tr>
<tr>
<td>32.</td>
<td>How well can you establish a classroom management system with each group of students?</td>
<td>(1) (2)</td>
<td>(3) (4)</td>
<td>(5) (6)</td>
<td>(7) (8)</td>
</tr>
<tr>
<td>33.</td>
<td>How much can you use a variety of assessment strategies?</td>
<td>(1) (2)</td>
<td>(3) (4)</td>
<td>(5) (6)</td>
<td>(7) (8)</td>
</tr>
<tr>
<td>34.</td>
<td>To what extent can you provide an alternative explanation or example when students are confused?</td>
<td>(1) (2)</td>
<td>(3) (4)</td>
<td>(5) (6)</td>
<td>(7) (8)</td>
</tr>
<tr>
<td>35.</td>
<td>How much can you assist families in helping their children do well in school?</td>
<td>(1) (2)</td>
<td>(3) (4)</td>
<td>(5) (6)</td>
<td>(7) (8)</td>
</tr>
<tr>
<td>36.</td>
<td>How well can you implement alternative strategies in your classroom?</td>
<td>(1) (2)</td>
<td>(3) (4)</td>
<td>(5) (6)</td>
<td>(7) (8)</td>
</tr>
</tbody>
</table>
Please add any comments concerning this questionnaire or any other information you believe would supplement or enhance this study.

________________________________________________________________

________________________________________________________________

________________________________________________________________

________________________________________________________________

________________________________________________________________

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________________________________________________________________

________________________________________________________________
APPENDIX B

HOY’S SCALE AND PERMISSION FOR USE

Dear [Name],

You have my permission to use the Teachers’ Sense of Efficacy Scale in your research. A copy of both the long and short forms of the instrument as well as scoring instructions can be found at:

http://www.coe.ohio-state.edu/ahoy/researchinstruments.htm

Best wishes in your work,

Anita Woolfolk Hoy,

Anita Woolfolk Hoy, Ph.D.
Professor
Reliabilities

In Tschannen-Moran, M., & Woolfolk Hoy, A. (2001). Teacher efficacy: Capturing and elusive construct. *Teaching and Teacher Education, 17*, 783-805, the following were found:

<table>
<thead>
<tr>
<th></th>
<th>Long Form</th>
<th></th>
<th></th>
<th>Short Form</th>
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<th></th>
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<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>alpha</td>
<td>Mean</td>
<td>SD</td>
<td>alpha</td>
</tr>
<tr>
<td><strong>OSTES</strong></td>
<td>7.1</td>
<td>.94</td>
<td>.94</td>
<td>7.1</td>
<td>.98</td>
<td>.90</td>
</tr>
<tr>
<td><strong>Engagement</strong></td>
<td>7.3</td>
<td>1.1</td>
<td>.87</td>
<td>7.2</td>
<td>1.2</td>
<td>.81</td>
</tr>
<tr>
<td><strong>Instruction</strong></td>
<td>7.3</td>
<td>1.1</td>
<td>.91</td>
<td>7.3</td>
<td>1.2</td>
<td>.86</td>
</tr>
<tr>
<td><strong>Management</strong></td>
<td>6.7</td>
<td>1.1</td>
<td>.90</td>
<td>6.7</td>
<td>1.2</td>
<td>.86</td>
</tr>
</tbody>
</table>

1 Because this instrument was developed at the Ohio State University, it is sometimes referred to as the *Ohio State Teacher Efficacy Scale*. We prefer the name, *Teachers’ Sense of Efficacy Scale*.

Subscale Scores

To determine the *Efficacy in Student Engagement*, *Efficacy in Instructional Practices*, and *Efficacy in Classroom Management* subscale scores, we compute unweighted means of the items that load on each factor. Generally these groupings are:

**Long Form**

- *Efficacy in Student Engagement*: Items 1, 2, 4, 6, 9, 12, 14, 22
- *Efficacy in Instructional Strategies*: Items 7, 10, 11, 17, 18, 20, 23, 24
- *Efficacy in Classroom Management*: Items 3, 5, 8, 13, 15, 16, 19, 21

**Short Form**

- *Efficacy in Student Engagement*: Items 2, 3, 4, 11
- *Efficacy in Instructional Strategies*: Items 5, 9, 10, 12
- *Efficacy in Classroom Management*: Items 1, 6, 7, 8
APPENDIX C

IRB APPROVAL

NOTICE OF COMMITTEE ACTION

The project has been reviewed by The University of Southern Mississippi Institutional Review Board in accordance with Federal Drug Administration regulations (21 CFR 26, 111), Department of Health and Human Services (45 CFR Part 46), and university guidelines to ensure adherence to the following criteria:

- The risks to subjects are minimized.
- The risks to subjects are reasonable in relation to the anticipated benefits.
- The selection of subjects is equitable.
- Informed consent is adequate and appropriately documented.
- Where appropriate, the research plan makes adequate provisions for monitoring the data collected to ensure the safety of the subjects.
- Where appropriate, there are adequate provisions to protect the privacy of subjects and to maintain the confidentiality of all data.
- Appropriate additional safeguards have been included to protect vulnerable subjects.
- Any unanticipated, serious, or continuing problems encountered regarding risks to subjects must be reported immediately, but not later than 10 days following the event. This should be reported to the IRB Office via the “Adverse Effect Report Form”.
- If approved, the maximum period of approval is limited to twelve months. Projects that exceed this period must submit an application for renewal or continuation.

PROTOCOL NUMBER: 12040302
PROJECT TITLE: Professional Learning Communities and Self-Efficacy: The Role They Play in Overcoming Barriers in Implementing Collaborative Learning
PROJECT TYPE: Dissertation
RESEARCHERS: Diana Provancha Sweeney
COLLEGE/DEPARTMENT: College of Education & Psychology
DEPARTMENT: Educational Leadership & School Counseling
FUNDING AGENCY: N/A
IRB COMMITTEE ACTION: Expedited Review Approval
PERIOD OF PROJECT APPROVAL: 04/12/2012 to 04/11/2013

Lawrence A. Hosman, Ph.D.
Institutional Review Board Chair
REFERENCES


Publications


