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Teacher Collaboration and Student Achievement

by

Cordie E. Wimberley

December, 2011

A Dissertation submitted to the Education Faculty of Lindenwood University

in partial fulfillment of the requirements for the degree of

Doctor of Education

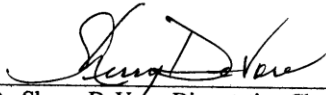
School of Education

Teacher Collaboration and Student Achievement

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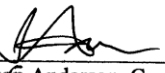
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This Dissertation has been approved as partial fulfillment
of the requirements for the degree of
Doctor of Education
Lindenwood University, School of Education



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Declaration of Originality

I do hereby declare and attest to the fact that this is an original study based solely upon my own scholarly work at Lindenwood University and that I have not submitted it for any other college or university course or degree.

Cordie E. Wimberley

Signature  Date 11-30-11

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Abstract

This study was conducted to explore the relationship between teacher collaboration and student achievement. The pedagogical model espoused by Howland and Picciotto (2003b) defined teacher collaboration as a pedagogy that involves two or more teachers who regularly discuss teaching and learning, including learning activities, lesson plans, assignments, pacing, course design, evaluating, and revising the program. Five hundred twenty three school districts were invited to be part of this study. Then, 100 public school districts were randomly selected from 201 responses to an online survey addressed to Professional Development Chairpersons in Missouri. School districts were divided into two groups, collaborative and non-collaborative. Collaborative school districts were distinguished from non-collaborative school districts as districts that used contracted time, or time embedded within the school day, for staff to collaborate. Non-collaborative school districts did not meet during contracted time; collaboration occurred during workshops, book studies, and planning during the school day. Analysis was also conducted to determine the effectiveness of collaboration taking place between both groups. Eighth grade student achievement scores in Communication Arts and Math from the 2009-2010 Missouri Assessment Program (MAP) were analyzed to determine the relationship between collaborative school districts and non-collaborative school districts. Through the application of a *t*-test, a significant relationship was found between school districts utilizing contracted time for teacher collaboration and higher student achievement. Findings from the study should be useful in informing educators regarding the potential impact of utilizing contracted time for teacher collaboration.

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Chapter One: Introduction

The concept of teacher collaboration was introduced by Lortie in 1975, yet continues as an effective professional practice into the 21st century. DuFour (2011) defined collaboration as “a systematic process in which teachers work together interdependently to analyze and impact professional practice [and] improve results for [their] students, [their] team, and [their] school” (p. 10). A teacher collaboration model may include the following characteristics: valuing individual contributions equally; having a shared goal; sharing responsibility; possessing shared accountability for whatever results that might occur; building upon shared resources; and believing in the importance of shared decision making, trust, and respect (Sevier County Special Education, 2009).

Schmoker (2007b) proposed collaboration enables teachers to deepen their understanding about teaching. Teacher collaboration elicits conversation regarding the assessment of foundational principles and benefits of best practices, the evaluation and renewal of one’s professional objectives, liberal criticisms, supportive professional relationships, and insightful practices (British Columbia Teachers’ Federation, n.d.). According to Garcia (2008), teacher collaboration may occur in various settings, such as teacher learning communities, professional learning communities, study groups, grade level or departmental teams, leadership academies, workshops, institutes, and retreats.

Collaborative Approaches

Chadbourne (2004) identified six categories of teacher collaboration: political/industrial collaboration, social collaboration, technical collaboration, academic collaboration, collaborative planning, and joint classroom-based work. Political/industrial

collaboration is comprised of teacher union activities to enhance working conditions (Chadbourne, 2004). The norm for collaboration is loyalty; therefore, through political/industrial collaboration, assistance is provided to colleagues who are in need of political influence and professional assertion (Chadbourne, 2004). This type of collaboration is beneficial when teachers are required to attend professional training to implement another proven practice, especially when the emphasis is how to implement the program with fidelity; many teachers feel threatened and treated like blue-collar workers, not professionals (Allington, 2002).

Teachers need encouragement when the pressures of teaching lead to dismay and an inability to complete necessary tasks (Chadbourne, 2004). Since collaboration involves sharing information regarding concerns from students, parents, colleagues, and school administrators, meetings are arranged to discuss matters and find solutions. In addition, teachers may also discuss possible ways to avoid these issues and to improve work conditions (Chadbourne, 2004).

The second category is social collaboration where teachers address the need for socializing, camaraderie, and building relationships (Chadbourne, 2004). This type of collaboration is about the interpersonal relationship among teachers, and respect and care are the focus, which leads to the cultivation of building a positive community and a climate of collegiality among the teachers (Chadbourne, 2004). Fullan (2007) discussed the importance of fostering relationships to enhance teacher collaboration:

It is important for schools to create recurring formal situations in which teachers work together. Examples include team teaching and integrated lesson design. The team provides a lasting, substantial structure for sustained communication based

in shared goals. As teachers work together, they develop a sense of community and a greater sense of effectiveness. The development of a professional community requires structures and opportunities that encourage an exchange of ideas, both within and across such organizational units as teams, grade levels, and subject departments. (p. 47)

Social collaboration is similarly regarded as comfortable collaboration, which can eliminate rejection, isolation, and cliques and can be strengthened during free hours, celebrating special occasions and achievements, meeting outside of school for activities, sharing personal lives, helping others during sickness, and employing group-building exercises (Chadbourne, 2004).

Thirdly, technical collaboration, which is characterized as another form of comfortable collaboration, centers on giving advice and sharing strategies and ideas that are highly instantaneous, exclusive, and procedural in disposition (Chadbourne, 2004). Through technical collaboration, teachers are able to acquire techniques and strategies to manage practical aspects of their profession. Teachers share lesson plans, books, worksheets, and strategies, as well as ideas on applying modern teaching methods (Chadbourne, 2004). Hirsh (2009) described the process of technical collaboration as identifying learning teams of teachers who "...follow a cycle of continuous improvement that begins with examining student data to determine the areas of greatest student need, pinpointing areas where additional educator learning is necessary, [and] identifying and creating learning experiences to address these adult needs..." (p. 3). The learning team continues the process by "developing [and refining] powerful lessons and assessments,

applying new strategies in the classroom,...reflecting on the impact on student learning, and repeating the cycle with new goals” (Hirsh, 2009, p. 3).

The fourth category, according to Chadbourne (2004), is academic collaboration, which is a highly complex group effort that goes beyond the nature of collaborative planning and technical collaboration and extends to the different philosophies of the teachers outside the boundaries of their respective classrooms. Burnstein, Kretchmer, and Lombardi, (2003) emphasized the importance of faculty members sharing their diverse theories, principles, and concepts and then applying their beliefs to real classroom situations. Teachers work together to assess student work based on marking and scoring guides; review curriculum; and develop formative assessments, common assessments, and summative assessments (Chadbourne, 2004). These actions help the faculty to offer a consistent and unified curriculum (Burnstein, et al., 2003).

The fifth category identified by Chadbourne (2004) is collaborative planning, which involves inquiry, questioning, reflecting, constructive criticism, and discussion. During collaborative planning, teachers center on long-term coursework, the function of classroom practices, and assessing inherent suppositions, which motivates educational practice (Chadbourne, 2004). Discussions are focused on journal articles, findings from action research, and teaching methods pertinent to individual students (Chadbourne, 2004).

Sagor (2004) explained the importance of collaborative action research and analyzing data as a team:

The key to sustaining school improvement through the collaboration process is to maintain a singular focus on continuously evolving collaborative action research;

this calls for reflection and action planning and is the stage where the most important professional learning occurs. Through the collaborative analysis of classroom data, each team member comes to understand the phenomena of their teaching and their students' learning more clearly than if they analyzed the data in isolation. (p. 8)

Likewise, Little (2003) determined teachers are constantly surrounded by student data and should utilize the data to collectively assess teaching methods and modes of student learning. Little (2003) asserted, "The value of looking at student work resides in its potential for bringing students more consistently and explicitly into deliberations among teachers....this cultivates a professional community....and focuses teacher conversations directly on the improvement of teaching and learning" (p. 192).

The sixth category is joint classroom-based work, which includes team teaching, peer coaching, and collaborative action learning (Chadbourne, 2004). This collaboration is the most difficult and least applied, yet the strongest of all teacher collaboration types (Chadbourne, 2004). One purpose of joint classroom-based collaboration is to prevent teachers from declaring that classrooms are private possessions; teaching philosophies and practices are revealed, which requires strong self-concepts, high levels of trust, sincerity, and tolerant attitudes (Chadbourne, 2004).

As a result, there is a strengthening of interdependence, shared responsibility, communal commitment and development, and greater promptness, which are necessary for the difficult aspects of teaching (Fullan, 2007). Teachers incorporate joint action research and action-learning projects to learn more about their own teaching, openly give feedback regarding each other's teaching practices, and provide opinions regarding their

students' progress (Chadbourne, 2004). As teachers develop assignments and students produce evidence of learning (Sagor, 2004), it is essential colleagues review each another's lesson plans and data, which will result in a richer curriculum. In addition, teachers make use of peer coaching where the teachers observe, criticize, and act based on the feedback acquired from colleagues (Chadbourne, 2004).

The true essence of collaboration is teachers working hand-in-hand to enhance their teaching skills (Sevier County Special Education, 2009) and increase student achievement. DuFour (2003) defined collaboration as, "a systematic process in which teachers work together interdependently, to analyze and impact professional practice in order to improve results for students, team, and school" (p. 4). According to Goddard and O'Brien (2004), there have been findings teacher collaboration has positive effects on student achievement in Mathematics and Reading. The purpose of this study was to examine the various teacher collaboration models used by public school districts in Missouri and determine the relationship between eighth grade student achievement in Communication Arts and Math and teacher collaboration models.

Conceptual Framework

Although the term collaboration has been defined by a number of researchers, (DuFour, DuFour, Eaker, & Many, 2006; Little, 2003; Schmoker, 2007b), the definition offered by Howland and Picciotto (2003a) was utilized to conceptualize this study. Howland and Picciotto (2003a) defined teacher collaboration as a pedagogy that involves two or more teachers who regularly discuss the components of teaching and learning, including learning activities, lesson plans, assignments, pacing, course design, evaluating, and revising the program. Moreover, the teachers reflect on the overall course design,

evaluate, and amend the whole program based on data analysis (Howland & Picciotto, 2003a).

DuFour (2003) reported a culture of collaboration allows for continuous questioning to encourage teachers' levels of learning that will result in higher student achievement. Teachers have to assume a greater responsibility toward the academic progress of their students with the employment of teacher collaboration (Bunker, 2008). Reeves (2006) agreed, "collaboration among teachers, as measured by the frequency of communication, mutual support, and help, is a strong indicator of implementation success" (p. 29).

Howland and Picciotto (2003a) discussed the need for evaluation and revision of the district's strategy toward teacher collaboration. Have the administrators effectively communicated the district's goal? How does teacher collaboration affect the school climate? Does collaboration drive the mission of the school?

According to Duff, Keefe, and Moore (2004), school administrators and teachers struggle with role definitions, and furthermore, teaching practices are not monitored consistently. Haycock (as cited in Martin, 2008) proposed teacher collaboration is hard to implement due to the school's atmosphere or climate. The history of the school, the quality of the school staff, the turnover in teaching staff and administration changes, and the manner and extent of the school's communication are factors that must be considered before implementing a collaborative model (Haycock, as cited in Martin, 2008).

Statement of the Problem

While a plethora of teaching strategies are introduced every academic year, school districts struggle with a matrix of issues and choices to improve student achievement.

Identifying the gaps and overlaps in the district's curriculum can be a harrowing and tedious endeavor. School officials wrestle with new pedagogies and techniques in an attempt to meet state and national standards, while being accountable to local school boards and patrons.

Many schools purport to utilize a teacher collaboration model; however, schools must, "distinguish between effective collaboration and the appearance of teamwork" (Schmoker, 2004, p. 86). Little (2006) determined, "Most alliances among teachers are not task oriented at all" (p. 41). Schmoker (2007a) asserted:

Mere collegiality won't cut it. Even discussions about curricular issues or popular strategies can feel good but go nowhere. The right image to embrace is 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. (p. 45)

Educators who claim to collaborate without a well-constructed on-going agenda, will ultimately fall short of reaching mutual goals that lead to measurable student achievement. As stated by Fullan (2007), "the question confronting most schools is not, What do we need to know in order to improve? (but rather), Will we turn what we know already into action?" (p. 59).

Is the time devoted to teacher collaboration useful? In a study by Andree, Chung Wei, Darling-Hammond, Orphanos, and Richardson (2009), 68% of the teachers agreed training focused on content-related lessons was useful. Less than 50% of the teachers believed collaborative time was of little value (Andree et al., 2009). Marzano, McNulty, and Waters (2005) discussed the need for change, which involves a departure of the

expected and familiar and making a break from the past and status quo. Teacher collaboration demands change that may be intimidating to some school staff members (Marzano et al., 2005).

As American schools adopt teacher collaboration voluntarily, other countries have mandated requirements for teacher collaboration. For example, the Netherlands, Singapore, and Sweden have required at least 100 hours per year towards teacher collaboration (Organization for Economic Cooperation and Development, 2007). Every three years, South Korean teachers are mandated to take teacher collaboration classes for 90 hours (Hong & Kang, 2008). Also, after three years on the job, South Korean teachers can obtain an advanced certificate and a salary increase when they have successfully completed a government approved collaborative program, which takes five weeks to complete (Hong & Kang, 2008).

The Council of Chief State School Officers [CCSSO] found nearly half of all U.S. teachers were unsatisfied with the collaborative opportunities they were given (Blank & Stillman, 2003). Only 59% found content-related lessons useful, and less than 50% agreed the collaboration time they received in other areas useful (Blank & Stillman, 2003). Unfortunately, well-designed teacher collaborative programs are rare, and many teachers across the country are unfamiliar with the dynamics and advantages of teacher collaboration (Alas, Blank, & Smith, 2007).

School officials strive to retain good teachers, hire competent teachers, motivate poor teachers, while addressing the cultural issues of school district personnel. The task of bringing these entities and groups together is not only a challenge, it is critical to accomplish the goals and mission of the school district. Many educational leaders realize

the need or feel pressured to bring a dichotomy of people together as a team.

Collaboration must be more than a textbook concept; the success or failure of a group depends on the artful culmination of bringing all stakeholders together for a common goal.

Purpose of the Study

The purpose of this study was to examine the relationship between teacher collaboration and student achievement on the Missouri Assessment Program (MAP) in Communication Arts and Math among eighth graders. Also explored was the relationship between student achievement and the collaboration model a school has utilized based on a list of variables. The data were analyzed to determine whether a school district utilizes embedded collaboration (using contract time for collaboration) or non-embedded collaboration (attending workshops, participating in book study groups, focused professional development activities).

Research questions. The following questions guided this study:

1. What is the relationship between an embedded collaboration model utilized by collaborative school districts and the non-embedded collaboration models utilized by non-collaborative school districts?

2. What is the relationship between teacher collaboration and student achievement in Communication Arts and Math on the MAP at the eighth grade level?

Significance of the Study

Teacher collaboration is a strategy that schools employ to improve student performance and communication among school staff. According to Schmoker (2007b), teacher collaboration has greatly affected teacher retention and student achievement.

Teachers who are collaborating have gained greater expectations of students and instructors (Schmoker, 2007b). Teachers are also encouraged to be creative in the classroom and commit themselves to grow and share their ideas with other colleagues (Schmoker, 2007b).

Since teacher collaboration is becoming widely practiced, this study is timely and relevant in the field of education. The findings may be of benefit to school boards, school administrators, teachers, students, and parents as consideration is given to implement professional learning communities, grade level or vertical teams, and targeted professional development opportunities. According to Lewis (2007), “schools with strong professional learning communities were four times more likely to be improving academically than schools with weaker professional communities. [Schools] can no longer afford to be innocent of the fact that collaboration improves performance” (p. 354).

Although teacher collaboration is not a new model in the American school system, Missouri educators have recently followed this trend. School personnel have attended training seminars and allowed teachers time within their contracted day to meet in collaborative teams. Therefore, the findings from this study may provide teachers with information concerning collaboration and how their competence and student achievement may be enhanced.

Many school districts have initiated different schedules to build a successful collaborative atmosphere. These districts have abandoned the long-used, regular school schedule and adopted a contracted time schedule, or embedded collaboration, which allows colleagues to share strategies and formulate plans during an early-out or late-start

time period. While drastic changes are difficult to implement, according to DuFour, DuFour, and Eaker (2008), school officials must emphasize the need for change to all staff members, demonstrating a commitment irrespective of changes in the school schedule. After observing effective teacher collaboration in various school districts, DuFour et al. (2008) recounted, “Achievements made by the collaborative efforts does not mean success came easily. It was hard work” (p. 112). All stakeholders must see the long-term benefits of contracted time. Yet, despite evidence of success, there are educators who will never be persuaded that contracted time for collaboration is essential.

Parents who value education generally want to provide their children with the best quality of education possible. Will teacher collaboration be beneficial or not to their children? Will the change in the school day be just another experiment by the school district to improve poor student performance? There are parents who are traditionalists and favor the typical teaching model; however, exposure to other teaching strategies may be beneficial to their children’s learning.

Definitions of Terms

The following terms used in this study are defined:

Collaborative school districts. For the purpose of this study, collaborative school districts utilize time embedded within the school day for staff to collaborate.

Non-Collaborative School districts. For the purpose of this study, non-collaborative school districts utilize other models, such as workshops, book study groups, and planning that is not during embedded contracted time.

Teacher collaboration. A process and an opportunity for two or more teachers to regularly work with colleagues to engage in conversations regarding teaching and their own personal growth as teachers (British Columbia Teachers' Federation, n.d.; Howland & Picciotto, 2003a).

Limitations

The limitations of the study included the following:

1. Findings of the study are accurate only to the extent that the participants responded honestly in the survey describing their school district as collaborative or non-collaborative.
2. This study examined eighth grade 2010 MAP scores on the Communication Arts and Math tests.
3. This study was limited to public school districts in Missouri.

Summary

The process of teacher collaboration involves working as a team to improve the practices associated with teaching and learning (DuFour et al., 2008). Contrary to the stereotypical teacher, who is isolated and confined, collaboration opens the door to reveal gaps and overlaps within the curriculum. The concept of teacher collaboration is not new, yet has gained popularity among American schools and continues as an effective professional practice.

Chadbourne (2004) identified six categories of teacher collaboration that serve to understand the interwoven complexity of the model. The collaboration model, as defined by Howland and Picciotto (2003a), provided the profile to organize the review of literature and develop the survey for this study. The teacher collaboration models utilized

in school systems were examined, and the perceptions of school personnel surrounding the collaborative models were explored. Many schools purport to utilize a teacher collaboration model; however, there is a vast difference between a well-designed collaborative program and simply meeting together during school breaks, at lunch tables, and periodic after-school in-service trainings.

To determine the relationship between teacher collaboration and student achievement on the MAP in Communication Arts and Math among eighth graders, data were analyzed. Also examined through this study was the relationship between student achievement and the collaborative model utilized by school districts. The criterion, which deemed a school district as collaborative, was the commitment to embed teacher collaboration time during contracted hours. The school districts not collaborating during contracted time (instead, meeting during workshops, book studies, or after school sessions) were considered non-collaborative.

Chapter Two: Review of Literature

According to Howland and Picciotto (2003a), schools typically prefer autonomous, brilliant, and idiosyncratic teachers – the authors referred to them as Mr. and Ms. Abit. The Abit teachers are the archetypal educators and are the ones who shape the curriculum, devise their lesson plans, set their expectations with students, and fulfill their responsibility, yet, isolate themselves from the school administration and their colleagues (Howland & Picciotto, 2003b).

In U.S. schools, many teachers may work in isolation from other teachers. This has been a model of the American schools system for decades. Educators may not be given the opportunity to share strategies, observe other colleagues in core classes, or have exposure to new teaching strategies that are available. The egg-crate model of instruction, where the typical classroom teacher is separated from other professionals, is contrary to a collaboration model. The definitions of teacher collaboration abound and cannot only be defined as two teachers working alongside each other in a classroom during the same period of time. Teacher collaboration pertains to all actions and interactions of teachers and is focused on student achievement (Sevier County Special Education, 2009).

One of the most promising benefits of teacher collaboration is the increased opportunity it gives teachers to interact with one another regarding instructional issues. However, in the earlier scenario, the school administration trusts the non-collaborative Abits fully, does not need to supervise them, and have granted the Abits license to do things their own way (Howland & Picciotto, 2003b). The Abits' brilliance is anchored on their expertise, experience, and reputation (Howland & Picciotto, 2003b).

The Abits teach flawlessly and excellently and are given the master teacher

reputation; hence, they are admired, respected, but at the same time, feared (Howland & Picciotto, 2003b). The Abits' idiosyncrasies are quirky and legendary; they only regard collaboration with older members of the faculty as secondary to teaching practice (Howland & Picciotto, 2003b). Although the Abits are effective within their own bailiwick, their lack of collaboration with other teachers is problematic. There is strong evidence that collaborative team members, who work collectively to achieve common goals, will promote student learning (Brown & Knowles, 2007).

When teachers work together in a collaborative team, they are better organized, more prepared, and have a support system consisting of teachers and staff members who support them (Brown & Knowles, 2007). According to DuFour (2011), teachers must drastically change gears from the status quo, begin collaborating, and move from teaching to learning. One must take personal ownership throughout the collaborative process to reach the intended goals for increased student achievement.

In the collaborative model, everyone within a school system can benefit. Collaboration offers teachers the opportunity to learn from their colleagues and share vital information about teaching strategies, plan lessons, construct goals for their students, and create assessments. For all students to realize success, the students need a successful team of teachers teaching with a positive attitude and enthusiasm (Brown & Knowles, 2007).

The Abit teachers, regardless of how exemplary they appear, are highly disadvantageous to a school. Teachers with idiosyncrasies, such as the Abits, have little room for improvement and adaptation due to their resistance toward collaboration (Howland & Picciotto, 2003a). Schools that adopt teacher collaboration must build a

strong faculty who are willing to improve and adapt to new and various teaching and learning methods (Sevier County Special Education, 2009).

Conceptual Framework

According to DuFour (2011), if all the school districts in the country that are emphasizing collaboration were to ask teachers what the primary barrier is to teacher collaboration, the answer would be *time*. Studies show that other countries are deeply committed to teacher collaboration. Andree et al. (2009) reported, “nations that outperform the United States on international assessments invest heavily in and build time for ongoing, sustained teacher development and collaboration into teachers’ work hours. American teachers spend more time teaching students and less time [planning together]” (p. 17). American teachers also spend more time, “developing curriculum and instruction than teachers in other nations. U.S. teachers spend about 80% of their total working time in classroom instruction, as compared to about 60% [in] other nations” (Andree et al., 2009). Reeves (2003) determined time and organizational structures also assist the collaborative teams in increasing student achievement.

Teacher collaboration elicits various connotations leading to beliefs implicitly formed regarding the approach. Therefore, this study was framed around the definition espoused by Howland and Picciotto (2003b) which identified the true nature of teacher collaboration:

1. It is about teaching.
2. It deals with all pedagogical and curricular issues.
3. It encourages professional growth of the people involved learning.
4. It improves the department programs.

5. It eventually benefits the students.

Various researchers have presented the conceptual element of collaboration in which the act of teaching is emphasized throughout. Knapp (2003) discussed the continuous cycle necessary in establishing an effective collaborative community:

[Teachers] meet on a regular schedule in learning teams organized by grade-level or content-area assignments and share responsibility for their students' success. Learning teams follow a cycle of continuous improvement that begins with examining student data to determine the areas of greatest student need, pinpointing areas where additional educator learning is necessary, identifying and creating learning experiences to address these adult needs, developing powerful lessons and assessments, applying new strategies in the classroom, refining new learning into more powerful lessons and assessments, reflecting on the impact on student learning, and repeating the cycle with new goals. (p. 85)

Collaborative teams of teachers work together, sharing knowledge pertaining to essential curriculum. The problem of too much content with too little time is solved when teachers share opinions and collaborate together (Kendall & Marzano, 2000); therefore, teacher collaboration must identify key elements to cover in the school's curriculum and make student learning a non-negotiable goal for educators and students. Research has suggested that teacher collaboration is most successful when it focuses on student learning, mastering academic content, and strengthening camaraderie among colleagues, rather than focusing on an array of new teaching strategies (Lauer & Snow-Renner, 2005). For example, researchers have found that teachers are more apt to develop and implement lesson plans after collaborating with their colleagues (Lauer & Snow-Renner, 2005).

The school's environment must adopt and cultivate trust between all stakeholders. Building relationships will strengthen the norms and decision-making processes throughout the school system. It is paramount that people are in positive relationships with one another. Financial and time considerations must be anticipated to provide long-term support for one another, thus creating a climate of encouraging and challenging team members to improve and learn together (Turning Points: Transforming Middle Schools, 2001). As proposed by Howland and Picciotto (2003b):

At best, teacher collaboration is an ethic as well as a set of practices – an expression of a faculty's willingness and commitment to attend not only to their unique domains and disciplines but to their own growth as teachers, expanding and refining their repertoire of practices and deepening their understanding of the nature of student learning. (para. 5)

Teacher collaboration has the following implications: administrative sanction and support, community representation, conflict between collaboration and evaluation, and hiring (Howland & Picciotto, 2003b). The school administration is obliged to encourage teacher collaboration, to provide time for collaboration, and to place collaboration above other activities (Howland & Picciotto, 2003b).

Through teacher collaboration, teachers can develop a greater understanding of the programs in other departments (Howland & Picciotto, 2003b) and the successful strategies used that positively affect improvement in student-achievement. In an analysis of well-designed experimental studies by Duncan, Lee, Scarloss, Shapley, and Yoon (2007), it was found the use of a set of programs consisting of substantial contact hours of teacher collaboration (ranging from 30 to 100 hours in total) spread over 6 to 12

months lead to a positive and significant effect on improving student achievement. According to the research, school districts that offered an average of 49 hours a year for collaboration improved student achievement by approximately 21% (Duncan et al., 2007). Other efforts that involved a limited amount of teacher collaboration (ranging from 5 to 14 hours in total) showed no statistically significant effect on student achievement (Duncan et al., 2007).

Teacher collaboration allows the teachers to openly express their thoughts and offers teachers an opportunity to counteract their weaknesses and share their strengths with colleagues (Howland & Picciotto, 2003b). Thus, teacher collaboration provides an avenue to expand the capability and knowledge of a teacher (Howland & Picciotto, 2003b). Teacher collaboration creates an atmosphere of equality; hence, even those who are in high positions are expected to accept constructive criticism. The shortcomings of teachers are not highlighted; however, the problems encountered in various departmental programs become the focus.

Establishing Effective Teacher Collaboration

According to DuFour (2003), schools that build a culture of collaboration must formulate structures where the teachers will be able to analyze and enhance their classroom practice. A culture of collaboration allows for continuous questioning to encourage teachers' levels of learning that will result in higher student achievement (DuFour, 2003). Moreover, teachers must constantly assess their teaching practices and monitor and adjust to the needs of the students. Varied data must be synthesized, examined, and discussed to serve as a tool for the improvement of teacher practice (Bunker, 2008). Teachers should reveal the goals and strategies of their own best

practices. Regular meetings should be scheduled to generate norms, establish expectations, responsibilities, and build relationships among the teachers (DuFour, 2003).

Many educators have seen the value of collaboration. Based on research, Little (1987) listed the benefits of effective collaboration as:

1. Remarkable gains in achievement.
2. Higher quality solutions to problems.
3. Increased confidence among staff.
4. Ability to examine and test new ideas, methods and materials.
5. An expanded pool of ideas, materials and methods. (p. 497)

As schools collaborate, they learn from each other and improve, both individually and collectively. Therefore, education researcher and author, Fullan, (2007), stated, “Effective collaboration is perhaps the most effective form of staff development” (p. 147). The potential impact of collaboration is great. Schools across the country are moving away from the isolated working environment that has traditionally dominated the teaching profession. Educators are learning through research and practice that, teachers, like other professionals, perform more effectively, even exponentially when they collaborate (Schmoker, 2007b).

Beliefs and goals of teacher collaboration. Smith and Scott (2010) found schools that apply teacher collaboration held an aggregate of certain beliefs and practices. These schools uphold the belief that the efficiency of school instruction is determined through the school’s norms of collegiality and ongoing development and the conviction that teachers are people to whom responsibility and accountability should be given (Smith & Scott, 2010). The application of various practices and structures which

encourage educators to work with each other and the participation of teachers in decision making processes regarding achieving school goals further emphasizes the school's commitment to abide by their identified beliefs (Sevier County Special Education, 2009).

According to Little (1982), teacher collaboration is the product of four specific behaviors: (1) teachers constantly talk about the practice of teaching; (2) teachers commonly observe other teachers while they teach and provide them some points of improvement afterwards; (3) teachers work together in planning, designing, evaluating, and preparing instructional materials; and (4) teachers teach their colleagues about the practice of teaching. DuFour (2011) posed there must be a constant collective inquiry into what students are learning so professionals will know when each student has mastered a goal. This is the task and goal of every professional in the school system (DuFour, 2003). Furthermore, Little (1982) concurred the product of collaboration can be translated into four distinct classifications: storytelling and scanning, aid and assistance, sharing, and joint work.

Louis and Marks (2011) noted that while shared beliefs among teachers strengthen their professional relationships, "researchers have identified specific conditions necessary for their success. In a study of 900 teachers in 24 elementary and secondary schools across the country, teachers formed more stable and productive professional communities in smaller schools" (p. 29). However, McLaughlin and Talbert (2001) found that regardless of school size, teachers who are introduced to a collaborative model of teaching are energized when they see collective accomplishments and professional growth (McLaughlin & Talbert, 2001). Teachers want evidence that their teaching is successful and significant. They are emotionally tied to their career (DuFour,

2011). Research by Louis and Marks (2011) revealed, “Teachers formed more stable and productive communities in schools where teachers were relatively more involved in educational decision making, and, especially, schools that scheduled regular blocks of time for teachers to meet and plan courses and assignments together” (p. 30).

Climate and morale. As schools foster teacher collaboration, it improves the overall climate of the school (Morton, 2010). In a national survey by MetLife, Fine (2010) reported:

Most principals and teachers say they believe creating school climates that allow educators to work together more would have a “major impact” on improving the chances for student success. According to a new national survey by MetLife Inc. the poll found, the specific methods and amount of time currently allowed for such collaboration among educators vary widely from school to school. (p. 8)

The results of the survey were obtained from a 2009 national telephone survey of 1,003 K-12 public school teachers, 500 K-12 public school principals, and an online survey of 1,018 public school students in grades 3 [through] 12 (Fine, 2010). Of those surveyed, 68% of the teachers and 78% of the principals believed that increasing collaboration would have a positive effect on student achievement and school morale (Fine, 2010).

Initiatives to create more collaborative approaches to instruction have been widely discussed in recent years (Fine, 2010). Hord (2008) found, “Historically, schools have been structured so that teachers work alone, rarely given time together to plan lessons, share instructional practices, assess students, design curriculum, or help make

administrative or managerial decisions” (p. 48). Schmoker (2007a) suggested, “Such cultural norms are not easily changed, particularly if school structures and working conditions continue to favor privacy and isolation” (p. 82). However, Hord (2008) asserted, “when schools are strategic in creating productive working relationships within academic departments or grade levels, the benefits include a greater consistency in instruction, more willingness to share ideas, and more success in solving problems of practice” (p. 49).

Fine (2010) espoused schools that are collaborative have higher teacher and student morale than other schools. Also, schools with higher levels of collaboration are more likely to agree that the teachers, principals, and other professionals trust each other. Howe (2007) noted teacher collaboration enables teachers to strengthen their working relationship with one another while improving school climate. Teachers in such schools are also more likely to assume shared responsibility for the student achievement and are more likely to be satisfied with their careers (Fine, 2010). Bunker (2008) related that teacher collaboration has increased teacher commitment, career satisfaction, and expanded the meaning and professional importance of teaching.

According to Schmoker (2007b), teacher collaboration has greatly affected teacher retention and student achievement. However, teachers are concerned that their identity as innovators may be threatened. As suggested by Fine (2010), “yet for some educators, collaboration may raise concerns about dilution of individual accountability, infringement on independence in the classroom, or a lack of clear management hierarchies or responsibilities” (p. 13).

Lambert (1998) observed, in successful schools, learning is founded within sharing common visions. Described in *Turning Points: Transforming Middle Schools* (2001):

In a collaborative culture, members of the school community work together effectively and are guided by a common purpose. All members of the community – teachers, administrators, students, and their families – share a common vision of what the school should be like. Together they set goals that lead them toward this vision. In doing so, they create a culture in which the most important educational matters facing the school are openly discussed. Even when there is disagreement, [educators] listen to each other because they believe that differences are [important in] moving their school forward. (p. 3)

It takes time to implement teacher collaboration and convince the more experienced teachers to change their habits of working alone (Brown & Knowles, 2007). Brown and Knowles (2007) added that countless numbers of teachers do not like to initiate any new changes. Being able to have teachers work together, share knowledge and ideas, and use the collective talents of the teachers can only amplify the possible outcomes that can be reached (Brown & Knowles, 2007).

The collaborative model must not only be tangible but engage all staff in moving toward an agreed and acceptable outcome. Whether it is improving subject matter, assessments, material support, regularly scheduled departmental meetings, test scores, aligning the curriculum to activities, or discussing students, benefits will be realized through building positive collaborative relationships among teachers (Brown & Knowles, 2007). The quality of relationships between students, teachers, and administrators

determines the effectiveness of the school. For continued learning to take place at a proficient level, the nurturing of relationships based on respect, needs to be implemented and revised over time (Jackson & Davis, 2000). Success is defined by everyone's willingness to cooperate, to communicate clearly, and to be concerned about the needs of others. These activities will provide teachers and students with the social and emotional tools needed to provide meaningful learning with one another (Brown & Knowles, 2007).

Leadership. Reeves (2004) noted that the most important implication is for the leader to make time for teachers to collaborate within and among grade levels to identify existing gaps and overlaps in the curriculum. Reeves (2004) suggested a growing number of schools have forty-five minutes to an hour for teachers to collaborate daily. Of that allotted time, more than half is determined by the administration rather than left for unstructured teacher work time (Reeves, 2004).

Lambert (1998) characterized teacher collaboration as "broad-based participation in the work of leadership and a key dimension of successful schools" (p. 20). Many schools, according to DuFour (2003), allow contracted time for teacher collaboration. The school will have either a late start or an early dismissal to allow teachers to collaborate. This gives gravity to the importance of structured time as well as leverage for the administration to correctly plan, guide, and implement proper use of the collaborative time. DuFour (2011) suggested, "By making minor adjustments to the schedule, the entire faculty is guaranteed an hour of collaborative planning time, but their work day or work week has not been extended by a single minute" (p. 196). Eaker, DuFour, and DuFour (2002) favored building collaborative time within "the master schedule to [allow]

daily common preparation periods for teachers of the same course or department” (p. 98), which is usually the responsibility of the building administrator. Each team should then designate one day each week to engage in collaborative, rather than individual, planning (Eaker et al., 2002)

According to Khorsheed (2007), schools can find time for teacher collaboration during four instances. Garfield Elementary School in Michigan found time during specials, recess, and grouping (Khorsheed, 2007). These were determined when the principal and staff decided to look for ways to maximize the time and the resources for the purpose of expanding the teachers’ professional learning (Khorsheed, 2007).

Principals decide which classroom teachers can be assigned to other tasks or collaborate with other teachers during the period their class is with non-core teachers, such as art, music, and physical education (Khorsheed, 2007). In spite of making time for collaboration, DuFour (2006) posed that in the final analysis and regardless of the strength of leadership within the school, it is probable some teachers will never embrace concepts regarding teacher collaboration. Khorsheed (2007) suggested that recess could also be used as a time when teachers can collaborate, and schools can also use Title I (a federal program) for funds in employing part-time teachers to allow regular teachers time to collaborate (Khorsheed, 2007).

Evans (2008) reported that even in making time for collaboration, confrontation will occur by saboteurs. School leaders are convinced their school’s improvement would have not advanced had they ignored “violations of collective commitments” (p. 174). Khorsheed (2007) concluded the principal may merge two to three classes where the special teachers supervise students while the classroom teachers collaborate with one

another. Goleman (2002) presented a compelling argument, “Great leadership works through the emotions” (p. 3). By addressing emotional needs, the collaborative model offers hope for sustained and substantive school improvement (Goleman, 2002). George Bernard Shaw (2003) expressed, “The true joy of life is being used for a purpose recognized by yourself as a mighty one” (p. 25). When that purpose is shared by the administration and pursued within a collaborative model, one’s significance is magnified.

Benefits of Teacher Collaboration

One particular school, which attributes its success to teacher collaboration, is Peak Park Elementary, which topped the School District 51’s Colorado Student Assessment Program in 2008 (Hewlings, 2008). Peak Park students’ percentage scores increased greatly in 2007-2008, compared to the scores for the school year 2006-2007 (Hewlings, 2008). Then, the school was less than three years old, and it is the first school created under District 51’s campaign for teacher collaboration (Hewlings, 2008). Its success was credited to teacher collaboration (Hewlings, 2008).

Howe (2007) cited five benefits of teacher collaboration: targeted discussions, integrated curriculum, improved instruction, strong relationships, and constructive disagreements. DuFour (2011) suggested that members of the collaborative team must recognize they cannot accomplish their goal of all students learning unless they work together collaboratively. Reeves (2006) determined each team in the school should be asked to create an overarching curricular goal that members will work together interdependently to achieve. Howe (2007) observed teachers mainly talk about their students’ academic, social, and emotional well-being. Teacher collaboration is credited for the generation of an integrated curriculum of the school, which is the subject of

Howe's (2007) study. The collaborative model helped the school to construct a specific and focused curriculum. It also improved instruction in the classroom as teacher collaboration improved teacher knowledge of student achievement (Howe, 2007).

Collaboration helps teachers move away from tedious routine (Bunker, 2008). With improved knowledge, teachers are able to make wise decisions and deliver proper instruction; however, any collaboration brings about some conflict. These conflicts strengthen relationships among teachers who have collaborative training (Howe, 2007). Teachers who are collaborating hold high expectations for their students and colleagues and are also encouraged to be creative in the classroom and to hold strong commitments to the teaching profession (Schmoker, 2007b). Most importantly, collaboration enables teachers to deepen their understanding about teaching and assume a greater responsibility toward the academic progress of their students (Bunker, 2008).

Little (1987) explained the benefits of teacher collegiality:

For teachers, collegiality breaks the isolation of the classroom and brings career rewards and daily satisfactions. It avoids end-of-year burnout and stimulates enthusiasm. Instead of grasping for the single dramatic event or the special achievements of a few children as the main source of pride, teachers are more able to detect and celebrate a pattern of accomplishments within and across classrooms. (p. 218)

Teacher collaboration is beneficial as it provides teachers time to work together with one another on the subject of educational concerns. In particular, teachers who collaborate are more prone to talk with their co-workers about problems in the classroom, teaching strategies, or the curriculum. Consequently, instructors gain knowledge from each other

(Reeves, 2003). According to Patric and Reinhartz (2005), collaboration is a stimulating medium by means of which educators know how to prepare, as well as accomplish a wide range of services for learners. Thus, a well-thought-out collaborative practice within any educational institution has the supplementary advantage of boosting educators' self-confidence. (Patric & Reinhartz, 2005).

Little (1987) remarked that being able to have someone to consult with on a regular basis gives the teachers the opportunity to communicate, brainstorm, generate new ideas, work on the curriculum together, and not be isolated and independent. This can only build enthusiasm for the students and staff by observing, modeling, and sharing ideas (Little, 1987). DuFour (2011) proposed, "The fact that teachers collaborate will do nothing to improve a school. The purpose of collaboration can only be accomplished if the professionals engaged in collaboration are focused on the right things" (p. 91). Little (1987) concluded that as teachers collaborate, they use their combined, "organizational skills and resources to attempt innovations that would exhaust the energy, skill, or resources of an individual teacher...a proficient and well-organized group are greater than the accomplishments of isolated individuals" (p. 16).

Reeves (2003) contended the benefit of working in collaboration maintains reliability among the teachers. Consequently, the classroom becomes a learning community. Shared responsibility, a well-designed curriculum, and implementation of effective teaching practices, when determined collaboratively, serve to improve and benefit the performance of students (Reeves, 2003).

Strategies and practices. Kozma (2003) conducted a study regarding the application of information and communication technology (ICT) with the aim to change the teachers' and students' practices. The practices were categorized by clusters, which included tool use, student collaborative research, information management, teacher collaboration, outside collaboration, product creation, and tutorial (Kozma, 2003). Kozma (2003) assessed these clusters based on teacher practices, student practices, ICT use, and claimed outcomes. Substantial gains in student achievement were attributed to those incorporating collaboration between teachers and students.

Reeves (2003) conducted a study among 130,000 students residing in 228 buildings. The success of this research was dependent upon the instructional strategies and academic achievement results. The teachers from buildings with high achievement levels worked collaboratively. The deteriorating levels of achievement in other buildings greatly improved once teachers collaborated (Reeves, 2003). These collaborative teams focused on academic achievements and assessed the progress of the students by collaboratively scoring student work (Reeves, 2003).

Regarding classroom practices, teachers are expected to collaborate with their fellow teachers, students, and school staff (Kozma, 2003). These teachers design materials, give students advice, and examine student progress. Through these interactions with students and colleagues, the teachers emerge as leaders and reflective practitioners (DelliCarpini, 2008). Students in schools with teacher collaboration are more likely to decide which task to carry out and do not hesitate to collaborate with their classmates even outside school to conduct research, produce materials, and broadcast results (Kozma, 2003). DuFour et al. (2006) suggested the questions each staff member in the

school must ask are: “What is it we want our students to learn? [and] How will we know when each student has learned it? This is the professional responsibility of every faculty member” (p. 46). Kozma (2003) concluded teachers and students in a collaboration cluster may use technology to create stimulating lessons, use of multimedia and the Internet for research, and communicate with other people. According to Tomlinson (2011) [to] “make teaching and learning work, teachers must develop an alternative approach to instructional planning beyond covering the text or creating activities students will like” (p. 13).

Student achievement. One school district in Tennessee achieved district-wide reforms that improved teaching and learning. These gains were a direct result of the collaboration between the professional educators’ union and the school district; a community-wide partnership was developed to support the work of the union and school district (Tennessee Department of Education, 2007). As a result of the reforms:

Schools have improved throughout Hamilton County, but truly impressive gains were made in the schools that were most at risk at the start of the reform effort. In 1999, 12% of 3rd grade students in the Benwood schools were reading at proficient or advanced levels. By 2003, more than half (53%) achieved this level and by 2006, almost three-quarters (73%) had reached this goal. Student scores for reading and language arts scores showed equally impressive gains at the fifth grade level. (Tennessee Department of Education, 2007, p. 14)

Another school district, in Nevada, exemplified what is possible when union and district administrators collaborate and work toward the common goal of improved student achievement. Moving beyond past differences was necessary and difficult, but the results

were worth the effort (Clark County School District Attrition Study, 2006). In 2006, Clark County School District (CCSD) was the fifth largest school district in the U.S. with 303,000 students and 35,000 employees (Clark County School District Attrition Study, 2006). A positive spirit of collaboration led to improvements in the district.

Achievements included:

- The number of schools meeting AYP increased by 12% (from 183 in 2005 to 216 in 2006);
- An increase (as high as 14%) in proficiency in math and reading in every grade from 3rd to 8th;
- Of the 11,642 students who graduated from CCSD schools, 2,373 earned advanced diplomas and 2,103 honors diplomas were awarded;
- More than \$108 million was awarded in scholarships to 2006 CCSD graduates compared to \$97.5 million in 2005;
- In 2006, 11 CCSD schools were designated exemplary compared to six in 2005; and
- The number of “high achieving” schools increased from 34 in 2005 to 44 in 2006. (Clark County School District Attrition Study, 2006, p. 10)

The Norfolk Virginia School District made substantial gains after implementing a collaborative model, according to Simpson (2003). Gains of 20% or more in language arts, mathematics, science, and social studies were realized in high-poverty and low-poverty student populations (Simpson, 2003). These schools used contracted time for teacher collaboration. During the collaborative meetings, student work was examined and teachers agreed on assessment measures (Simpson, 2003).

At the time of Simpson's (2003) review, the student population at Norfolk Public Schools was 67% Black and 28% White with more than 65% qualifying for free and reduced-price meals. The following percentages reflected the worthiness of teacher collaboration: 100% of their schools met state benchmarks in writing in all grades tested; 100% of the high schools met state benchmarks in chemistry; 100% of middle and high schools showed gains in literature, reading, and research; and 100% of middle schools were fully accredited in earth science (Simpson, 2003).

Special needs. Leonard and Leonard (2003) conducted a survey of 238 teachers on the overall result of teacher collaboration and found that teachers *at every level* were denied sufficient and satisfactory time for collaboration. The findings of Leonard and Leonard (2003) are disconcerting when considering the special needs of many students. As expressed by DelliCarpini (2008), the arrival of immigrants in the United States has created many problems for the English language learners; they feel neglected in the classes as the teachers pay less attention to them. Therefore, collaboration between the English as second language (ESL) teachers will be beneficial. With the help of collaboration, ESL teachers would be able to teach students more easily. The dual acquisition of English language and academic content places additional demands on ESL students and can make academic success challenging.

According to Hawes and Sharpe (2003), in reference to The Individuals with Disabilities Education Act (IDEA) of 1997, the importance of collaboration partnerships within the school district to support students with disabilities in general education settings was emphasized. In addition to the IDEA, the Elementary and Secondary Education Act (ESEA), also known as The No Child Left Behind Act of 2001, was enacted "to ensure

that all children have a fair equal, and significant opportunity to obtain a high-quality education and reach or exceed minimum proficiency on state assessments” (No Child Left Behind, 2001). DuFour (2006) asserted that teachers need to be organized in structures so they may engage in meaningful collaboration that is beneficial to the needs of all students.

In regard to ESL students, DelliCarpini (2008) determined through collaboration, teachers can understand the needs of the students in a more comprehensive manner. Teacher collaboration will increase the academic achievement and language acquisition of the ESL student (DelliCarpini, 2008). Teachers, through collaboration, can adapt the instructions given to the ESL students (DelliCarpini, 2008). Through collaboration, the teachers of Math, Science, English, and the Social Sciences will administer certain beneficial techniques like free-writing and journaling for ESL students (DelliCarpini, 2008). The careful introduction and administration of teacher collaboration is crucial with each school having their own unique identity and cultural make-up.

Obstacles to Teacher Collaboration

Despite the importance of teacher collaboration, there are teachers reluctant to embrace the collaborative culture. According to Martin (2008), the sources of obstacles surrounding teacher collaboration implementation have to do with logistical and organizational factors. Abrahams (1998) found the obstacles arise from the degree to which teacher collaboration should be applied by the school administration and the degree to which staff members should make decisions of their own. There is also the lack of trust in school management, which results in fear of losing autonomy (Abrahams, 1998). Then, there is also the general school culture and the issue of self-confidence of

the teachers who are afraid to leave their place of isolation. There exists in many districts the lack of support of the school administration in implementing and maintaining a good teacher collaboration program (Martin, 2008). Addressing the matter of personal cultural background, certain departmental structures, accountability, and interpersonal relations may hinder teacher collaboration (Abrahams, 1998).

Thorton (as cited in Martin, 2008) noted that obstacles include issues regarding the existing curriculum, low student performance, teacher backgrounds, and the school framework. The most difficult obstacles to overcome are those that arise from organizational and cultural issues. A study conducted by Hargreaves and Fink (2008) found obstacles could come from strongly established departmental boundaries, which were intensively adapted by the school staffs and created an unequal distribution of power from one department to another. Another inequality is the level of subject preparation of the teachers, which comes along with clashes regarding instructional goals and educational reform (Talbert, 1995).

Teachers fear losing their autonomy and fear being criticized. Teachers may uphold their autonomy to shield their self-esteem that is being threatened by their inability to recognize the difficulties of teaching (Rosenholtz, 1990). According to Duff, Keefe, and Moore (2008), the school administration and the teachers have to deal with role definitions and teaching practices that, unfortunately, are not given much attention.

Likewise, Haycock (as cited in Martin, 2008) implied that teacher collaboration is hard to implement due to several factors: the school environment, including its history; the quality of the school staff; the turnover in teaching staff and administration changes;

the school's institutional process and structure; and the manner and extent of the school's communication.

Teacher motivation. The lack of teacher motivation during collaboration may be attributed to the different levels of professional implementation. There are instances the application of teacher collaboration does not bring any significant difference on individual instructional practices and in student achievement (Bunker, 2008). Fullan (1991) concluded that informal structures of collaboration perhaps carry negative effects in schools when it comes to collaborative reforms, as it can deter the required extensive analysis of teaching practices. There are teachers who consider the shift from autonomy and isolation to collaboration as difficult, time consuming, and unproductive (Bunker, 2008).

Marzano, McNulty, and Waters (2005) discussed first-order and second-order change. The goal of a first-order change is to get better at what is already in place. Second-order change involves a departure of the expected and familiar and making a break from the past and status quo (Marzano et al., 2005). Teacher collaboration demands second-order change, which can be intimidating to some school staff members (Marzano et al., 2005). Bunker (2008) concluded many teachers do not exert much effort in meeting with one another, and as a result, without the sufficient number and frequency of meetings, the motivation of the teachers is lessened and their enthusiasm about collaborating with one another is diminished. This shows that the old nature of teaching in isolation is very hard to change (Bunker, 2008).

Teachers have difficulty in working in a synchronized manner (Earl, Hargreaves, & Ryan, 1996). Many schools that attempt to adopt collaboration forget to focus on one

of the important aspects of teacher collaboration, which is enhancing instructional strategies, thereby failing to make any effect on the concerns of the teachers and curriculum targets. A common collaboration strategy of many schools is to develop ideas for improving student performance that would have an immediate impact upon implementation (Earl et al., 1996).

Huberman (1993) claimed collaboration narrows teachers' professional freedom, which stifles their motivation, creativity, and individualism. Thus, if a school applies teacher collaboration without proper planning and staff inclusion, teacher satisfaction will be diminished (Bunker, 2008). Generally, teacher collaboration is indeed a complex process as it will require a set of teachers who are equally passionate but different from one another. Dilemmas, tensions, challenges, and problems will occur and the teachers' response will affect the outcome of the collaboration (Achinstein, 2002).

Another element that stifles motivation in teacher collaboration is time span. Evans (2008) noted, within a number of schools, developing a structured collaboration takes time away from classroom instruction. Sagor (2004) found that school leaders increasingly speak of the virtue of collaboration for their teachers, but fail to organize school faculties into teams. However, most of these efforts aimed at fostering collaboration lack attention to the professional work of the educator and the essential purpose of collaborative work.

Too frequently, schools mandate programs and provide professional development as though one size could possibly fit all teachers and meet the needs of all students (Sagor, 2004). Allington (2002) concluded professional educational leaders know that no particular proven practice could possibly result in success with all of the students in all

schools, and good teaching involves altering and modifying programs in consideration of students' individual needs.

Teacher isolation. Another obstacle in cultivating collaboration is the problem created by instructors who are mainly at ease with being segregated from other staff members. The long established traditions of schools have many instructors who are content with functioning single-handedly along with getting a small amount of assistance from others (Reeves, 2003). When collaboration is measured, instructors who are at ease with long established schools could find collaboration threatening. They could be concerned that colleagues might be assessing their inadequacies (McCaleb, 2007).

Johnson and McCafferty (n.d.) found when teachers employ a collaborative learning approach, they may initiate critical and creative thinking, positive attitudes towards subjects, social skills, and self-esteem among students. Unfortunately, some teachers consider collaborative learning a burden, hectic, and a time-consuming endeavor. Hence, they neglect the benefits from collaborative learning methods and remain isolated from their colleagues.

Improving Teacher Collaboration

Gajda and Koliba (2008) presented the Teacher Collaboration Improvement Framework (TCIF) as a design for administering, evaluating, and improving the quality of teacher collaboration. This framework consists of six stages: “raise collaboration literacy, identify and inventory communities of practice, reconfigure teacher teams, assess quality of collaboration, make corrections, and recognize accomplishments” (Gajda & Koliba, 2008, p. 137). In the first stage, the school administration should expose the teaching staff to the dynamics of teacher collaboration, in which teacher teams

serve as the foundation of their school's much bigger professional learning community (Gajda & Koliba, 2008). Thus, the teams are expected to engage in a cycle of inquiry through a shared purpose (Schmoker, 2004).

Secondly, the school administration should observe how teachers are working together and for what purpose; thereby, assessing the effectiveness of the teams (Gajda & Koliba, 2008). In his study of effective organizations, Collins (2001) noted that effective groups were committed to not only getting "the right people on the bus," (p. 41) but they were equally committed to getting, "the wrong people off the bus" (p. 41).

Reconfiguration of the teacher teams is the third stage; however, this only occurs if the existing teacher teams are insufficient and lacking in desired outcomes (Gajda & Koliba, 2008). Saphier (1997) asserted many school districts are held hostage by a few recalcitrant teachers who will veto all attempts at progress. In the fourth stage, the school administration assesses the levels of the teams' performance by checking dialogues, decision-making strategies, actions, and evaluation processes (Gajda & Koliba, 2008).

Stiggins (2002) suggested team assessments are crucial, and descriptive feedback to students provide them with specific ways to make improvements. Continuing to the fifth stage, corrections and realigning the previous stages are incorporated throughout the school system (Gajda & Koliba, 2008). Axelrod (2002) observed ownership and commitment are linked to the extent to which people make decisions, and as a result, there is a connection between participation and improvement (Wheatley, 1999). Lastly, the school administration must recognize the accomplishments of each team to further develop the collaborative environment (Gajda & Koliba, 2008). DuFour (2011)

concluded the school staff must focus on results. School changes and improvements do not happen by accident.

According to Corcoran, McVay, and Riordan (2003), collaborative approaches: Promote school change that extends beyond individual classrooms. When all teachers in a school learn together, all students in the school benefit. U.S. teachers report little teacher collaboration in designing curriculum and sharing practices, and the collaboration that occurs tends to be weak and not focused on strengthening teaching and learning. (p. 175)

Intensive teaching collaboration, according to Lauer and Snow-Renner (2005), “[is] when collaboration includes applications of knowledge to teachers’ planning and instruction, there is a greater chance of influencing teaching practices and, in turn, leads to gains in student learning” (p. 13). Howe (2007) argued teacher collaboration is important to reform education. One important reason is the need to avoid privacy and isolation innate in the nature of teaching (Howe, 2007). Teacher collaboration is needed in order to avoid teacher dissatisfaction, which according to Woods and Weasmer (as cited in Howe, 2007), is caused by frustration due to the absence of support from administration and fellow teachers. Ma and McMillan (as cited in Howe, 2007) also determined that collaboration and collegiality increases teacher satisfaction and professional involvement. Schmoker (2007a) disclosed, “school improvement is not a mystery; incremental, even dramatic improvement is not only possible but probable under the right conditions” (p. 7). Morton (2010) asserted:

Teacher collaboration is a departure from existing norms. In most schools, teachers are colleagues in name only. They work out of sight and sound of one

another, plan and prepare their lessons and materials alone, and struggle on their own to solve their instructional, curricular, and management problems. (p. 61)

Schmoker (2007a) noted teacher collaboration brings [experienced and new] “teachers closer together to reinforce the competence and confidence of the beginners. Teachers who have worked together see substantial improvements in student achievement, behavior, and attitude” (p. 39). Collaboration when planned and deployed properly has many benefits for the students, teachers, and school district.

However, according to Andree et al. (2009), many American teachers report that much of the time used during teacher collaboration is not useful. Teachers give relatively high marks to content-related learning opportunities with 68% of the teachers reporting the training was useful or very useful (Andree et al., 2009). But, fewer than 50% of these teachers determined the collaborative time was of little value (Andree et al., 2009). Teachers responded that their top priorities for further collaborative time are: learning more about the content they teach (23%), classroom management (18%), teaching students with special needs (15%), and using technology in the classroom (14%) (Andree et al., 2009).

In a study regarding teacher collaboration by the Organization for Economic Cooperation and Development (OECD) (2007), it was determined “some countries have established national requirements in attending teacher collaboration programs....the Netherlands, Singapore, and Sweden require at least 100 hours per year, in addition to regularly scheduled time for common planning and other teacher collaborations” (p. 11).

Hong and Kang (2008) remarked:

South Korean teachers must take 90 hours of courses every [three] years. Also, after 3 years on the job, teachers are eligible to enroll in a government-approved 5-week (180-hour) program to obtain an advanced certificate, which provides an increase in salary and eligibility for promotion. (p. 202)

In a study conducted in 2003, nearly half of all U.S. teachers were dissatisfied with their opportunities for teacher collaboration due to the introduction and poorly planned implementation by school personnel or the lack of time learning key strategies; thus, teachers experience less enthusiasm about the usefulness of a newly embarked program (Blank & Stillman, 2003). Many teachers were disappointed with collaborative time, and only 59% found content-related learning opportunities useful or very useful, and fewer than 50% found the collaboration time they received in other areas useful, including areas where they would like more opportunities to learn (Blank & Stillman, 2003). Unfortunately, well-designed teacher collaborative time is still relatively rare, and few of the nation's teachers have access to regular opportunities for teacher collaboration (Alas et al., 2007). However, Ingersoll and Kralik (2004) reported:

In one large-scale literature review, researchers found that induction programs tend to be effective in reducing attrition among beginning teachers. The strongest retention rates were associated with the assignment of a teacher mentor working in the same subject area and/or grade level, common planning time with teachers in the same subject, regularly scheduled collaboration with other teachers, and participation in a network of teachers. (p. 79)

A study by Fuller (2003) “found that when beginning teachers received a combination of such induction supports, attrition declined by half” (p. 41). Bartell (1995)

noted, “when teacher mentors receive formal training, along with release-time to provide one-to-one mentoring, the retention and classroom performance of beginning teachers improves” (p. 26). Yet, Hudson (2004), who studied 147 high schools in Australia, noted:

Participating in an induction program does not necessarily mean that new teachers actually receive intensive, high-quality mentoring. In 2003-04, only about half of all beginning teachers had a mentor teacher in the same subject area, and roughly the same number had the opportunity for common planning time. Those who did have a master or mentor teacher generally were happy with the support. In 2003-04, 74% of teachers who reported having a master or mentor teacher found the relationship to have been moderately or greatly helpful, with significantly higher satisfaction reported by those who shared an academic subject area with their mentor (85%). (p. 37)

Improving teacher collaboration requires systemic implementation and intense cooperation from all stake-holders. The benefits are wide-spread, measurable, and necessary for the future of education. The results of a well-designed teacher collaboration program are evidenced with improvements involving both teacher satisfaction and student achievement.

Summary

Even though teacher collaboration is widely practiced, its total effectiveness has yet to be proven. There are schools that were successful in increasing student achievement through teacher collaboration; however, other schools failed. There are benefits of teacher collaboration, yet there are still many critics who doubt its effectiveness. Bunker (2008) associated the failure of teacher collaboration to

professional implementation; for instance, teacher collaboration may not always have a significant impact on either individual instructional practices or on student achievement. Some teachers may find the transition to be too hard or tedious, and therefore, unproductive. Rarely, if ever, do teachers go out of their way to collaborate with each other, and many teachers are unenthusiastic about the idea of collaboration. In short, old habits are hard to break (Bunker, 2008). Teachers who have been involved in varied styles of teaching strategies over their careers are hesitant to commit to yet another approach. Increasing the amount of collaboration with high interest to learn and improve oneself will likely increase student performance.

Chadbourne (2004), Fullan (2007), Little (2003), and Sagor (2004) identified different strategies to increase student achievement through teacher collaboration. By cultivating a discussion on assessing student's work, sharing lesson plans, practices, and creating common goals, teachers build a network that enhances the school's curriculum. As a result, there is a strengthening of interdependence, shared responsibility, communal commitment and development, and greater promptness, which are necessary for the difficult aspects of teaching.

DuFour (2011), Reeves (2004), and Schmoker (2007b) expressed teacher collaboration by invitation does not work. It is the well-planned implementation of the district's administration to successfully impact the collaborative process and progress. Continual evaluation of the school's ability to work toward increasing student achievement is paramount to every level of instructional strategies.

The quality of teachers is often the basis of measurement for the kind of students who are being developed in society. Student achievement is the progeny of good teachers

applying good strategies. According to Patric and Reinhartz (2005), collaboration equips educators on how to prepare, as well as accomplish a wide range of services for students. A well-developed collaborative practice within any educational institution will increase student achievement and motivate their teachers.

Collaboration is not easy. Every school and district has its share of unique problems and overwhelming challenges. Still, it is the process and effort of trying to work together that enables stakeholders to build a strong foundation of collaboration and learning. In successful schools, the vision of a collaborative environment where all are learners and all are leaders provides momentum for the journey towards shared responsibility and continuous improvement.

The review of literature, research related to the problem, and current issues pertaining to teacher collaboration and student achievement were presented. In Chapter Three, the methodology and procedures used to gather data for the study were detailed. The results of analyses and findings to emerge from the study were contained in Chapter Four. In Chapter Five, a summary of the study and findings, conclusions drawn from the findings, and recommendations for further study were presented.

Chapter Three: Methodology

Teacher collaboration is a “process in which teachers work together interdependently to analyze and impact professional practice in order to improve results for students, their team, and their school” (DuFour et al., 2008, p. 7). Although professing a teacher collaborative culture, many school districts are not following the processes in building and sustaining teachers. In this study, collaboration during contracted time was the criterion to distinguish the use of a collaborative teaching model. School districts not using contracted time were identified as using a non-collaborative model.

The purpose of this study was to examine the relationship between teacher collaboration and student achievement in Communication Arts and Math among eighth graders. Also, the relationship between the strategies used by collaborative and non-collaborative schools was explored. The methodological considerations, which were made to pursue these variables, are discussed in this chapter. In particular, the research variables are recapped, followed by the research questions, population and sample, instrumentation, data collection, data analysis, ethical considerations, and summary.

To address the first research question, certain criteria were used to determine whether the school district was classified as collaborative or non-collaborative. Then, the MAP scores in Communication Arts and Math at the eighth grade level between the collaborative and non-collaborative districts were compared. To address the second research question, the strategies used during collaboration were compared between the collaborative and non-collaborative school districts.

Research Questions

The following research questions guided this study:

1. What is the relationship between an embedded collaboration model utilized by collaborative school districts and the non-embedded collaboration models utilized by non-collaborative school districts?

2. How does teacher collaboration affect student achievement in Communication Arts and Math on the MAP at the eighth grade level?

Research Design

The research design was an important consideration in this study, because it provided prescriptions about how the research was conducted, specifically how the variables were measured; the manner of data gathering; and the statistical treatment that was used (Gliner & Morgan, 2009). In descriptive research, the researcher is not expected to manipulate any form of intervention (Hopkins, 2008). The purpose of descriptive research is to describe, analyze, and interpret data and is suitable in assessing relationships between two variables, which is pertinent to this study (Hopkins, 2008). Graphic representation of the data further clarifies the results of the study.

Quantitative research involves collecting experimental, or survey data, captured in numerical form (Gliner & Morgan, 2009). Quantitative data allows the researcher to investigate the phenomenon of interest by means of statistics (Creswell, 2009). In a survey, the responses of the different respondents are the crux of the research and are the sole bases for statistical analyses. Subsequently, statistically generated tables are produced to depict the data. There are also considerations in the choice of statistical tests, and these include the manner in which data were measured, test suitability and research

drawbacks, and the validity of the measurement tools (Brace, 2008). In this study, the quantitative approach was utilized in determining the relationship between teacher collaboration and student achievement, which served to determine the components that influence teacher collaboration and to what extent. According to Creswell (2009), research that is used by educators in studying the factors and methods that can lead to effective teaching will benefit student achievement.

In this study, the problem and methodology were developed to embody the important elements, conditions, and relations of the causes and effects. This design was completed by selecting a sample of subjects, identifying the timeline and locations of the study, conducting a field-test, and comparing the variables. The data were compared and presented in charts and tables.

Population and Sample

Collaborative and non-collaborative public school districts in Missouri comprised the population of this study. The Professional Development Chairs in the 523 public school districts in Missouri were invited to participate in the survey. The Chairs were identified from a listing provided by the MODESE (MODESE, 2009).

Of the 201 Professional Development Chairs responding to the survey, 104 Professional Development Chairs from each school district were randomly selected. The random sample was generated by the first 52 respondents of collaborative school districts and the first 52 respondents from non-collaborative school districts. After the MAP scores in the proficient and advanced levels from the Communication Arts and Math subtests of eighth grade students in those school districts were obtained, the outliers, the single high and low MAP scores in Communication Arts and Math were removed,

leaving a total of 50 school districts in each category. Outliers can have a profound influence on data (Creswell, 2009).

Instrumentation

Two instruments were used as data sources. The first instrument, the MAP, was selected to obtain the proficient and advanced scores of eighth grade students in the areas of Communication Arts and Math for 2010. The MAP is administered each spring to students in Missouri public schools to determine academic growth. The assessment is an accountability tool that is used to meet the mandates of No Child Left Behind. Student scores on the MAP fall into one of four levels of achievement: Below Basic, Basic, Proficient, or Advanced.

In 1999, the Center for Learning, Evaluation, and Assessment Research, at the University of Missouri, evaluated the consequential validity of the MAP (MODESE, n.d.). The findings indicated, “Teachers are becoming more convinced of the work of authentic learning activities and assessment methods” (MODESE, 2008, p. 3) due to MAP testing. The study also concluded, “Teachers are revising their grading practices as a result of the MAP, using more performance-based methods to determine grades than in the past” (MODESE, 2008, p. 3). Researchers confirmed, “We have very firm evidence that the MAP assessments yield scores that are valid, given the stated purpose of the program” (MODESE, 2008, p. 4).

The second instrument used was the survey (see Appendix A) consisting of 15 questions in a multiple-choice and Likert-scale format. A survey research strategy involves highly-structured and fixed responses; the respondents are prevented from expounding on their answers. The survey was field-tested to obtain comments and

suggestions from educational peers and colleagues and then revised to assure clarity and readability. This instrument was easily accessible via the SurveyMonkey for Professional Development Chairs to complete at their convenience. Surveys are more straightforward than focus group discussions and interviews since the variables involved are best captured in numerical form and allow for the gathering of data in large volumes without incurring too much cost or time (Punch, 2003). The respondents have more time to respond to the questions, making them comfortable and free to answer as they wish without being pressured by the presence of the interviewer (Creswell, 2009). An on-line survey allows the respondents to concentrate and to give more candid answers rather than socially desirable ones. Their honesty results in more valid outcomes (Neuman, 2006).

In this study, the survey was tailored to identify the school districts that were collaborative and non-collaborative using the pedagogies of Howland and Picciotto (2003b). School districts that allowed contracted time within the school week for teachers to collaborate were considered a collaborative school district. A district that intentionally built time within the district schedule, allowing either a late-start or early-release for students while faculty members continued working during the regular school day, was considered as designating contracted time for teacher collaboration. Districts that did not allow contracted time for teachers to collaborate, instead, using after-school book studies, planning during the school day, or after-school workshops were considered non-collaborative.

Data Collection

The survey was sent via electronic mail to the Professional Development Chairpersons in the 523 public school districts in Missouri. Before accessing the survey, Professional Development Chairs were informed of the study (see Appendix B) and confidentiality and anonymity were addressed. The Chairs were assured all personal information would be kept in a locked, secure location for a period of five years from the date the research was completed and then destroyed (see Appendix C). Following the first mailing, only 70 Chairs responded. The list of Chairs, initially supplied by the MODESE was five years old, and many mailings failed to reach the intended Chairs. After a second attempt, a total of 122 Chairs responded to the survey. Following the second attempt, and after personal phone calls to school districts, a new list was provided by the MODESE. After a third attempt, a total of 201 Professional Development Chairs responded to the survey.

Data Analysis

The data gathered from surveys were presented, interpreted, and analyzed through the use of the Statistical Package for the Social Sciences version 15.0. Additional data were analyzed through the use of GraphPad Software (2011). The data findings were compared and contrasted relevant to existing literature. Descriptive statistics were utilized to describe the demographic profile of the respondents and the responses for each question. The descriptive statistics used in the study included frequency, percentage, mean, and standard deviation. Whereas the mean is a measure of central tendency, the standard deviation is a measure of dispersion (Der & Everitt, 2008).

The MAP data, specifically the scores of eighth grade students on the Communication Arts and Math subtests, and the responses from the survey were collected then analyzed using a *t*-test for two independent groups. The use of collaboration between the collaborative and non-collaborative districts was, likewise, statistically compared through this procedure. The *t*-test assesses whether the means of two groups are statistically different from each other (Trochim, 2006a). This analysis is appropriate when comparing the means of two groups (Trochim, 2006a).

Each Chair surveyed was identified by number to respect anonymity and confidentiality. Responses from the multiple-choice questions were sorted into four themes: contracted time, planning during the school day, book study, or designated professional development workshops. Responses from the remaining questions were tallied to determine the level of implementation. In addition, frequency tables for summarizing categorical data for each survey question were created. After all data were collected, the results were organized into tables and graphs.

Ethical Considerations

This study had no significant ethical considerations or implications (see Appendix D). The surveys did not include personal identifiable information. In the completed research paper, confidentiality and anonymity of the participating school districts were respected. There was no personal interaction with students or the participants. Threats to internal validity that should be considered for a descriptive study are location, instrumentation, testing, and mortality (Creswell, 2009). A location threat to internal validity was not an issue. The MAP assessment is administered to district students during a short, predetermined testing window. Students participate at the school in which they

are enrolled. Within each school, test proctors administer the exams. Attempts are made to control processes for the administration of the exam. The threats of instrument decay, data collector characteristics, and data collector bias (Punch, 2003) were not an issue. Data were collected from a public webpage and survey responses.

Summary

The research design and methodology were described in Chapter Three. The purpose of the research was to determine whether the model of teacher collaboration in Missouri schools improved student achievement on the MAP in the areas of Communication Arts and Math at the eighth grade level. The research also measured the relationship between collaborative strategies utilized by collaborative school districts and non-collaborative school districts. The population for this study consisted of 523 public school districts in Missouri and MAP results in Communication Arts and Math at the eighth grade level. A survey was made available through SurveyMonkey.

The survey was designed to determine if the school district was collaborative or non-collaborative and the strength of collaboration that existed within each school district. Finally, the 2010 MAP scores of eighth grade students, in the areas of Communication Arts and Math in the Proficient and Advanced categories from school districts that participated in the survey, were gathered. The means of the MAP scores for the non-collaborative and collaborative school districts were compared and a *t*-test was applied to determine the relationship between the two groups.

In Chapter Four, the findings from the analysis for each of the survey questions were presented. Tables were created to further depict the data. Chapter Five included a detailed summary of the study, conclusions, and recommendations for future research.

Chapter Four: Analysis of Data

Introduction

The purpose of this study was to examine the relationship between teacher collaboration and student achievement on the MAP in Communication Arts and Math among eighth graders. The study also explored the relationship between student achievement and the level of collaboration a school has achieved based on a list of variables rating a school as collaborative versus non-collaborative. Teacher collaboration is a strategy that schools employ in order to improve student performance and communication among school staff.

For the purpose of this study, schools designating the variable, contracted time for collaboration, were deemed collaborative. Schools utilizing other types of variables were deemed non-collaborative. Since teacher collaboration is becoming widely practiced, this study was timely and relevant in the field of education. If teacher collaboration positively affects student learning and achievement, there are various groups likely to benefit from this study: educational institutions, school administrators, teachers, students, and parents. This study may provide teachers with information concerning collaboration and how it can enhance their competence and improve student achievement.

Data Analysis

In this chapter, the responses of the survey questions were analyzed. Surveys were sent to Professional Development Chairs in Missouri with the intent of determining the collaborative strategies used in Missouri school districts. The survey consisted of 15 questions framed around teacher collaboration. Of the 523 surveys distributed via SurveyMonkey, 201 Professional Development Chairs responded. Once general

demographic information was collated, the surveys were sorted into two groups; collaborative school districts (using designated contracted time) and non-collaborative school districts. Additionally, data were analyzed to determine the relationship between teacher collaboration and student achievement on the MAP in the areas of Communication Arts and Math among eighth grade students.

Survey question 1. What is the name of your school? The responses were utilized to differentiate one school from the other.

Survey question 2. What is your district enrollment? The majority (37%) of the Professional Development Chairs participating in the survey responded between 501-1,500 students were enrolled in their district, and 35% totaled 0-500 students. While 17% of the Professional Development Chairs reported an enrollment of 1,501-3,000 students, 11% of the districts noted student enrollments of more than 3,000 (see Table 1).

Table 1

Enrollment for Participating Districts

District Enrollment	Frequency	Percent
0-500	70.00	35.00
501-1,500	75.00	37.00
1,501-3,000	33.00	17.00
>3,000	23.00	11.00
Total	201.00	100.00

Survey question 3. Does your school district promote or support time for teacher collaboration? Ninety-eight percent of the Professional Development Chairs responded that their school district supported time for teacher collaboration, while 2% (4 districts) did not support time for teacher collaboration.

According to Evans (2008), schools seem to be in agreement that it is difficult finding time for valuable teacher collaboration. Haycock (as cited in Martin, 2008) determined that the difficulty of implementing teacher collaboration may result from the school environment, the quality of its staff, its institutional process and structure, and its communication systems. Schmoker (2007b) concluded that many teachers who profess to collaborate are just socializing; real collaboration involves structured strategies and goal setting.

Survey question 4. How long has your school promoted or supported time for teacher collaboration? Of the 197 Professional Development Chairs promoting teacher collaboration, less than half (42%) have promoted time for teacher collaboration for more than six years. Twenty-six percent of the school districts have promoted time for teacher collaboration for 3-4 years. Districts supporting collaboration for 1-2 years totaled 17%, while districts promoting collaboration for 5-6 years was 15% (see Table 2).

Collaboration takes time and persistence. When collaboration is systematically implemented, research has shown improving the consistency of student achievement is magnified (Reeves, 2004). Teachers have a lot to gain professionally when they collaborate with each other and are more likely to become effective leaders and reflective practitioners (DelliCarpini, 2008).

Table 2

Number of Years Using Teacher Collaboration

Number of Years	Frequency	Percent
1-2 years	33.00	17.00
3-4 years	51.00	26.00
5-6 years	30.00	15.00
>6 years	83.00	42.00
Total	197.00	100.00

Survey question 5. Which of the following best describes your teacher collaboration model? The crux of this study centers on whether student achievement is higher among collaborative schools (using contracted time) versus non-collaborative schools (not utilizing contracted time for teacher collaboration). Thirty-seven percent of the Professional Development Chairs reported collaboration took place during planning time throughout the school day. Thirty-two percent of the districts utilized contracted time for collaboration, and 24% described collaboration took place during designated workshops. Those using a book study as teacher collaboration totaled 7% (see Table 3).

By building a master schedule that allows preparation periods for teachers of the same departments to collaborate during contracted school time, benefits for staff members and increases in student achievement may be realized (DuFour, 2011). Smith and Scott (2010) found schools that apply teacher collaboration held an aggregate of certain beliefs and practices. These schools uphold the belief that the efficiency of school instruction is determined through the school's norms of collegiality and ongoing

development and the conviction that teachers are people to whom responsibility and accountability should be given (Smith & Scott, 2010).

Table 3

Descriptions of Teacher Collaboration Models

Collaborative Model	Frequency	Percent
Planning during school day	73.00	37.00
Book study	14.00	7.00
Designated workshops	45.00	24.00
Contracted time	65.00	32.00
Total	197.00	100.00

Survey statement 6. Teacher collaboration has been productive. At this point in the survey, the responses were sorted into two categories, collaborative (using contracted time) and non-collaborative (using other models of collaboration). A Likert-scale was provided for the Professional Development Chairs to rank their responses accordingly. Thirty-two percent of the collaborative districts agreed that teacher collaboration has been productive, while 16% strongly agreed to the statement, and 2% rated the statement neutrally. The non-collaborative districts (32%) agreed with the statement, while 6% strongly agreed. Strongly disagreeing and disagreeing to the statement tallied 1% each. Those responding neutrally were 10% (see Table 4).

According to Schmoker (2004), structured teacher collaboration improves both the quality of teaching and student learning. All stakeholders must be willing to explore areas of weaknesses and strengths and implement modifications to bolster academic

achievement for all learners. In an analysis of well-designed experimental studies by Duncan, Lee, Scarloss, Shapley, and Yoon (2007), it was found that a set of programs consisting of substantial contact hours of teacher collaboration (ranging from 30 to 100 hours in total) spread over 6 to 12 months showed a positive and significant affect on student achievement gains.

Table 4

Teacher Collaboration Has Been Productive

Scale	Collaborative		Non-Collaborative	
	Frequency	Percent	Frequency	Percent
Strongly Disagree	0.00	0.00	1.00	2.00
Disagree	0.00	0.00	1.00	2.00
Neutral	2.00	4.00	10.00	20.00
Agree	32.00	64.00	32.00	64.00
Strongly Agree	16.00	32.00	6.00	12.00
Total	50.00	100.00	50.00	100.00

Survey statement 7. Our school utilizes SMART Goals to enhance student learning. By writing SMART (Strategic and Specific; Measurable; Attainable; Results Oriented; and Timebound) goals, according to DuFour (2006), each collaborative team designs one or more goals that will be addressed. Teachers must refrain from being goal-oriented and focus on student learning.

For collaborative districts, 42% agreed that their districts utilized SMART goals to enhance student learning, 34% strongly agreed, while 14% rated this statement neutrally. Another 8% disagreed, and 2% strongly disagreed. For non-collaborative

school districts, 36% agreed and 12% strongly agreed that their districts utilized SMART goals to enhance student learning. Responding as neutral were 28%, while 14% disagreed with this statement and 10% strongly disagreed to the statement (see Table 5).

Table 5

Utilizes SMART Goals to Enhance Student Learning

Scale	Collaborative		Non-Collaborative	
	Frequency	Percent	Frequency	Percent
Strongly Disagree	1.00	2.00	5.00	10.00
Disagree	4.00	8.00	7.00	14.00
Neutral	7.00	14.00	14.00	28.00
Agree	21.00	42.00	18.00	36.00
Strongly Agree	17.00	34.00	6.00	12.00
Total	50.00	100.00	50.00	100.00

Survey statement 8. Our school has spent useful time on vertical and horizontal teaming. Among collaborative school districts, 66% agreed their districts spent useful time on vertical and horizontal teaming. Moreover, 20% strongly agreed, while 10% disagreed. Four percent rated this statement neutrally. Overall, among non-collaborative school districts, 62% agreed that their districts spent useful time on vertical and horizontal teaming. In addition, 18% strongly agreed, while 10% were neutral. Of the respondents, 8% disagreed with this statement, while 2% strongly disagreed (see Table 6).

Vertical teams connect teachers who teach the same subject at different levels in the schools district, while horizontal teams link teachers with other teachers across the

same grade level, teaching the same subject and across the curriculum. DuFour (2011) explained:

Vertical teams link teachers with those who teach content above and/or below their students. The members of that team would work together to: clarify the essential outcomes for students; develop assessments for the students in each grade level; analyze the results of each assessment; and offer suggestions for improving results. (p. 23)

When teachers work together in a collaborative team, they are better organized, more prepared, and have a support system consisting of teachers and staff members who share common obstacles (Brown & Knowles, 2007).

Table 6

Utilizes Vertical and Horizontal Teaming

Scale	Collaborative		Non-Collaborative	
	Frequency	Percent	Frequency	Percent
Strongly Disagree	0.00	0.00	1.00	2.00
Disagree	5.00	10.00	4.00	8.00
Neutral	2.00	4.00	5.00	10.00
Agree	33.00	66.00	31.00	62.00
Strongly Agree	10.00	20.00	9.00	18.00
Total	50.00	100.00	50.00	100.00

Survey statement 9. Our teachers share their teaching strategies with colleagues. Of the collaborative school districts, 64% agreed their teachers shared their teaching strategies with colleagues. In addition, 22% strongly agreed to this statement,

while 8% rated this issue neutrally. Finally, 6% disagreed with the statement. Of the non-collaborative school districts, 66% agreed teachers shared their teaching strategies with colleagues. Moreover, 24% strongly agreed to this statement, while 6% rated this issue neutrally. Those who disagreed or strongly disagreed to the statement totaled 2% (see Table 7).

Knapp (2003) expressed, “In a collaborative community, teachers meet on a regular schedule in teams organized by grade-level or content-area assignments and share responsibility for their students’ success. Learning teams follow a plan” (p. 85).

Collaborative teams of teachers work together, sharing knowledge pertaining to essential curriculum. The problem of too much content with too little time is solved when teachers share opinions and collaborate together (Kendall & Marzano, 2000).

Table 7

Share Teaching Strategies with Colleagues

Scale	Collaborative		Non-Collaborative	
	Frequency	Percent	Frequency	Percent
Strongly Disagree	0.00	0.00	1.00	2.00
Disagree	3.00	6.00	1.00	2.00
Neutral	4.00	8.00	3.00	6.00
Agree	32.00	64.00	33.00	66.00
Strongly Agree	11.00	22.00	12.00	24.00
Total	50.00	100.00	50.00	100.00

Survey statement 10. Our teachers share common, formative, and summative assessments with colleagues. Common assessments are used to determine the prior level of student knowledge and to make decisions related to the level of instruction, grouping, and instructional strategies (DuFour et al., 2008). Usually, common assessments are implemented at the beginning of a unit. Common assessments involve the standards assessed, time element for completion, as well as the means of scoring. Items that may be considered during common assessments involve: multiple choice questions, short answers, constructed response, and student performance items.

Formative assessments take place while the lesson is being taught, continues throughout the unit, and grades are not assigned. During this time, teachers gain knowledge what their students know and adapt teaching to maximize student achievement. Students give feedback during the formative stage and reset goals for improvement (DuFour et al., 2008). Where formative assessments are not graded, summative assessments are designed to be graded. The goal of formative assessment is to improve student achievement, while the goal of summative assessment is to prove student achievement (DuFour et al., 2008). When teachers formulate and share varied types of assessments, it is the most important strategy to ensure the curriculum is taught and learned (DuFour, 2004). Reeves (2004) referred to teacher-made formative assessments as, “best practice in assessment” (p. 71) and the “gold standard in educational accountability” (p. 114).

Sixty-four percent of the collaborative school districts expressed agreement, and 22% strongly agreed teachers shared assessments with colleagues. Also, 10% disagreed with this statement, and 4% were neutral. Of the non-collaborative districts, 48% agreed,

and 24% strongly agreed their teachers shared assessments. Those responding neutral tallied 16%, while 6% each either disagreed or strongly disagreed with the statement (see Table 8).

Table 8

Our Teachers Share Assessments with Colleagues

Scale	Collaborative		Non-Collaborative	
	Frequency	Percent	Frequency	Percent
Strongly Disagree	0.00	0.00	3.00	6.00
Disagree	5.00	10.00	3.00	6.00
Neutral	2.00	4.00	8.00	16.00
Agree	32.00	64.00	24.00	48.00
Strongly Agree	11.00	22.00	12.00	24.00
Total	50.00	100.00	50.00	100.00

Survey statement 11. Collaboration has enhanced teacher collegiality. Among collaborative school districts, 64% agreed collaboration has enhanced teacher collegiality. Strongly agreeing to this statement were 32%, while 2% each either disagreed or were neutral on the statement. For non-collaborative school districts, 58% agreed that collaboration has enhanced teacher collegiality, while 18% were neutral on the statement. Those strongly agreeing totaled 16%, and 4% strongly agreed. Another 4% disagreed (see Table 9).

Meaningful outcomes can be achieved when teachers are capable of working together and sharing their knowledge, ideas, and talents with each other (Brown & Knowles, 2007). The relationships existing within a school community have a large role

in predicting how effective a school's instructional program will be. Teaching and learning are bound to be much more meaningful when positive relationships exist between everyone involved (Jackson & Davis, 2000).

Table 9

Collaboration Has Enhanced Teacher Collegiality

Scale	Collaborative		Non-Collaborative	
	Frequency	Percent	Frequency	Percent
Strongly Disagree	0.00	0.00	2.00	4.00
Disagree	1.00	2.00	2.00	4.00
Neutral	1.00	2.00	9.00	18.00
Agree	32.00	64.00	29.00	58.00
Strongly Agree	16.00	32.00	8.00	16.00
Total	50.00	100.00	50.00	100.00

Survey statement 12. Administrators effectively communicate the district's goals. Of the collaborative school districts, 64% agreed their administrators effectively communicated the school district's goals, another 24% strongly agreed to the statement, while 6% each either disagreed or were neutral on the issue. For non-collaborative school districts, 40% of the respondents agreed that their administrators effectively communicated the school district's goals. In addition, 34% strongly agreed with the statement, while 12% disagreed, 4% strongly disagreed, and 10% were neutral (see Table 10).

According to Howland and Picciotto (2003b), teacher collaboration has the following implications: administrative sanction and support, community representation,

conflict between collaboration and evaluation, and hiring. The school administration is obliged to encourage teacher collaboration, to provide time for collaboration, and to place collaboration above other activities (Howland & Picciotto, 2003b). Schmoker (2004) contended an effective leader is not purely charismatic but exhibits practical behaviors and decisions that directly influence staff members.

Table 10

Administrators Effectively Communicate the School District's Goals

Scale	Collaborative		Non-Collaborative	
	Frequency	Percent	Frequency	Percent
Strongly Disagree	0.00	0.00	2.00	4.00
Disagree	3.00	6.00	6.00	12.00
Neutral	3.00	6.00	5.00	10.00
Agree	32.00	64.00	20.00	40.00
Strongly Agree	12.00	24.00	17.00	34.00
Total	50.00	100.00	50.00	100.00

Survey statement 13. Our district has made measurable academic gains due to teacher collaboration. Among collaborative school districts, 60% of the respondents agreed their students have made measurable academic gains due to teacher collaboration. In addition, 22% strongly agreed with the statement, while 12% were neutral about the issue, and 6% disagreed. For non-collaborative school districts, 48% of the respondents agreed that their students have made measurable academic gains due to teacher collaboration, while 10% strongly agreed with the statement. Twenty-eight responded

neutrally, and 12% disagreed. Moreover, 2% strongly disagreed with the statement (see Table 11).

Reeves (2003) found certain traits common among teachers based in schools known for their high achievement level; these teachers were more likely to collaborate with each other in order to address academic underachievement among their students. Aside from academic achievement, focus was also given on student progress. Teachers were more aware of how much the students had already accomplished and how much more they could still improve.

Table 11

Measurable Academic Gains due to Teacher Collaboration

Scale	Collaborative		Non-Collaborative	
	Frequency	Percent	Frequency	Percent
Strongly Disagree	0.00	0.00	1.00	2.00
Disagree	3.00	6.00	6.00	12.00
Neutral	6.00	12.00	14.00	28.00
Agree	30.00	60.00	24.00	48.00
Strongly Agree	11.00	22.00	5.00	10.00
Total	50.00	100.00	50.00	100.00

Survey statement 14. Teacher collaboration has enhanced the school district's atmosphere. According to Brown and Knowles (2007), the collaborative model gives teachers the opportunity to learn from their colleagues and share information about teaching strategies, what works for them, and what does not work in the classroom. This learning process creates a positive atmosphere in the school system that benefits

everyone involved through planning lessons, constructing goals for their students, and creating assessments.

Of the respondents from collaborative school districts, 52% agreed teacher collaboration has enhanced the school district's atmosphere. Moreover, 32% strongly agreed, another 14% were neutral on the issue, and 2% disagreed. Of the respondents from non-collaborative school districts, 60% agreed that teacher collaboration has enhanced the school district's atmosphere, while 8% strongly agreed. In addition, 22% were neutral on the statement, while 8% disagreed, and another 2% strongly disagreed (see Table 12).

Table 12

Teacher Collaboration has Enhanced the School District's Atmosphere

Scale	Collaborative		Non-Collaborative	
	Frequency	Percent	Frequency	Percent
Strongly Disagree	0.00	0.00	1.00	2.00
Disagree	1.00	2.00	4.00	8.00
Neutral	7.00	14.00	11.00	22.00
Agree	26.00	52.00	30.00	60.00
Strongly Agree	16.00	32.00	4.00	8.00
Total	50.00	100.00	50.00	100.00

Survey statement 15. Teacher collaboration has helped drive the mission of the school district. Of the collaborative schools, 64% agreed that teacher collaboration had helped drive the mission of the schools, while 22% strongly agreed, and 14% were neutral. The majority of the non-collaborative school districts (56%) agreed that teacher

collaboration had helped drive the mission of the schools, while 18% strongly agreed. Moreover, 16% disagreed, while 10% were neutral on the statement (see Table 13).

Schools across the country are moving away from the isolated working environment that has traditionally dominated the teaching profession. In order to drive the mission of the school, educators are learning, through research and practice, that teachers, like other professionals, perform more effectively, even exponentially, when they collaborate (Schmoker & Wilson, 1993).

Table 13

Teacher Collaboration Helped Drive the Mission of the School

Scale	Collaborative		Non-Collaborative	
	Frequency	Percent	Frequency	Percent
Disagree	0.00	0.00	8.00	16.00
Neutral	7.00	14.00	5.00	10.00
Agree	32.00	64.00	28.00	56.00
Strongly Agree	11.00	22.00	9.00	18.00
Total	50.00	100.00	50.00	100.00

Collaboration Implementation

Length of Time - Responses 1-3. The purpose of determining the length of time the collaborative and non-collaborative districts had adopted collaboration was to reveal if there existed a relationship between the number of years collaborating and the mean scores derived for each Likert statement. The various statements were interpreted using the following mean (*M*) ranges: 1.00-1.49, (strongly disagree); 1.50-2.49, (disagree); 2.50-3.49, (neutral); 3.50-4.49, (agree); and 4.50-5.00, (strongly agree).

Statement 1: Teacher collaboration has been productive. For the collaborative districts, the total was $M = 4.28$. For the non-collaborative school districts, for year 0; the mean fell into the neutral range ($M = 3.00$); years 1-2, the mean also fell into the neutral range ($M = 3.11$); however, years 3-4, 5-6, and more than 6 years, the mean fell into the agreed range. The total mean among non-collaborative districts was $M = 3.82$. Evidence that teacher collaboration has been productive increased with the length of time implementing collaboration (see Table 14).

Statement 2: Our district utilizes SMART Goals. For the collaborative school districts, for all years, the mean fell into the agreed range ($M = 3.98$). For the non-collaborative school districts, years 0 and 1-2; the mean fell into the disagreed range. For years 6 or greater, the mean fell into the neutral range, and for years 3-4 and 5-6, the mean fell into the agreed range. The total for non-collaborative school districts using SMART Goals fell into the neutral range ($M = 3.26$) (see Table 14).

Statement 3: Our district has spent useful time on vertical and horizontal teaming. For the collaborative school districts, for all years, the mean fell within the agreed range ($M = 3.96$). For non-collaborative school districts, the mean also fell into the agreed range ($M = 3.86$). Both collaborative and non-collaborative school districts agreed to the statement that their districts spent useful time on vertical and horizontal teaming as part of their curriculum (see Table 14).

Table 14

Analysis of Likert Statements 1-3

Statement	Length of Time Using Teacher Collaboration	Collaborative Avg. Range	Non-Collaborative Avg. Range
1. Teacher collaboration has been productive.	0 years	0.00	3.00
	1-2 years	4.00	3.11
	3-4 years	4.36	4.17
	5-6 years	4.40	4.25
	> 6 years	4.28	3.91
	Total	4.28	3.82
2. Our district utilizes SMART Goals.	0 years	0.00	2.00
	1-2 years	4.25	2.44
	3-4 years	4.00	3.83
	5-6 years	4.20	4.00
	> 6 years	3.72	3.26
	Total	3.98	3.26
3. Our district has spent useful time on vertical and horizontal teaming.	0 years	0.00	4.00
	1-2 years	3.75	3.56
	3-4 years	4.00	4.17
	5-6 years	4.30	4.25
	> 6 years	3.83	3.74
	Total	3.96	3.86

Note. Mean (*M*) ranges: 1.00-1.49, (strongly disagree); 1.50-2.49, (disagree); 2.50-3.49, (neutral); 3.50-4.49, (agree); and 4.50-5.00, (strongly agree).

Length of Time - Responses 4-6. The various statements were interpreted using the following mean (*M*) ranges: 1.00-1.49, (strongly disagree); 1.50-2.49, (disagree); 2.50-3.49, (neutral); 3.50-4.49, (agree); and 4.50-5.00, (strongly agree).

Statement 4: Our teachers share their teaching strategies with their colleagues. For collaborative school districts, the range fell within the agreed range (*M* = 4.02). For non-collaborative school districts, the school districts reporting 0 years of

collaboration, the mean fell into the neutral range ($M = 2.50$). For years 5-6, the mean fell into the strongly agreed range ($M = 4.50$). For all other years, the mean fell into the agreed range. The total for the non-collaborative schools fell within agreed range ($M = 4.08$) (see Table 15).

Statement 5: Our teachers share common, formative, and summative assessment with colleagues. The collaborative school districts agreed with this statement ($M = 3.98$). For the non-collaborative school districts, years 1-2, the mean fell into the disagreed range ($M = 2.44$). For years 3-4, 5-6, and greater than 6 years, responses fell within the agreed range ($M = 3.78$) (see Table 15).

Statement 6: Collaboration has enhanced teacher collegiality. According to the results of the Likert-scale responses, collaborative school districts reported teacher collegiality had been enhanced through collaborative efforts for 5-6 years (strongly agreed); 1-2, 3-4, and greater than 6 (agreed); and the total mean range was $M = 4.26$. The non-collaborative school districts reported 0 and 1-2 years (neutral); years 3-4, 5-6, and greater than 6 (agreed). The total mean range was $M = 3.78$ (see Table 15).

Table 15

Analysis of Likert Statements 4-6

Length of Time Using Teacher Collaboration	Years	Collaborative Avg. Range	Non-Collaborative Avg. Range
4. Our teachers share their teaching strategies with colleagues.	0 years	0.00	2.50
	1-2 years	3.75	3.89
	3-4 years	4.07	4.33
	5-6 years	3.90	4.25
	> 6 years	4.17	4.13
	Total	4.02	4.08
5. Our teachers share common, formative, and summative assessments with colleagues.	0 years	0.00	3.50
	1-2 years	3.50	2.44
	3-4 years	4.14	4.25
	5-6 years	4.00	4.50
	> 6	4.06	3.96
	Total	3.98	3.78
6. Collaboration has enhanced teacher collegiality.	0 years	0.00	2.50
	1-2 years	4.00	3.33
	3-4 years	4.36	3.92
	5-6 years	4.50	4.00
	> 6 years	4.17	3.96
	Total	4.26	3.78

Note. Mean (*M*) ranges: 1.00-1.49, (strongly disagree); 1.50-2.49, (disagree); 2.50-3.49, (neutral); 3.50-4.49, (agree); and 4.50-5.00, (strongly agree).

Length of Time - Responses 7-9. The various statements were interpreted using the following mean (*M*) ranges: 1.00-1.49, (strongly disagree); 1.50-2.49, (disagree); 2.50-3.49, (neutral); 3.50-4.49, (agree); and 4.50-5.00, (strongly agree).

Statement 7: Our administrators communicate the district's goals.

Collaborative school districts responded district goals were communicated by

administrators (1-2, 3-4, 5-6, and greater than 6 years: agreed). The total mean range was $M = 4.06$. Non-collaborative school districts reported 0 years and 1-2 years (neutral); years 3-4, 4-5, and greater than 6 (agreed). The total mean range was $M = 3.88$ (see Table 16).

Statement 8: Our students made measurable academic gains due to collaboration. The collaborative school districts responded student academic gains were made due to collaboration, years 1-2 (neutral); years 3-4, 5-6, and greater than 6 (agreed); and the total mean range was $M = 3.98$. For the non-collaborative school districts 0, 1-2, and 3-4 years, the mean fell into the neutral range. The mean fell into the agreed range ($M=3.52$) for years 5-6, and greater than 6 (see Table 16).

Statement 9: Teacher collaboration has enhanced the district's atmosphere. The collaborative school districts agreed (all years) with this statement. The total mean range was $M = 4.14$. For non-collaborative school districts, for years 0, 1-2 and 3-4, the average fell within the neutral range. For years 5-6 and greater than 6, the mean fell within the agreed range. The total mean was $M = 3.64$ (see Table 16).

Table 16

Analysis of Likert Statements 7-9

Length of Time Using Teacher Collaboration	Years	Collaborative Avg. Range	Non-Collaborative Avg. Range
7. Our administrators communicate the district's goals.			
	0 years	0.00	3.00
	1-2 years	3.88	3.11
	3-4 years	4.07	4.17
	5-6 years	4.30	4.50
	> 6 years	4.00	4.00
	Total	4.06	3.88
8. Our students made measurable academic gains due to collaboration.			
	0 years	0.00	2.50
	1-2 years	3.25	3.00
	3-4 years	4.07	3.42
	5-6 years	4.30	3.75
	> 6 years	4.06	3.83
	Total	3.98	3.52
9. Teacher collaboration has enhanced the district's atmosphere.			
	0 years	0.00	3.00
	1-2 years	3.63	3.44
	3-4 years	4.21	3.42
	5-6 years	4.30	4.00
	> 6 years	4.22	3.83
	Total	4.14	3.64

Note. Mean (*M*) ranges: 1.00-1.49, (strongly disagree); 1.50-2.49, (disagree); 2.50-3.49, (neutral); 3.50-4.49, (agree); and 4.50-5.00, (strongly agree).

Length of Time - Response 10 and Totals. The various statements were interpreted using the following mean (*M*) ranges: 1.00-1.49, (strongly disagree); 1.50-2.49, (disagree); 2.50-3.49, (neutral); 3.50-4.49, (agree); and 4.50-5.00, (strongly agree).

Statement 10: Teacher collaboration has helped drive the mission of the school district. The collaborative school districts agreed (all years) with this statement.

The total mean range was $M = 4.08$. For the non-collaborative school districts, 0 and 1-2 years, the mean fell into the neutral range. Non-collaborative districts reported the mission of the district had been emphasized through collaborative efforts for 3-4, 5-6, and more than 6 years (agreed). The total mean range was $M = 3.76$ (see Table 17).

Overall, in each segment of years, except for more than 6 years, the mean for the collaborative school districts was higher than the non-collaborative school districts. For collaborative schools (years 1-2), the total mean range was $M = 3.76$, while in the same number of years the mean range was $M = 3.13$ for non-collaborative schools. For collaborative school districts (years 3-4), the total mean range was $M = 4.14$, and the mean range was $M = 3.95$ for non-collaborative schools. For collaborative school districts in years 5-6, the total mean range was $M = 4.25$. Of the non-collaborative school districts in the 5-6 year category, the mean total range was $M = 4.20$. For the collaborative school districts, the total mean range (more than 6 years) $M = 4.06$. As for the non-collaborative school districts (more than 6 years) the total mean range was $M = 3.86$.

As shown in Table 17, among collaborative school districts, all of the groups, subdivided by length of time using teacher collaboration, agreed to all of the statements. The total mean for collaborative school districts was 4.07. Overall, the non-collaborative school districts responded to the Likert-scale statements regarding teacher collaboration in the neutral range for 0 and 1-2 years and in the agreed range for all other years ($M = 3.74$). While the differences in the means are not substantial between the collaborative and non-collaborative school districts, there is a trend in which the mean of each statement is higher among the collaborative school districts versus its counterpart, the non-collaborative school districts.

Table 17

Analysis of Likert Statement 10 and Totals

Length of Time Using Teacher Collaboration	Years	Collaborative Avg. Range	Non-Collaborative Avg. Range
10. Teacher collaboration has helped drive the mission of the district.	0 years	0.00	3.00
	1-2 years	3.63	3.00
	3-4 years	4.14	3.83
	5-6 years	4.30	4.50
	> 6	4.11	3.96
	Total	4.08	3.76
Total of Statements	0 years	0.00	2.90
	1-2 years	3.76	3.13
	3-4 years	4.14	3.95
	5-6 years	4.25	4.20
	> 6 years	4.06	3.86
	Total	4.07	3.74

MAP Analysis.

Eighth grade MAP scores in the Proficient and Advanced categories from the Communication Arts and Math subtests among the collaborative and non-collaborative school districts were analyzed. The scores in the Proficient and Advanced categories from the 2010 MAP, in the area of Communication Arts and Math, were obtained from the MODESE website. The percentage of students scoring in the Proficient and Advanced levels was totaled for each district participating in this study. Then, the data were disaggregated into two categories: school districts that practice teacher collaboration (through designated contracted time) and school districts that are non-collaborative (not using contracted time). The MAP scores in the Below Basic and Basic were omitted from the study. The mean of the Proficient and Advanced was used as indicators of the school

district's success meeting proficiency in Communication Arts and Math. Following the collection of the surveys, a software program, Statistical Package for the Social Sciences (SPSS) version 15.0, was used to encode and store the data.

For the non-collaborative schools (see Table 18), the percentage of students scoring in the Proficient and Advanced levels ranged from 19.80 to 66.70 in Communication Arts ($M = 45.08$; $SD = 10.02$). For the collaborative schools (see Table 18), the percentage of students scoring in the Proficient and Advanced levels ranged from 39.10 to 76.60 in Communication Arts ($M = 55.99$; $SD = 7.95$).

Among the non-collaborative schools, the percentage of students scoring in the Proficient and Advanced levels ranged from 15.80 to 61.20 in Math ($M = 43.35$; $SD = 11.11$). For the collaborative schools, the percentage of students scoring in the Proficient and Advanced levels ranged from 40.00 to 75.50 in Math ($M = 56.06$; $SD = 7.83$).

Contrasting the MAP scores in Communication Arts of non-collaborative and collaborative school districts revealed a mean difference of 10.91. The collaborative school districts scored higher in the combined Proficient and Advanced levels than non-collaborative school districts. Contrasting the MAP scores in Math of the non-collaborative and collaborative school districts also revealed a greater disparity with a mean difference of 12.71. Again, the collaborative school districts scored higher in the combined Proficient and Advanced levels than the non-collaborative school districts in both Communication Arts and Math.

Table 18

Communication Arts and Math: Collaborative and Non-Collaborative Districts

Non-Collaborative	<i>N</i>	Minimum	Maximum	<i>M</i>	<i>SD</i>
Communication Arts	50.00	19.80	66.70	45.08	10.02
Math	50.00	15.80	61.20	43.35	11.11
Collaborative	<i>N</i>	Minimum	Maximum	<i>M</i>	<i>SD</i>
Communication Arts	50.00	39.10	76.60	55.99	7.95
Math	50.00	40.00	75.50	56.06	7.83

Note: Percentage of students scoring in the Proficient and Advanced levels.

***t*-test.** The MAP data, specifically the scores of eighth grade students on the Communication Arts and Math subtests, and the responses from the survey were collected then analyzed using a *t*-test for two independent groups. The levels of collaboration were, likewise, statistically compared through this procedure. The *t*-test measures the difference between two population means (Creswell, 2009).

A *t*-test was applied to determine any statistical difference between scores for collaborative school districts and non-collaborative school districts in Communication Arts and Math (see Table 19). The alpha level identified for significance was .05. Differences were found to exist between the Communication Arts and Math scores on the eighth grade MAP test. For Math, the two-tailed *P* value was less than 0.0001. For Communication Arts, the two-tailed *P* value was less than 0.0001. Both of the *t*-tests results are extremely significant, showing higher scores on Communication Arts and Math among school districts that collaborate using contracted time.

Table 19

Statistical Significance between Collaborative and Non-Collaborative Districts

Comparing Collaborative and Non-Collaborative Districts	<i>t</i> -value	Alpha Level
Communication Arts	<.0001	0.05
Mathematics	<.0001	0.05

Note: Significance at .05 level (2-tailed).

Summary

The purpose of this study was to investigate the relationship of teacher collaboration and student achievement in Communication Arts and Math on the MAP at the eighth grade level. The strategies associated with collaboration, the relationship between strategies utilized by collaborative school districts, and collaborative strategies utilized by non-collaborative school districts were compared and contrasted. The collaborative school districts garnered higher means on Communication Arts and Math MAP assessments than non-collaborative districts.

This study established comparable measures between collaborative and non-collaborative districts on selected aspects of teacher collaboration. In particular, collaborative school districts have garnered higher ratings on the following aspects of teacher collaboration compared to non-collaborative school districts: productivity of teacher collaboration; utilization of SMART goals to improve learning of students; enhancing of teacher collegiality; experiencing measurable academic gains through collaboration; improvement of the school district's atmosphere; driving the mission of the school; and teacher collaboration overall.

The district's responses to their promotion or support time for teacher collaboration were analyzed. For collaborative and non-collaborative school districts, both had a large majority of school districts responding their school district adopted teacher collaboration. The study revealed the length of time for promoting teacher collaboration. Forty percent of the overall sample supported teacher collaboration for more than 6 years, and the same patterns were noted for both collaborative and non-collaborative groups.

Half of the schools in the sample responded that their teacher collaboration occurred during contracted time (early or late start). In addition, planning during the school day was reported by 25% of the non-collaborative districts, and 20% expressed their teacher collaboration model was in the form of professional development workshops. Five percent of the non-collaborative schools reported book study groups were used as the collaboration model. There were marked differences between collaborative and non-collaborative schools in terms of their teacher collaboration model.

In Chapter Five, an overview of the design of this study was presented. In addition, a review of the findings of the study was given, as well as conclusions. Finally, implications of the study and recommendations for further research were addressed.

Chapter Five: Conclusions and Recommendations

The use of teacher collaboration and its relationship to student achievement was the purpose of this study. According to Goddard and O'Brien (2004), there have been studies that teacher collaboration has positive effects on student achievement in mathematics and reading. This study examined the various models associated with teacher collaboration and then determined the relationship between the collaborative models and student achievement.

Many schools purport to utilize a teacher collaboration model. However, schools must distinguish between effective collaboration and the appearance of teamwork (Schmoker, 2004). Most alliances among teachers are not task oriented at all (Little, 1982). This study addressed the advantages and problems involved with collaboration and how teacher collaboration affects student performance.

Summary of the Study

This study examined the level of collaboration within a school district based on a list of variables rating a school district as collaborative (using contracted time embedded during the school day) or non-collaborative (collaboration occurring in book study groups, during workshops, or professional development). Also, the purpose of this study was to explore the relationship between teacher collaboration and student achievement on the MAP in Communication Arts and Math among eighth graders. Many researchers have attributed a well-designed teacher collaborative process in improving student achievement.

Howland and Picciotto (2003b) pointed out the various components involved in teacher collaboration using five principles: teaching and learning; pedagogical and

curricular issues; encouragement of professional growth; departmental improvement; and student benefit. The findings indicated that collaborative school districts rated their degree of collaboration higher than those classified as non-collaborative. Tangible outcomes on student achievement were also higher among collaborative schools. Consistent with Howland and Picciotto (2003b), teacher collaboration allows teachers in collaborative schools to share thoughts and opinions with each other, with the intent of covering weaknesses and further building on strengths (Howland & Picciotto, 2003b). This being the case, teacher collaboration becomes a way for Missouri teachers to hone their skills and knowledge. The equality espoused by this principle means that everyone should be accepting of constructive criticism, but that the focus is less on teacher flaws than on the flaws encountered in departmental programs. It is through this principle that teachers better understand what goes on in other departments.

Teacher collaboration is being used among both collaborative and non-collaborative schools, according to this study; however, the intensity and systematic implementation are more marked among collaborative schools. As attested by Howland and Picciotto (2003b), teacher collaboration has just as much to do with ethics as it does with a set of practices. It is also through this principle that the faculty makes concrete their intent and commitment to their overall professional growth, which in turn pertains as much to understanding student learning as it does improving on teaching skills. In such an environment, the administration is more supportive of teaching activity, and the community is more involved. The conflict between collaboration, evaluation, and hiring also becomes more apparent as the administration becomes more and more obliged to

promote teacher collaboration and give it the highest priority (Howland & Picciotto, 2003b).

According to the results of Fine's study (2010), the majority of teachers and principals were aware of the substantial impact greater collaboration would have on student achievement, which is in part why teacher collaboration has been increasingly discussed. This has also been validated in the present study where even non-collaborative schools agreed on the various benefits that teacher collaboration may make possible for them. Among the benefits of heightened teacher collaboration are greater career satisfaction and retention among teachers and administrators, not to mention a better school climate. Some, however, were concerned that individual accountability, classroom independence, and clarity of responsibilities may be undermined (Fine, 2010). There must be concrete ways of increasing the degrees of collaboration in non-collaborative schools, as schools in which a spirit of collaboration exists enjoy better morale, as well as stronger bonds of trust among its members. Educators are also able to take more pride in the success of their students and thus experience greater job satisfaction (Fine, 2010).

Lortie (1975) asserted that strong working relationships should also come about in part due to professional development among collaborative schools. American teachers in general have yet to discover its importance (Hord, 2008). It does not help, then, that the traditional structure of a school is that teachers work alone. Coupled with isolationist school structures and working conditions, this cultural norm will take a lot of work to change. These non-collaborative practices are more apparent among schools that are taking an initial effort towards implementing teacher collaboration, but have not advocated adopting contracted time for teacher collaboration. Among these non-

collaborative schools, there should be firm acknowledgement of the number of benefits involved when schools take a more strategic approach to cultivating more productive working relationships within academic departments and grade levels. For one thing, teachers become more consistent in their instruction methods and are more willing to share their practices while trying newer ones. Finally, they also experience more success when it comes to problem-solving (Hord, 2008).

Towards transforming non-collaborative schools to collaborative educational institutions, DuFour (2003) pointed out the importance of formulating structures that allow teachers to analyze and then improve on their classroom practice. Such schools are able to promote student achievement and learning for teachers at the same time. Teachers need to be willing to share the goals and strategies underlying their best practices and to conduct regular meetings with the intent of establishing norms, expectations, responsibilities, and strong working relationships among them (DuFour, 2003). Bunker (2008) asserted teachers need to constantly evaluate their teaching practices and adjust as the situation changes.

Moreover, the non-collaborative school districts in the present study need to incorporate more formal occasions that necessitate collaboration among teachers, such as team teaching, vertical teaming, and integrated lesson designs. Such a team is especially structured for shared communication, which allows the teachers therein to develop a sense of community and effectiveness. In order for a professional community to develop, educators need to possess structures and opportunities conducive for the exchange of ideas within and among organizational units. Even regular meetings and electronic mail systems help in allowing information to reach team members (Fullan, 2007).

It is not at all surprising that teachers have begun to see just how much of an asset collaboration can be. Little (1987) enumerated the benefits of good collaboration, such as heightened achievement and better problem solving. The staff also benefits in the form of heightened confidence, which in part helps them to better examine and test ideas, methods, and materials. Fullan (2007) asserted that effective collaboration is the best sign of staff development and noted that fewer schools allow a culture of isolation to pervade in their faculty rooms. Such a phenomenon has come to pass due to the large volume of research that attests to the role of collaboration in multiplying the capabilities of teachers (Schmoker & Wilson, 2011).

Research Questions

The following questions guided the study.

Research question one. What is the relationship between an embedded collaboration model utilized by collaborative school districts and the non-embedded collaboration models utilized by non-collaborative school districts?

To answer question one, a Likert-survey of thirteen questions were completed by both the collaborative and non-collaborative Professional Development Chairs to determine the relationship between procedures utilized by each group. There was no statistical significant difference among and between the collaborative and non-collaborative school districts on the survey responses. However, the collaborative schools achieved higher mean ranges on all survey responses, showing a marked difference that the collaborative school districts (designated contracted time) utilize collaborative strategies to a higher degree than non-collaborative districts (planning during the school day at lunch breaks, book studies, designated workshops).

Research question two. How does teacher collaboration affect student achievement in Communication Arts and Math on the MAP at the eighth grade level?

The present study found significant differences in student achievement of collaborative and non-collaborative schools, with the former yielding higher scores in both Math and Communication Arts by more than ten percentage points in each subject on the MAP. These are consistent with the findings of Reeves (2003) who found that instructional strategies were critical to the academic achievement of students.

Conclusions

When comparing MAP scores, there was a significant difference between collaborative and non-collaborative school districts. The collaborative school districts achieved a higher percentage by more than ten points in both Math and Communication Arts on the MAP test at the eighth grade level than non-collaborative school districts. This can be attested to the structure of which collaboration takes place. Among the non-collaborative school districts, collaboration took place during planning within the school day at lunch breaks or recess, book studies, and designated workshops. This model of collaboration is by invitation rather than an ongoing structured format yielding anticipated results. Whereas, collaboration for the collaborative school districts took place during contracted time.

Many schools, according to DuFour (2011), allow contracted time for teacher collaboration. The school will have either a late start or an early dismissal to allow teachers to collaborate. This gives gravity to the importance of structured time, as well as leverage for the administration to correctly plan, guide, and implement proper use of the collaborative time. According to DuFour (2011), "By making minor adjustments to the

schedule, the entire faculty is guaranteed an hour of collaborative planning time, but their work day or work week has not been extended by a single minute” (p. 196). Eaker et al. (2006) suggested building collaborative time within the master schedule to allow daily common preparation periods for teachers of the same course or department. Eaker (2006) advocated, “Each team should then designate one day each week to engage in collaborative, rather than individual, planning” (p. 98).

Half of the schools of the overall sample responded their teacher collaboration model is described as contracted time (early or late start). The non-collaborative schools reported their collaboration model as, planning during the school day (25%) and professional development workshops (20%). Five percent of the non-collaborative schools listed book study as collaboration time. There were marked differences between collaborative and non-collaborative schools in terms of their teacher collaboration model.

Looking at the demographic profile of the schools which participated in the study, the majority had 501-1,500 students enrolled, while a fourth fell into the 0-500 student enrollment category, nearly a fifth enrolled 1,501-3,000 students, and 15% had 3,000 students. When collaborative and non-collaborative schools were compared, the majority of collaborative schools had student enrollments between 501-1,500 students, while the majority of non-collaborative schools were much smaller in terms of student enrollment, with 0-500 students. Overall, 40% of the sample had supported teacher collaboration for more than six years for both collaborative and non-collaborative groups. A large percentage (76%) either agreed or strongly agreed that teacher collaboration had been productive in their school district.

In general, the teacher collaboration indicators captured in the various statements of the survey received agreement. These outcomes indicated the schools find teacher collaboration a productive exercise and observe teachers sharing pedagogical strategies with each other. Supportive of this, school districts also agreed teachers share common, formative, and summative assessments. The Professional Development Chairs likewise concurred that teacher collaboration has improved their collegiality; has assisted them in achieving their mission; improved their school district's atmosphere; and has allowed their students to make academic benefits. Both groups agreed their administrators use teacher collaboration to drive district goals, and their schools have allotted time for vertical and horizontal teaming. Both collaborative and non-collaborative respondents agreed their schools utilized SMART Goals to improve the learning of their students. The previous statement was rated in the neutral range by non-collaborative schools, while collaborative schools agreed with this statement.

The length of time for implementing teacher collaboration seems to have an effect on the level of teacher collaboration as reported by the respondents. The productivity of teacher collaboration was agreed upon more by schools which have been using teacher collaboration for a longer period of time. The same pattern was noted for the utilization of SMART Goals for the improvement of student learning. The sharing of common, formative, and summative assessments with colleagues; belief that it enhanced collegiality; the effectiveness with which administrators clarify objectives; and teacher collaboration leading to measurable academic benefits for students also tended to be higher among the schools which have advocated teacher collaboration for longer periods

of time. This pattern was also observed as these practices have assisted in achieving the school mission.

Among collaborative schools, it was found, that in terms of length of time involved in teacher collaboration, schools implementing teacher collaboration for a longer time had significantly higher ratings than schools implementing teacher collaboration for a shorter time. The longer collaboration was used, the higher the scores on student achievement. In contrast, among non-collaborative schools, the same pattern of outcomes was noted for productivity of teacher collaboration; utilization of SMART Goals; sharing of teaching strategies; sharing of assessments; helping drive the school's mission; and overall extent of practice of teacher collaboration

Student enrollment did not have a significant difference on the teacher collaboration ratings of the overall sample, and this was upheld by the results of non-collaborative schools. However, significant differences were noted for achieving measurable academic gains through teacher collaboration, with the largest enrollment group having significantly higher ratings compared to the 501-1,500 student enrollment category.

As suggested by Howe (2007), schools that embrace teacher collaboration tend to ensure the success of educational reform, in part because teaching as a profession needs to be cured of its isolationist tendencies. Moreover, these schools also tend to ensure teacher satisfaction, which has also been noted by Woods and Weasmer (as cited in Howe, 2007). According to Ma and McMillan (as cited in Howe, 2007), both teacher satisfaction and professional involvement hinge on collaboration and collegiality, while

Schmoker (1999) conveyed that even seemingly dramatic school improvement can in fact become reality when certain conditions are fulfilled.

Sadly, teacher collaboration is still usually the exception rather than the rule in most schools, and this inadequacy is more apparent among schools which have just begun their efforts at teacher collaboration and which advocate the designated professional development workshops collaboration models. As shown in the present study, many schools continue to have teachers working in isolation and collaboration with other teachers is limited. As supported by Fine's (2010) study, most principals and teachers in non-collaborative schools have the *intent* of heightening student success by encouraging teachers to work together more, and different schools have different means of accomplishing this objective.

Implications for Practice

For the schools which have just begun their efforts at establishing effective teacher collaboration, they may do well in heeding the advice of DuFour (2003) who emphasized the importance of formulating programs that enable teachers to analyze and improve their teaching strategies. It is necessary for teachers to be willing to interact with colleagues in order to share ideas and strategies (DuFour, 2003). Moreover, teachers should expect regular meetings and establish good working relationships with colleagues, as well as numerous responsibilities (DuFour, 2003). Bunker (2008) also recommended researchers have to constantly evaluate current teaching practices in order to adjust accordingly.

Moreover, the non-collaborative Missouri schools in particular are encouraged to develop formal programs that allow teachers to collaborate with one another.

Collaboration, when properly implemented, creates an atmosphere that promotes a positive and rewarding learning community. Regular meetings and online communication could be used to extend interaction and information exchange among teachers (Fullan, 2007) and among Missouri's non-collaborative schools.

For both collaborative and non-collaborative schools, improving teacher collaboration may involve the school administration observing the performance of teachers as a team and modifying their assignments. The school administrators should also recognize the strengths and weaknesses of every teacher team (Gajda & Koliba, 2008). Teachers under the collaborative practice tend to have regular group meetings. Their discussions enable them to acquire knowledge and find new ways to refine their instructional techniques (Knapp, 2003). Professional learning among teachers must be taken seriously by all stakeholders (Duncan et al., 2007).

The obstacles, issues, and concerns of teacher collaboration need consideration by the school districts which participated, specifically the non-collaborative districts. It is apparent that some teachers may not want to collaborate with their colleagues. Common school culture may affect teachers due to the habitual norm of isolationism among teachers. Moreover, the school administration must give constant attention and effort in supporting teacher collaboration in order for it to succeed (Martin, 2008). Difficulties may also stem from the results of an improper balance between teacher autonomy and collaboration; the individual backgrounds of the teachers, departmental politics, and interpersonal relations also contribute to such challenges (Abrahams, 1998). All these must be considered by the schools to fully lend support to teacher collaboration.

Despite the growing attention and interest the concept of teacher collaboration has gained, a question still remains whether it will make a significant impact in the long run, which suggests the need for further research in the area. Based on findings from this study, a relationship was found between school districts embedding collaboration through contracted time and higher student achievement, as evidenced by Communication Arts and Math scores on the MAP. After the use and introduction of many teaching practices throughout the years, teachers are hesitant to adopt yet another teaching strategy, including teacher collaboration. However, schools are encouraged to develop and implement collaborative practices since these could increase teacher confidence, performance, and especially gains in student achievement.

Collaboration practices may be challenging to carry out since various schools have different issues which may hinder school administrators from establishing another new teaching strategy. Despite this, collaboration practices serve as a strong foundation for better learning and teacher satisfaction. Furthermore, the most successful and influential schools are those that have implemented collaboration practices where both teachers and students are given the opportunity to work together with the common goal of improving themselves.

Recommendations

The relationships among all educators within a school community may determine how effective the school's instructional program will be. Teaching and learning are bound to be much more meaningful when positive relationships exist between everyone involved (Jackson & Davis, 2000). A very accurate way of measuring success is whether one's endeavors can be characterized by effective cooperation and communication, as

well as whether each is concerned for the wellbeing of one another. In this way, teachers and students alike acquire the necessary social and emotional tools to facilitate more meaningful learning (Brown & Knowles, 2007). Such a strategy turns the classroom into a learning community in which the teachers can be counted upon to remain reliable. Shared facilitative leadership, aligned rigorous curriculum, and effective instructional practice come together to help promote student performance, as do time and organizational structures (Reeves, 2003).

The use of collaborative practices within Missouri schools is worth pursuing, given the benefits of adopting a collaborative approach to learning. These include the enhancement of critical and creative thinking among students, improving their self-esteem, their social skills, and a better outlook toward their subjects. The problem is that most teachers balk at the concept of collaboration, seeing it as needlessly burdensome and tedious. Thus, they do not get to enjoy these benefits (Johnson & McCafferty, n.d.). Collaboration also allows teachers to better understand the needs of their students and thus hasten the rate at which students acquire learning (DelliCarpini, 2008).

While Missouri teachers are not unaware of the benefits of collaboration (Corcoran et al., 2003), they may not be aware of the best way to implement collaboration towards increasing student achievement. Teacher collaboration works best when addressing student learning. Among the schools whose profiles seem to preclude teacher collaboration practices, they may do well to adopt the recommendations of the Teacher Collaboration Improvement Framework (Gajda & Koliba, 2008), which shows how teacher collaboration can be administered, evaluated, and then improved. This involves raising collaboration literacy, identifying communities of practice, reconfiguring

teacher teams, assessing quality of collaboration, making corrections, and recognizing accomplishments. While not all of these stages or practices have been assessed in the present study, the results for non-collaborative schools suggest there are areas that need improvement.

The process involved in creating a successful teaching collaboration community can either be simple or complex, but the important point is that everyone involved can work together in order to achieve much more than previously thought possible. The collaboration of Missouri teachers may have positive effects on a teacher's daily tasks such as improving subject matter, making assessments, enlisting material support, participating in departmental meetings, evaluating test scores, and crafting creative student activities (Brown & Knowles, 2007).

Summary

Given the significantly higher student achievement scores on both MAP subjects for the collaborative school districts using contracted time, non-collaborative school districts, not using contracted time, may need to explore how teachers are encouraged to interact with fellow teachers in order to share teaching strategies and opinions, with the aim of analyzing weaknesses and improving teaching practices (Howland & Picciotto, 2003b). Teacher collaboration serves as a bridge for teachers to improve their skills and widen their knowledge. In addition, this principle emphasizes that teachers are equal and must be able to accept constructive criticism and find solutions. Moreover, collaboration helps teachers understand the operations of other school departments.

Howland and Picciotto (2003b) contended collaboration affects the professional growth of teachers, which entails understanding the profession and improving one's

personal teaching practices. Institutions that incorporate collaboration have educational communities that are more immersed in the process of teaching and learning. Most importantly is the impact on student achievement (Howland & Picciotto, 2003b).

In addition, in terms of classroom practices, the results are consistent with the positive findings on teacher collaboration, as promoted by Reeves (2003). These practices are also aligned with the findings of Brown and Knowles (2007), who determined students achieve more through collaboration especially when teachers are committed to their vocation. Teacher collaboration must also include teachers respecting each other, as this will influence their tendency to interact and react on suggested ideas (Turning Points: Transforming Middle Schools, 2001); sharing their knowledge and talents with one another (Brown & Knowles, 2007); and considering the welfare of their students when planning instructional strategies (Tomlinson, 2011).

Moreover, collaboration has a great number of positive effects on the daily tasks of teachers, specifically in improving subject matter, making assessments of problems, participating in departmental meetings, and evaluating test scores (Brown & Knowles, 2007). In general, teaching and learning are more effective and fruitful when positive relationships are established among the parties involved (Jackson & Davis, 2000). A good indicator of the success of an institution is how well the members cooperate with each other. When teachers and students work together with the common aim of improving their learning, a better educational atmosphere is achieved (Brown & Knowles, 2007). This makes a classroom a learning community where teachers facilitate leadership and can identify the gaps and overlaps in their subjects, as well as within the district curriculum.

Collaboration is the process of developing interdependent relationships where all are focused on a common purpose and set of goals and where people must rely on each other to achieve these goals. It is the synergy created when a group's effectiveness exceeds what individuals can accomplish on their own. Collaboration is about creating an environment through structures, systems, processes, and policies where everyone contributes skills, knowledge, and experience to continuously improve student learning. Collaboration also extends beyond the school's walls to everyone who can contribute to the school's success and involves multiple stakeholders: teachers, support staff, administrators, parents, students, and community members.

Not all schools share the same collaborative model; however, key elements such as student achievement, establishing a collaborative culture, and focusing on results are critical in the implementation and success of each model. School administrators and teacher leaders play critical roles in facilitating effective collaborative learning for their colleagues, and frequent assessments are necessary for continuous learning and improvement. All stakeholders must have a comprehensive, common vision that focuses on student learning and is guided by instructional improvement. It is important to create a dedicated time where the key stakeholders can meet to work out the details of their unique collaborative model which yields the optimum results for their school district. It is apparent, through this study, that many school districts continue to allow teachers to work in isolation from other colleagues; however, the research shows a direct relationship between school districts that have implemented a sustained collaborative model and increased student achievement.

Appendix A

Survey Questions

A. Does your school promote/support time for teacher collaboration?

Please circle: Yes or No

B. If you answered yes to the above question, how long has your school promoted or supported time for teacher collaboration?

0 years; 1-2 years; 3-4 years; 5-6 years; more than 6 years.

C. Which of the following best describes your teacher collaboration model? **Check one**

- Contracted time (early out or late start)
- Planning during the school day
- Book study
- Designated professional development workshops

On a scale of 1-5 please rank the following questions:

1= Strongly Agree: 2=Agree: 3=Unsure 4=Disagree: 5= Strongly Disagree

1. Teacher collaboration has been productive. 1 2 3 4 5
2. Our school utilizes SMART Goals to enhance student learning. 1 2 3 4 5
3. Our school has spent useful time on vertical/horizontal teaming. 1 2 3 4 5
4. Our teachers share their teaching strategies with colleagues. 1 2 3 4 5
5. Our teachers share common, formative, and summative assessments with colleagues.
1 2 3 4 5
6. Collaboration has enhanced teacher collegiality. 1 2 3 4 5
7. Our administrators effectively communicate the school district's goals. 1 2 3 4 5
8. Our students have made measurable academic gains due to teacher collaboration.
1 2 3 4 5
9. Teacher collaboration has enhanced the school district's atmosphere. 1 2 3 4 5
10. Teacher collaboration has helped drive the mission of the school. 1 2 3 4 5

Appendix B

Letter of Participation

Survey – Teacher Collaboration and Student Achievement

Dear Educator,

This is an invitation for Professional Development Committee Chairs to participate in a survey for a research study entitled, *Teacher Collaboration and Student Achievement*. I am completing this study in partial fulfillment of the requirements for a Doctoral degree in Instructional Leadership through Lindenwood University. If you would like to participate in this study, please continue to the Letter of Informed Consent.

Yours truly,

Cordie Wimberley
Doctoral Candidate
Lindenwood University

Appendix C

Lindenwood University
School of Education
209 S. Kingshighway
St. Charles, Missouri 63301

Informed Consent for Participation in Research Activities

“Teacher Collaboration and Student Achievement”

Principal Investigator: Cordie Wimberley Telephone: 417-967-2723
E-mail: cew246@lionmail.lindenwood.edu

1. You are invited to participate in a research study conducted by Cordie Wimberley under the guidance of Dr. Sherry DeVore. The purpose of this study is to examine the relationship teacher collaboration has on student achievement on the Missouri Assessment Program (MAP) in Communication Arts and Math among eighth graders. The study will also explore the relationship of student achievement and the level of collaboration a school has achieved based on a list of variables rating a school as collaborative or non-collaborative.

2. a) Your participation will involve:

Answering survey questions concerning the degree that teacher collaboration is used within your school district. The survey consists of 13 questions requiring marking a choice. No fill in answers are required.

b) The amount of time involved in your participation will be 15 minutes or less.

All Professional Development Committee Chairpersons in Missouri Public Schools will be invited to participate in this study.

3. There are no anticipated risks associated with this research.
4. There are no direct benefits for you participating in this study. However, your participation will contribute to the knowledge concerning the use of teacher collaboration and its relationship to student achievement.
5. Your participation is voluntary and you may choose not to participate in this research study or to withdraw your consent at any time. You may choose not to answer any questions that you do not want to answer. You will NOT be penalized in any way should you choose not to participate or to withdraw.

6. We will do everything we can to protect your privacy. As part of this effort, your identity will not be revealed in any publication or presentation that may result from this study, and the information collected will remain in the possession of the investigator in a safe location for five years and then destroyed.
7. If you have any questions or concerns regarding this study, or if any problems arise, you may call the Investigator, (Cordie Wimberley at 417-967-2723) or the Supervising Faculty, (Dr. Sherry DeVore at 417-881-0009). You may also ask questions of or state concerns regarding your participation to the Lindenwood Institutional Review Board (IRB) through contacting Dr. Jann Weitzel, Vice President for Academic Affairs, at 636-949-4846.

By completing the survey, you consent to participate in this study.

Thank you for your time,

Cordie Wimberley

Date

Please click here <hyperlink> to complete the survey.

Appendix D

11-10

IRB Project Number**Lindenwood University****Institutional Review Board Disposition Report****To: Mr. Cordie Wimberley****CC: Dr. Sherry DeVore**

The IRB has reviewed your application for research. It has been approved without reservation.

Ricardo Delgado
Institutional Review Board Chair

9/10/10
Date

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Vita

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