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A Historical Case Study of Teacher and Principal Perceptions of Teacher Collaboration Related to the Transformation of a Traditional 6-8 Junior High School to a Team-Based Middle School

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A HISTORICAL CASE STUDY OF TEACHER AND PRINCIPAL PERCEPTIONS OF

TEACHER COLLABORATION RELATED TO THE TRANSFORMATION OF A

TRADITIONAL 6-8 JUNIOR HIGH SCHOOL TO A TEAM-BASED MIDDLE SCHOOL

A Dissertation

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in Partial Fulfillment of the

Requirements for the Degree

Doctor of Education

Ronald John Grevera

Indiana University of Pennsylvania

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Indiana University of Pennsylvania
The School of Graduate Studies and Research
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Title: A Historical Case Study of Teacher and Principal Perceptions of Teacher Collaboration
Related to the Transformation of a Traditional 6-8 Junior High School to a Team-Based
Middle School

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Pennsylvania

   A historical case study from a 6-8 middle school in the coal region of Northeastern

Pennsylvania was conducted to examine the extent of teacher collaboration before and after the

implementation of the teaming concept as well as the construction of a new middle school. The

study was triangulated through the use of multiple data points including five interviews of

teachers that were at the school before and after the implementation of teaming and before and

after new school construction, twenty four teacher questionnaires, three interviews with

principals that were at the school between 2002-2010, various documents such as blueprints of

the new school, archival records such as the middle school's improvement plan, and direct

observations of current teacher collaboration practices were also conducted. Data analyzed

teachers' positive and negative reactions to the implementation of teaming and their reactions to

the construction of a new middle school conducive to the teaming concept.

   The results of the study showed that the school was functioning at a higher level of teacher

collaboration after teaming implementation. In addition, it was determined that teaming

implementation had a greater impact on teacher collaboration than the construction of a new

middle school. The researcher made suggestions for the school to promote teacher collaboration

at an even higher level that was achieved in the study. One of those listed was better utilization

of the architectural accoutrements that were part of the school construction project.

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I want to thank my wife Amy and my children Brady, Evan, and Ronnie for their support throughout the dissertation process. I spent many hours away from them and I thank them for their constant support, love, and understanding.

This dissertation is dedicated to the loving memory of my grandmother, Jean Evans. She was the perfect model for what a parent and teacher should be. Her memory will remain for generations to come in lives of her children, grandchildren, and great grandchildren.

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CHAPTER I
INTRODUCTION

Historically, schools throughout the United States have been structured in numerous ways to

follow their organizational function. The four major organizational structures utilized are: 1)

self-contained classrooms usually found in elementary schools, 2) departmentalized or subject

based classrooms typically evident in high schools, 3) teaming organizations which recently have

become more popular in upper elementary and middle schools, and 4) a combination of teaming

and departmentalization. Over the past two decades, the middle school movement has

encouraged a move from the departmentalized and self-contained structures to the employment

of teaming for a number of reasons (Jackson & Davis, 2000; Hackman et al., 2002). Put into

practice, many middle level principals favor teaming over the other models because they feel

teaming meets the psychological needs of early adolescents better than the other models. Other

middle level principals choose the teaming model because they believe that student achievement

will increase; (Jackson & Davis, 2000) however, the literature is mixed. The research shows that

there is no conclusive correlation between classroom structure and student achievement; (Woods,

1967; Lamme, 1976; Bowser, 1984; Dawson, 1974; McPartland, 1987; Garner & Rust, 1992;

Alspaugh & Hartig, 1995; Harris, 1996 and McGrath & Rust, 2002) consequently, numerous

teachers' anecdotal reports indicate that student achievement increases when teachers work

collaboratively on curriculum and instruction (Inger, 1993; Barth et al., 2005). This literature

will be examined in the literature review in Chapter two.

Table 1 explains the four major types of classroom organization: self-contained classrooms,

departmentalized classrooms, teaming classrooms, and a combination of teaming and

departmentalized classrooms. The self-contained classroom is when students receive the

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majority of their instruction with one teacher. Characteristically, students rotate from classroom to classroom with various content level teachers instructing their content area in the departmentalized classroom. A teamed classroom is when two or more teachers instruct various academic subjects, but these teachers work collaboratively. Finally, the departmentalized / teaming hybrid classroom exhibits characteristics of both departmentalized and teamed classrooms.

Table 1

Types of Classroom Organizations

Classroom Organization Type	Definition
Self-Contained Classroom	A classroom whereby the majority of academic instruction takes place. Students receiving instruction in self-contained classrooms may travel outside the classroom with a different teacher for special subject areas such as physical education, art, library, and music instruction.
Departmentalized Classroom	A classroom whereby students move from one class to another to be with teachers who specialize in particular academic subject areas.
Teaming Classroom	A classroom whereby two or more teachers instruct various academic subjects.
Departmentalized/Teaming Hybrid Classroom	A classroom characterized by both departmentalized and teaming elements.

Statement of the Problem

During the 2002-2003 school year, the Coal Valley School District located in Northeastern Pennsylvania decided to transform its junior high school into a teamed middle school. The existing building was constructed in 1911 and was based on a factory model junior high school configuration. The school housed sixth, seventh, and eighth grade students. The district leadership team determined that a new middle school facility would have to be constructed,

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preferably one that would foster the middle school concept and teaming with an emphasis on teacher collaboration. Before the new school was built, the leadership proceeded with implementing the team based model. Teaming was fully operational during the 2003-2004 school year. Teachers were given common planning time and met in an old faculty lounge to discuss various student issues and plan interdisciplinary projects. Since then, the new middle school was constructed and the team-based philosophy encouraging teacher collaboration continued to be supported by district leadership. Three principals have served as educational leaders during this period from 2002-2010. Given the commitment of financial resources and leadership initiatives to teacher collaboration and a team-based philosophy, this study will examine the principals' and teachers' perceptions of their collaboration and teaming efforts from 2002-2010 and their perceptions of the influences upon their actions.

In *Turning Points 2000*, Jackson and Davis (2000), list seven points that all middle grades should possess. They include:

- Teach a curriculum grounded in rigorous, public standards for what students should know and be able to do, relevant to the concerns of adolescents and based on how students learn best.

- Use instructional methods designed to prepare all students to achieve higher standards and become lifelong learners.

- Staff middle grades schools with teachers who are expert at teaching young adolescents and engage teachers in ongoing, targeted professional development opportunities.

- Organize relationships for learning to create a climate of intellectual development and a caring community of shared educational purpose.

- Govern democratically through direct or representative participation by all school staff members, the adults who know the students best.
- Provide a safe and healthy school environment as part of improving academic performance and developing caring and ethical citizens.
- Involve parents and communities in supporting student learning and healthy development (pp. 23-24).

In order to achieve these goals, it is evident that teacher collaboration needs to be at the forefront. This study examined the issue of teacher collaboration as it pertained to pre- and post-teaming implementation at this particular middle school in the coal region of Northeastern Pennsylvania. This study examined the issue of teacher collaboration and whether teacher collaboration identified by Little (1990) increased with the introduction of teaming and the construction of a new middle school based on teachers' reactions.

According to DuFour, Eaker, and DuFour (2005), Professional Learning Communities and teacher collaboration have the potential to increase student achievement. Many schools throughout the United States have been deemed a failure because of poor student achievement. If teacher collaboration has the opportunity to increase student achievement, then this study needed to be conducted to determine if the middle school structure identified by Jackson and Davis (2000) impacts student achievement and if the *Turning Points* recommendations are being adhered to.

Purpose of the Study

This study examined the amount of teacher collaboration pre- and post- implementation of the teaming concept and the construction of a new middle school which was built to foster teacher collaboration. Through the research of Little (1990) and Letgers (1999), levels of teacher

collaboration were assessed pre- and post- leadership teaming initiatives as well as before and after construction of a new middle school. The school in the study was a small school located in the coal region of Northeastern Pennsylvania. Another purpose of the study was to determine if teachers and principals perceived that the leadership initiatives encouraging teaming impacted teachers' collaboration, if the structure of the new building assisted in teacher collaboration and what other factors they perceived to influence the ways in which they interact with each other. A secondary purpose of the study was to determine benefits or limitations the teachers and principals perceived from these changes.

Research studies on teacher collaboration and student achievement show both positive and negative findings. Recently, however, there is some evidence that when teachers work together to improve instruction, student achievement increases (Inger, 1993; DeFour, 2005). These studies will be examined at length in chapter two. Because numerous studies were conducted on teacher collaboration and student achievement with mixed results, this will not be the focus of this study but these studies merited some consideration in the second chapter of this study. The main focus of this case study was to examine how teacher collaboration changed during the implementation of teaming in the middle school and how the new middle school building influenced teacher collaborative practices compared to the old factory model middle school building. A further purpose of the study was to expand the current body of knowledge on middle school teacher collaboration in the context of teaming and the influence of leadership initiatives and building structure. The issues of teacher collaboration are inherently complex. To examine the complex issue of teacher collaboration, case study research methods based on Yin (2009) were employed in the study.

<center>**Research Questions**</center>

There were a number of questions examined in this case study. The major questions of this study were:

1. How was teacher collaboration impacted after teaming and the construction of a new middle school?

2. How did principals' perceptions of teaming and a new middle school impact teacher collaboration?

3. What positive and negative aspects of teacher collaboration did teachers and principals perceive were evident in this 6-8 middle school?

4. What stages of collaboration (Little, 1990) were evident after eight years of teaming and three years in a new school building?

<center>**Operational Definitions**</center>

The following terms are applicable to the study:

1. Self-contained classroom – A classroom whereby the majority of academic instruction takes place. Students receiving instruction in self-contained classrooms may travel outside the classroom with a different teacher for special subject areas such as physical education, art, library, and music instruction.

2. Departmentalized classroom – A classroom whereby students move from one class to another to be with teachers who specialize in particular academic subject areas.

3. Teaming classroom – A classroom whereby two or more teachers instruct various academic subjects. The principal investigator will utilize Doda and Lounsbury's (1981) definition of teaming as: "Teachers from varying disciplines [who] are organized into core groups to share [the] instruction of a given community of learners." (p. 5)

4. Middle School – With the knowledge that some middle schools can be a number of grade level configurations, the middle school in the case study is 6-7-8.

5. Interdisciplinary Teams – Consist of five teachers from different departments that work together to create thematic units and project-based instruction for students.

6. Multidisciplinary Teams – Teams that share instructional responsibilities with other members of the team but are responsible for their departmentalized area.

7. Teacher collaboration – refers to teachers that work and learn together in a Professional Learning Community providing each other with professional development and support.

8. Team Teaching – occurs when the same grade level or department of teacher come together to share teaching responsibility for a brief period of time.

9. Partnering – occurs when two teachers work together and teach a class.

10. Professional Learning Community – According to DuFour and Eaker (1998), characteristics of Professional Learning Communities are: the community has a shared mission, vision, and values, collective inquiry, collaborative teams, action orientation and experimentation, continuous improvement, and results orientation. The professional learning community works together to increase student achievement and takes actions to ensure student achievement increases.

Assumptions

The following assumptions are guides of this study:

1. The instrumentation utilized in this study was a valid measure of teacher perceptions of the level of collaboration evident through the teacher survey.

2. The instrumentation employed in teacher and principal interviews were a valid measure of teacher and principal perceptions of the level of collaboration evident in the school.

3. Data collected was triangulated through qualitative research techniques by observation of teachers during common planning time, walk-through observations, teacher questionnaires, historical documents, and interviews of participants.

4. The interpretation and analysis of surveys, observations, review of archived documents, and interviews accurately reflected the intent of those surveyed.

Limitations of the Study

1. It was difficult to generalize the results of the study because the study was conducted in one school in the coal region of Northeastern Pennsylvania. Circumstances at this school were unique because shortly after teaming implementation, a new middle school building was constructed to foster teacher collaboration.

2. Human relationships within groups are complex further making generalizations about the practice of teacher collaboration difficult to generalize from one school structure to another.

3. The primary investigator only observed teacher common planning periods one time. Further observation of teacher common planning time could have revealed higher or lower stages of teacher collaboration.

Design of the Study

The dissertation consists of five chapters, a bibliography, tables, and various appendices. Chapter one contained the background of the study, purpose of the study, research questions, operational definitions, assumptions, limitations of the study, and the design of the study.

Chapter two consists of a review of the literature pertaining to teacher collaboration, the middle school concept, and studies relating to teacher collaboration and student achievement. Additionally, a brief history of the Coal Valley Middle School planning and construction was described as well as the history of teaming implementation at the Coal Valley Middle School. Chapter three described the methodology of the study. The study was qualitative in nature and relied on teacher interviews of those employed at the school both before and after teaming implementation and before and after the new middle school was constructed. All teachers were surveyed and observed in a teaming period to triangulate the data collected from teacher surveys. Data were triangulated through the use of archival records and documents such as the school improvement plan and construction documents. Chapter four provides a summary of the results of the study as well as a detailed analysis of the research findings. Through triangulation of the data, the research report explained in detail the degree of teacher collaboration evident in this 6-8 middle school pre and post teaming implementation and pre and post the construction of a new middle school. Chapter five provides a summary of the previous chapters and made recommendations for further study and research of teacher collaboration in middle school. Additionally, the chapter provides recommendations for the Coal Valley Middle School to achieve Little's (1990) highest level of teacher collaboration.

Methodology

The study used predominately qualitative research techniques to determine teacher collaboration patterns before and after the implementation of teaming through the use of a teacher survey and through selected teacher interviews (Letgers, 1999). Teacher collaboration patterns were ascertained during teacher interviews regarding levels of collaboration before and

after the construction (Letgers, 1999) of a new middle school conducive to teaming as identified in *Turning Points* 2000 (Jackson & Davis, 2000). Archival records such as blueprints, emails to and from the architects, and construction notes were analyzed to corroborate teacher interviews. Teacher collaboration patterns were directly observed by the researcher during teaming planning periods and walk-through classroom observations to ascertain the degree of teacher collaboration determined by the research of Little (1990) and later expanded under Letgers (1999). Case study methods developed by Yin (2009) were employed.

Data were triangulated qualitatively in the following manner: First, teachers were surveyed regarding level of collaboration evident under three different principals through the teaming implementation process as well as the construction of a new middle school. Second, teachers (N=5) were interviewed about teacher collaboration both before and after the implementation of teaming in the school. Only those teachers that taught in the old middle school and are currently teaching in the new middle school were selected for the interview. Information was triangulated through the use of documents such as the school improvement plan and construction documents to corroborate teacher responses. Third, teachers were observed during their common planning period to determine the actual level of teacher collaboration determined by Little (1990) and Letgers (1999) evident.

Chapter Summary

Chapter one provided an introduction to the study entitled, A historical case study of teacher and principal perceptions of teacher collaboration related to the transformation of a traditional 6-8 junior high school to a team-based middle school. The chapter defined the problem at Coal Valley School District of trying to increase student achievement through the introduction of teaming and teacher collaboration as well as the financial commitments this small impoverished

community contributed in establishing teaming and the construction of a new middle school. The chapter explained the purpose of the study which was to examine the levels of teacher collaboration defined by Little (1990) and Letgers (1999). The chapter listed the four questions to be answered in the study. Chapter one ended with assumptions, limitations, design and methodology was briefly discussed.

CHAPTER II
REVIEW OF THE LITERATURE

Introduction

The purpose of this chapter was to examine various research studies on teacher collaboration. The chapter was divided into the following topics: history of classroom organization, middle school research, types of teams, theoretical framework, history of teacher collaboration at Coal Valley Middle School, criteria for selecting the literature, teacher collaboration literature, professional learning communities, teacher collaboration and lesson planning, classroom structure and student achievement, administrative support of teacher collaboration, impact of school architecture on teacher collaboration, review of methodologies, evaluation of the literature, and chapter summary. A brief explanation of why certain literature was selected for this section was described under Synthesis of the Literature. The Synthesis of the Literature examined literature on teacher collaboration in education as well as its effects on teaching and learning. The literature synopsis described various studies on teacher collaboration evident in elementary and high school, but the main focus will be on teacher collaboration in middle school. It also provided a synopsis of case studies in schools that successfully implemented teacher collaboration. In addition to explaining criteria for literature selection, this chapter was also evaluate the literature with an emphasis on saturation points and gaps missing from the literature. It ended with suggestions for future studies.

History of Classroom Organization

History of the Self-Contained Classroom

The one-room school house was the ultimate self-contained classroom. This was the primary setting of elementary education during the colonial period where students from multiple grade levels attended school in a one room school or church with one teacher. The entire school was

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essentially self-contained. The modern self-contained classroom was developed by Philbrick in 1848 with the founding of the Quincy Grammar School which was organized by grade level. All first grade students were exclusively self-contained. Wolf and Loomer (1996) argued that the self-contained classroom was organized earlier than the Quincy Grammar School. They described the origins of the self-contained classroom:

> The earliest manifestations of the self-contained idea undoubtedly can be traced to the tutor, who assumed responsibility for teaching his word or words all knowledge of importance. Later, after one-room schools were established, a single teacher assumed the responsibility for educating children who attended the school. The establishment of a graded plan of instruction during the mid-nineteenth century reinforced the self-contained classroom concept. (p. 97).

History of the Departmentalized Classroom

The history of departmentalization in public education has roots in the industrial revolution. As the United States became industrialized, schools began to suit the needs of industry. The father of scientific management was Fredrick Winslow Taylor. As Taylor's methods became the norm in the workplace in the early twentieth century, American education also began to emphasize the importance of efficiency in class work because the educational system was preparing students for the world of work in the factory. Under Taylor's (1911) scientific management, there were four new duties identified for management. First, management has the responsibility of determining the best method for accomplishing each task/duty to be performed by an organization/company. Second, workers can and should be selected to perform specific tasks/duties based upon their natural abilities and qualifications and they should be trained to perform their respective jobs in an optimal manner. Third, cooperation between the workers and

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management is motivated by the shared self-interests of each and as such should be preserved and promoted. Lastly, the primary responsibility of the workers should be the implementation of the specific plans proposed by management (Kanigel, 1999).

Similar to departmentalization in schools today, the men were responsible for a particular task to complete, just as the teacher is required to teach one subject in the classroom. In addition, departmentalization provides students with individual concepts unrelated to other classes that they attend. It is evident that the compartmentalization of tasks contributed to the departmentalization of classes at the turn of the twentieth century. Public education in the United States utilized the techniques of mass production similar to Henry Ford's assembly line (O'Looney, 1993). According to O'Looney (1993), United States industry made changes in response to a sagging American economy in the 1970's when foreign competitors' goods became in high demand because of a lack of American innovation. This was due to a lack of change in the traditional mass production techniques established at the beginning of the century. A lack of innovation meant changes to the American educational system.

The corporate organizational structure continues to be highly departmentalized in the United States. In departmentalization, each work center is responsible for a certain task(s) or area of responsibility. A specific example of departmentalization in a company is as follows: The head of the company or organization is the CEO or President. Under the President are several Vice Presidents. Vice Presidents are the head of respective departments such as Vice President of Finance or Vice President of Marketing. Under the Vice Presidents are the department managers followed by the workers in the individual departments. The corporate structure in American business continues to be highly departmentalized. O'Looney (1993) argued that the educational system continues to model corporate business structures.

Middle School Research

In *Turning Points 2000*, Jackson and Davis (2000) list seven points that all middle grades should possess. They include:

- Teach a curriculum grounded in rigorous, public standards for what students should know and be able to do, relevant to the concerns of adolescents and based on how students learn best.

- Use instructional methods designed to prepare all students to achieve higher standards and become lifelong learners.

- Staff middle grades schools with teachers who are expert at teaching young adolescents, and engage teachers in ongoing, targeted professional development opportunities.

- Organize relationships for learning to create a climate of intellectual development and a caring community of shared educational purpose.

- Govern democratically through direct or representative participation by all school staff members, the adults who know the students best.

- Provide a safe and healthy school environment as part of improving academic performance and developing caring and ethical citizens.

- Involve parents and communities in supporting student learning and healthy development. (pp.23-24)

In order to achieve these goals, it is evident that teacher collaboration needs to be at the forefront. This study examined the issue of teacher collaboration as it pertains to pre and post teaming implementation at this particular middle school in the coal region of Northeastern Pennsylvania. This study examined the issue of teacher collaboration and whether teacher

collaboration identified by Little (1990) increased with the introduction of teaming and the construction of a new middle school based on teachers' reactions.

According to DuFour et al. (2005), Professional Learning Communities and teacher collaboration have the potential of increasing student achievement. Many schools throughout the United States have been deemed a failure because of poor student achievement. If teacher collaboration has the opportunity to increase student achievement, then this study needed to be conducted to determine if the middle school structure identified by Jackson and Davis (2000) impacted student achievement and if the *Turning Points* recommendations are being adhered to.

History of Teaming

Teaming began in the 1960's. In 1965, William Alexander gave a presentation at Cornell University solidifying the middle school concept. The middle school concept focused on the special needs of the adolescent teen. This was a major break in the way schools were organized in the industrial era of departmentalization (Dickenson, 1997). During the 1970's, the pod concept began to replace the isolated classroom affording teachers the opportunity to work collaboratively. According to Dickenson (1997), "Very often the teaming process involves gathering relevant data to inform the decision-making process. More often than not some audience's, customer's, or client's needs are subject of the team problem-solving process" (p. 30). Middle school teaming is the precursor to professional learning communities which are becoming more evident in American education.

<center>**Types of Teams**</center>

According to Jackson and Davis (2000), there are five major types of teacher teams / collaboration that are found in middle schools. These include interdisciplinary teams, multidisciplinary teams, teacher collaboration, team teaching, and partnering. The first type and

most prevalent in middle school is the interdisciplinary team. Interdisciplinary teams usually

consist of five teachers from different departments that work together to create thematic units

and project-based instruction for students. Most of the research has been conducted on

interdisciplinary teams. The second type of teaming is called multidisciplinary teaming.

Teachers in multidisciplinary teams share instructional responsibilities with other members of

the team, but they are responsible for their departmentalized area. The third type of teaming is

called teacher collaboration. Teacher collaboration refers to teachers that work and learn

together in a Professional Learning Community for the purpose of professional development.

The fourth type of team is called team teaching. Team teaching occurs when the same grade

level or department of teachers come together to share teaching responsibility for a brief period

of time. The fifth and final type of teaming developed is called partnering. Partnering occurs

when two teachers work together and teach a class. An example of partnering could be a special

education teacher working daily with a regular education teacher in a regular education

classroom.

   Table 2 explains the five types of teaming identified by Jackson and Davis (2000). These

types of teaming include interdisciplinary, multidisciplinary, teacher collaboration, team

teaching, and partnering.

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Table 2

Types of Teaming

TEAMING TYPE	DEFINITION
Interdisciplinary Teaming	Consists of teachers from different departments that work together to create thematic units and project-based instruction for students.
Multidisciplinary Teaming	Teachers share instructional responsibilities with other members of the team but are responsible for their departmentalized area.
Teacher Collaboration	Teachers work and learn together in a Professional Learning Community providing each other with professional development.
Team Teaching	Team teaching occurs when the same grade level or department of teacher come together to share teaching responsibility for a brief period of time.
Partnering	Partnering occurs when two teachers work together and teach a class.

Theoretical Framework

Little (1990) provided a theoretical framework for the concept of teacher collaboration. Her research described the concept as one in which a teacher begins with a minimal level of collaboration or independence to a maximum level of collaboration whereby teachers are interdependent upon one another. The theoretical framework described by Little (1990) begins with the least amount of collaboration and ends with greatest level of collaboration. These levels are storytelling and scanning, aid and assistance, sharing, and joint work. The first three of these forms of collaboration are described as forms of independence. Only when teachers begin jointly working together, are they achieving a level of interdependence or complete teacher collaboration (Little, 1990).

The first and lowest level of teacher collaboration identified by Little (1990) is "storytelling and scanning." At this level, "Contacts among teachers are opportunistic. Teachers gain information and assurance in the quick exchange of stories, but the casual camaraderie of the staffroom and even enduring friendships among teachers remain at some distance from the classroom" (p. 513). According to Little, the idea of storytelling plays a large role in this lower level of teacher collaboration. Storytelling can be a positive or negative influence on the practice of teaching.

The second level of teacher collaboration identified by Little (1990) is called "aid and assistance". Little explained this level of collaboration as a mentor-teacher relationship. The mentor helps the new teacher in the practice of teaching. "Beginning teachers (like newcomers to other organizations or occupations) may ask for some help, but not too much help or too often. Experienced teachers who accept a radical change in teaching assignment may make certain requests of those more familiar with the subject area, grade level, student population" (Little, 1990, p. 517). A teacher giving advice to another teacher is an example of aid and assistance.

The third level of teacher collaboration identified by Little (1990) is called "sharing." According to Little (1990), "Through routine sharing, teaching is presumably made less private, more public. . . By making the ordinary materials of their work more accessible to one another, teachers expose their ideas and intentions to others" (p. 518). Through sharing of teaching methods and ideas, teachers can work together to improve curriculum and instruction, therefore, improving student achievement (DuFour et al., 2005).

The fourth and highest level of teacher collaboration identified by Little, (1990) is called "joint work". According to Little: "Collegiality *as* collaboration or as joint work anticipates truly collective action – teachers' decisions to pursue a single course of action in concert or,

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alternatively, to decide on a set of basic priorities that in turn guide the independent choices of individual teachers" (Little, 1990, p. 519). In "joint work", teachers plan lessons together and work together on improving the curriculum; this is essential in order to achieve collaboration. Only then, can the highest level of teacher collaboration be achieved. As teachers become more collaborative, they become less isolated and more interdependent upon one another.

Table 3 summarizes Little's (1990) levels of teacher collaboration. The four stages summarized on the table are storytelling and scanning, aid and assistance, sharing, and joint work. Each level includes Little's (1990) in-depth definition of each level of teacher collaboration.

Table 3

Judith Little's (1990) Levels of Teacher Collaboration

Level of Collaboration	Description
Storytelling and Scanning	Lowest level of teacher collaboration. Teachers are collegial and tell stories about their experiences as teachers.
Aid and Assistance	"Beginning teachers (like newcomers to other organizations or occupations) may ask for some help, but not too much help or too often." Mentor – mentee relationship. (p. 517).
Sharing	"Through routine sharing, teaching is presumably made less private, more public. . . By making the ordinary materials of their work more accessible to one another, teachers expose their ideas and intentions to others". (p. 518).
Joint Work	Highest level of teacher collaboration. Teacher plan lessons together and work together on improving curriculum and collaborate to increase student achievement.

Kruse (1996) identified four positive outcomes for increased collaboration among teachers. These positive outcomes are increased sense of efficacy, increased sense of satisfaction of

teacher work, and a greater sense of responsibility for their students' achievement. These positive outcomes provide part of the theoretical framework for why middle school leaders might select interdisciplinary teaming as a structure for their middle school.

If teachers have achieved Little's highest level of collaboration, they are working together to improve the curriculum. DuFour et al. (2005) explained explicitly how working together improves student achievement. In an era of standards and assessment, it is evident that one way to improve student learning is to allow teachers to collaborate and implement best practices of instruction. Teachers collaborate in an effort to utilize various instructional techniques, integrate the standards into their lessons, and construct assessments both formative and summative that are measuring student knowledge of the standards (DuFour et al., 2005).

Through the work of Little (1990) and DuFour et al. (2005), it is evident that there are higher levels of teacher collaboration and that teacher collaboration increases student achievement when teachers are practicing collaboration at the highest level described by Little (1990). The purpose of this study is to examine a 6-8 middle school before and after teaming implementation to see if teacher collaboration increased or decreased in those teachers that were working in the school pre and post teaming implementation. A secondary purpose of the study was to examine the impact of the construction of a new middle school on teacher collaboration.

History of Teacher Collaboration at Coal Valley Middle School

The Coal Valley Middle School is located in the coal region of Northeastern Pennsylvania. It encompasses four major boroughs/municipalities. The district encompasses an area less than 50 square miles and has a population slightly under 15,000 based on the 2000 census. The student population is approximately 1,500. The school district has one elementary school, one middle

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school, and one high school. The school district is served by 124 professional teachers and administrators.

The school district in 2002 began implementation of middle school teaming. The Coal Valley Middle School represents grades six, seven, and eight. The school was small enough to house only one team per grade level. The sixth grade team consisted of various academic area teachers: all teachers taught language arts, one teacher taught reading, one teacher taught science, one teacher taught math, one teacher taught special education, and one teacher taught social studies. In the first two years of teaming (2002-2004), teachers had both a daily planning period that enabled them to correct tests and plan lessons alone. In addition to daily planning periods, the principal implemented common planning periods three times a week. Teachers used common planning time to plan lessons together, discuss behavioral issues of students, and discuss academic issues of students (White, Grevera, Brobst, & Santee, 2003). According to Principal Robert in the principal interviews, from 2002-2004, teachers utilized their common planning periods as effectively as possible in a building that was constructed in 1911. The building was originally constructed to educate the children of miners who would eventually work in the mines themselves shortly following high school; therefore, the old middle school was a traditional factory model school.

During the time period (2002-2004), the Coal Valley Board of Education enlisted architects from the Architectural Studio to begin plans for the construction of a new middle school. The goal was to incorporate the concept of teaming and teacher collaboration as the cornerstone of the new middle school. The educational leaders including the superintendent of schools, the middle school principal, and the Coal Valley Board of Education worked collaboratively with the

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architects to make the vision of the new middle school concept a reality in the Coal Valley School District (White, Grevera, Brobst, & Santee, 2003).

In an effort to ensure the middle school concept would become incorporated into the design and planning of a new middle school, an important meeting was held on October 7, 2003 with the architects, the middle school principal, and a professor from Lehigh University that served as an expert in the area of middle school education. During the meeting, twelve design suggestions were discussed and listed in the architects notes. These twelve design suggestions were:

1. Solid flexible full height walls preferred for room divisions.

2. Noise distraction greatest problem.

3. Carpeted floors a must.

4. Teachers must have the greatest flexibility of space, the future of classroom design.

5. Teacher's home base and desk type space should be located in the Instructional Planning Center (I.P.C.) with individual and group work areas through flexible furnishings.

6. Furnishing sends a message, couch implies relaxation. Movable comfortable chairs with casters are recommended and applied tablet arm implies work comfortably.

7. TAS to pursue three banks of two classrooms with flexible walls and locker corridor toward seminar rooms.

8. Flexible furniture must be part of plan or walls won't move since furniture doesn't move easily.

9. Space should be able to conform to program requirements.

10. "Open Space" type vocabulary needs to be avoided; it creates connotations of the 60's and 70's failed models.

11. Teachers need to be instructed on classroom opening configurations.

12. Corridors created in Team area are flexible so they disappear (White, Grevera,

Brobst, & Santee, 2003, p. 1).

District leaders and the architects wanted to construct a building that would enhance teacher collaboration through the introduction of both movable walls and moveable furniture. The purpose of the moveable walls was to increase teacher collaboration in the teaming concept and avoid the "open space" concept of the 1970's. This was a failure because it did not address the issue of noise and distraction. During the meeting on October 7, 2003, the importance of keeping distractions to a minimum was imperative in the construction of a new middle school. Movable and sound proof walls would encourage teachers to team teach and provide for maximum collaboration. Without flexible furniture, teachers would be unable to open up classrooms and collaborate because the furniture would be against the movable panels.

In addition to flexible spacing, district leaders decided that the middle school would have three main academic houses or floors to coincide with the three teams. The plans called for the first floor to house the sixth grade team, the second floor to house the seventh grade team, and the third floor to house the eighth grade team. Each house or team would have an I.P.C. that teachers would meet and discuss curriculum and student achievement during their common planning periods. The first floor of the building would also house the district office, main office, gym, cafeteria, and special subject area classrooms. The cafeteria area would be built so that adolescents could feel comfortable socializing with each other in a positive climate similar to a food court at the mall (White, Grevera, Brobst, & Santee, 2003).

During the 2004 – 2007 school years, the Coal Valley Middle School was under construction and the plans for increasing teacher collaboration in a 21st century middle school

was in the making. Both the principal of the middle school and the superintendent left the

district and were replaced by a new principal and superintendent during the construction phase of

the project. Even though the principal and superintendent changed, the architectural firm

involved in the new middle school design remained committed to the continuation of the vision

of the middle school concept with an emphasis on teacher collaboration.

When the new middle school opened on September 4, 2007, the district had undergone

another change in leadership. Another principal and superintendent were leading the district.

Both the principal and superintendent continue in the school district today. The third principal

and superintendent were also committed to the middle school concept and teacher collaboration

as a means of increasing student achievement as well as teaching efficacy. The principal and

superintendent were at the school district at the time when the study was conducted.

Criteria for Selecting the Literature

Little (1990) was selected because this particular research was the basis for most literature on

teacher collaboration. Little was the first researcher to describe and define the four degrees of

collaboration evident in schools. These forms of collaboration included storytelling and

scanning, aid and assistance, sharing, and joint work. Further studies such as Legters (1999)

advanced Little's (1990) degrees of collaboration to ascertain which high school restructuring

approach (interdisciplinary teaming, school-within-a-school, and flexible scheduling) best

enhances teacher collaboration, specifically joint work.

Research on effects of teacher collaboration such as DuFour, Eaker, DuFour, and Reeves

(2005) and DuFour, DuFour, Eaker, and Karhanek (2004) were chosen because these authors

link teacher collaboration to overall increased student achievement. These case studies showed

that when teachers engaged in joint work (Little, 1990), school improvement was evident at the

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elementary, middle, and high school levels. In an era of *No Child Left Behind*, school improvement and increasing student achievement are the major focuses of schools today. A number of studies regarding teacher collaboration and student achievement were examined.

A number of other studies examining the effects of teacher collaboration and lesson planning were selected to be part of the literature review because of the positive effects of teacher collaboration on classroom instruction. Lewis (2000) examined the impact of Japanese Lesson Study on instruction and planning. Jalongo, Rieg, and Helterbran (2007) was added to the review because they examined several impediments making planning together sometimes difficult. However, by overcoming these problems, teachers planning together serve many important functions as seen by Stigler and Hiebert (1999). Lesson study in Japan, provides teachers with an opportunity to critique teacher pedagogy and increase efficacy.

Teacher Collaboration Literature

The traditional American classroom is one that is individualistic and isolated. There have been a number of studies that examined the issue of teacher collaboration in schools. As various school structures continue to emerge and stress the importance of teacher cooperation, it will become more prominent in the literature. Little (1990) identified four types of teacher collaboration efforts evident in schools that range from being minimally collaborative to extremely collaborative. The four types of collaborative relationships include storytelling and scanning (least collaborative), aid and assistance, routine sharing, and joint work (highly collaborative). Additionally, Hargreaves (1994) examined the issue of collaboration in elementary schools and found that the collaboration was a result of administrative mandates rather than teachers genuinely wanting to work together to improve instruction and student achievement.

Little and McLaughlin (1993, p. 5) warned that simplifying teacher collaboration and automatically accepting the practice as a "public good" is not necessarily appropriate because all types of teacher collaboration are not necessarily good. According to Little and McLaughlin (1993), the issue of collaboration can vary dramatically across disciplines in a high school. Kruse (1996) examined specific conditions in which teachers collaborate and work together in the middle school setting.

Teacher collaboration is complex. One may automatically assume that teacher collaboration is more evident in a teaming environment; therefore, this concept may be dismissed in a self-contained classroom. Lambert (1995) and Shields (1997) examined teacher collaboration on grade level in a self contained environment where teachers were allotted time to plan together. The assumption that a self-contained classroom is automatically isolated and that collaboration is not present may be a false assumption. It is apparent that this study needed to be conducted as a comparison will be noted during teacher interviews about if collaboration increased or decreased before and after the implementation of teaming.

According to Louis (1992), teacher collaboration resulted in increased efficacy as teachers support each other in a collaborative manner. Teachers worked collaboratively to establish their own personal learning community. Newmann (1991) examined teacher autonomy as a means of creating ownership of student learning. Osterman (1990) stressed the importance of teachers reflecting and discussing their work together to improve the overall quality of instruction. Similarly, Darling-Hammond and Goodwin (1993) examined the importance of teacher professional discussion as an important tool to improving instruction and professional practice.

According to DuFour et al. (2005), teacher collaboration leads to increased student achievement. When teachers begin to engage in joint work (Little, 1990), they establish

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professional learning communities whereby teachers work together on curriculum, standards, and instruction. A professional learning community focused on student achievement allowed teachers to work together in instructing students on the standards and work collaboratively toward constructing common standards-based assessments. The end result of teachers working together in a professional learning community was increased student achievement.

According to DuFour and Eaker (1998), the building blocks of Professional Learning Communities were defined through their mission, vision, values, and goals. "The mission question challenges members of the group to reflect on the fundamental purpose of the organization, the very reason for its existence" (DuFour & Eaker, 1998, p. 58). Every Professional Learning Community needs an effective purpose and clearly defined vision. "Whereas mission establishes an organization's purpose, vision instills an organization with a sense of direction" (DuFour & Eaker, 1998, p. 62). DuFour and Eaker (1998) explained that values were also critical to the Professional Learning Community. "While a mission statement asks the school to consider why it exists, and a vision statement asks what it might become, a statement of core values asks people to clarify how they intend to make their shared vision a reality" (DuFour & Eaker, 1998, p. 88). Goals were also seen as an important building block in a Professional Learning Community. Clearly stated and defined goals give Professional Learning Communities their purpose and direction.

Riley (2000) studied teacher collaboration in an elementary school setting. This qualitative case study examined the perceptions of elementary teachers in their decision- making process during their common planning periods and their individual role in the decision making process. Nine teachers were studied with a range of experience between one and nine years. Riley (2000) identified the roles each played during the common planning period. Riley examined the

differences in the team meetings and roles of Team Veterans (TV's) and Outside Veterans (OT's). Because of turnover in the school, it was difficult to ascertain teacher roles which appeared to be changing throughout the qualitative study.

Inger (1993) examined teacher collaboration in a secondary vocational school. He identified both benefits and barriers to collaboration. "Although the results were not uniformly good, teachers who have worked together see substantial improvements in student achievement, behavior, and attitude. Teachers in a junior high school traced their students' remarkable gains in math achievement and the virtual elimination of classroom behavior problems to the revisions in curriculum, testing, and placement procedures they had achieved working as a group" (p. 2). Inger (1993) also identified the following as barriers to teacher collaboration: norms of privacy, subject affiliation and departmental organization, barriers between vocational and academic teachers including status differences between vocational and academic teachers, departmental walls, and physical separation. All of these contributed to reasons why teacher collaboration is difficult in secondary vocational schools.

One of the earliest and most important researchers in the area of teacher collaboration is Judith Little. Through the application of ethnographic research, Little (1981) studied three elementary and three secondary schools ranging from high to low success and high to low range of interaction among teachers. The schools were located in urban areas and interviews were semi structured. Little was able to correlate the higher ranges of critical practices of teacher interactions to the relatively more successful schools out of the six studied. The following were considered "critical practices" of teacher interactions: design and prepare materials, design curriculum units, research materials and ideas for curriculum, write curriculum, prepare lesson plans, review/discuss existing lesson plans, credit new ideas and programs, persuade others to try

an idea or approach, make collective agreements to test an idea, invite other teachers to observe, observe other teachers, analyze practices and effects, teach others in formal in-service, teach others informally, talk "publicly" about what one is learning or ways to learn, convert book chapters to reflect a new approach, design in-service, and evaluate performance of principals. This study showed the more successful schools had greater levels of teacher collaboration, more social locations for collaboration to occur, greater frequency of interaction among teachers, increased connection between discussions and theory into practice in the classrooms, more experimentation, greater degrees or reciprocity, and a high faculty participation rate in the school culture. Little (1981) also examined the issue of teacher collaboration and three separate situations that can affect its usefulness. These situations included a major injection of student teachers into a teamed school, a major injection of new teachers to established teams, and newly appointed leadership that is not as committed to teaming and teacher collegiality as the previous administration. Leadership at the principal level was critical according to Little (1981) for professional learning communities and teacher collaboration to be successfully implemented and supported.

Kruse (1996) examined the five conditions present for professional teaching communities. These five conditions included shared norms and values, reflective dialogue, de-privatization of practice, collective focus on student learning, and collaboration. The case study included interviews and observations at three separate middle schools. The three areas in the study in which teachers reported feeling most supported through the use of collaboration were discussion about students, instruction, and curriculum. In Kruse's (1996) qualitative study, three common themes were examined. She stated, "The intellectual strengths teachers bring to the communal reflective process are many and this work can only focus on three common themes—individual

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knowledge, past practice, and shared conditions under which they work and teach" (p. 21).

Kruse's (1996) study was a sociological case study that examined the process of collaboration

and what middle school teachers discuss and collaborate about as well as their perceptions of its

usefulness.

<h3 style="text-align:center">**Professional Learning Communities**</h3>

There were a number of studies that were conducted that examined the effects of teacher

collaboration on student achievement. The studies were conducted with mixed results and are

presented here for review. DuFour et al. (2004) examined four schools that utilized the concept

of professional learning communities or PLC's as a method of school improvement related to

increased student achievement. The authors examined professional learning communities in one

high school, one middle school, and two elementary schools. The applied concept of

professional learning communities contributed to the fact that each school was considered

exemplary. The following schools were examined: Adlai Stevenson High School located in

suburban Chicago, Freeport Intermediate School located approximately 50 miles south of

Houston, Texas, Boones Mill Elementary School located in Franklin County, Virginia, and Los

Penasquitos Elementary School located in Rancho Penasquitos near San Diego, California.

Mitchell (2007) examined the use of professional learning communities in elementary

classrooms on the achievement of three poor performing subgroups in English Language Arts in

five schools in a California School District. These subgroups included Socio-Economically

Disadvantaged (SED), English Language Learners (ELL), and Hispanic/Latino in California.

The investigation examined two important practices of a Professional Learning Community. The

PLC practices included teachers' utilization of available data and development of programming

decisions for these subgroups. Ninety-two teachers and eight administrators were surveyed. The

primary purpose of the study was to determine if the PLC practices being implemented increased achievement of the three subgroups in English Language Arts. This quantitative study provided data of the three top performing schools functioning better as a PLC through the "Monitoring: Compilation, Analysis, And Use of Data, and Recognition, Intervention, and Adjustment" than the two lower performing schools (Mitchell, 2007, p. xi). Mitchell (2007) linked higher performing schools with similar demographics to the effective use of Professional Learning Communities and student achievement even for struggling subgroups.

Arhar (1997) examined middle school and high school teacher collaboration through the use of interdisciplinary teaming and recommendations by Jackson and Davis (1989) in *Turning Points*. Positive outcomes of teacher collaboration and student achievement were discussed through the research of Felner et al. (1997). This study reported positive results in an empirical study that examined 97 middle schools in the Chicago area. In the 97 schools that were studied in the Chicago area, the research demonstrated that student achievement was higher in the middle schools where *Turning Points* recommendations were prominent. Middle school effectiveness in the study was measured through the use of surveys, standardized achievement data, and specific qualitative measures.

Feiner, Shim, Brand, Favazza, and Seitsinger (2000) reported positive outcomes of 6-8 middle schools in student achievement that implemented interdisciplinary teaming and the Project on High Performance Learning Communities. Through standardized tests and behavior data, the researchers found higher levels of student achievement in schools that implemented reform measures through the nine dimensions characteristic of high performance middle schools in the Project on High Performance Learning Communities. The study also showed higher levels

of achievement in schools that had interdisciplinary teaming models versus schools that

functioned as a junior-high and were highly departmentalized in nature.

Another study by Flowers, Mertens, and Mulhall (1999) also documented the power of

interdisciplinary teaming as they collected data from 155 middle schools through the surveying

of staff, students, phone interviews, and the Michigan Educational Assessment Achievement

Tests for Math and Reading. They determined the following positive contributions of

interdisciplinary teaming: teachers with long interdisciplinary planning periods had the higher

test scores on the Michigan Educational Assessment Achievement Tests, a positive work

environment, more contact with parents through team meetings versus those that did not team,

and increased job satisfaction. The same researchers, Flowers et al. (2000) studied how teaming

influenced classroom practices and how these practices influenced student achievement. By

collecting data from 2,000 teachers and 23,000 students in 70 middle schools in Michigan, the

researchers once again found strong positive correlations between team size, team planning

period length, and team longevity with seventh grade students' achievement on state assessment

tests in math and reading.

Hackmann et al. (2002) advocated for highly effective interdisciplinary teams in their

research based on data generated from 1,400 middle school principals. Five recommendations

resulted from the surveys. First, teachers should have both teaming time and individual planning

time. Second, smaller teacher teams are more effective than larger teams. Third, students should

be grouped heterogeneously on teams. Fourth, curriculum planning and classroom practices

need to be emphasized to increase student achievement. Fifth, more schools should have

interdisciplinary teaming models. The survey of the principals showed that even though most

middle schools have some form of teaming, there was room for improvement to make teams more effective.

There were many similar terms and concepts in the literature regarding the evolution of the Professional Learning Community. These terms include Creating Communities of Continuous Inquiry and Improvement (Hord, 2004), Communities of Practice (Wenger, McDermit, & Snyder, 2002), and Whole-Faculty Study Groups (Murphy & Lick, 2004).

Similar to Professional Learning Communities, Hord (2004) introduced the concept of Creating Communities of Continuous Inquiry and Improvement (CCCII). The concept stressed the importance of group collaboration to solve common problems through the employment of data. These collaborative groups can be as large as 30-40 people. According to Hord (2004), CCCII had five major components. These components included supportive and shared leadership, shared values and vision, collective learning and application of learning, supportive conditions, and shared practice. The process utilized reflective dialog, coaching, and collegial feedback to solve common problems. For example, as teachers reflect and discuss data on student achievement, they work together to diagnose various learning issues of students.

Wenger, McDermit, and Snyder (2002) defined another term similar to Professional Learning Communities called Communities of Practice (CoPs). They defined CoPs as "groups of people who share a concern, a set of problems, or a passion about a topic, and who deepen their knowledge and expertise in this area by interacting on an ongoing basis" (p. 4). CoPs can be within a school building or between buildings and have no set number or time limit to formation. Although the research of Wenger et al. (2002) was portrayed predominately positively, they did concede a number of problems with Communities of Practice (CoPs). These problems were due

to the exclusivity of the community associated with clique formation and hoarding of knowledge which placed some limits on innovation within the group.

The Whole-Faculty Study Groups (WFSG) designed by Murphy and Lick (2004) employed sustained professional development and teacher collaboration as a means of implementing change in curriculum and instruction. Murphy and Lick (2004) developed five principles for WFSG. These were students are first, everyone participates, leadership is shared, responsibility is equal, and the work is public. The WFSG model stresses the importance of teacher learning and professional development and how it translates to changes in curriculum, instruction, and student achievement in the classroom.

Teacher Collaboration and Lesson Planning

Jalongo, Rieg, and Helterbran (2007) examined the issue of teacher collaboration to create lessons jointly. Teachers working together on planning and instruction make for better student learning. "Reflection on instruction enables teachers to learn from their mistakes" (p. 46). Unfortunately, "Teachers are often left to their own devices to determine goals, methods, and assessments for their students; this is more likely to occur in schools where individual planning is the norm. . . . On the other hand, schools in which teachers plan collaboratively can better identify goals, thoughtfully discuss the culture and philosophy of the school, and make the corrections necessary to pull together with the same destination in mind" (pp. 46-47).

Jalongo et al. (2007) also discussed eight barriers that impeded teacher collaboration in the lesson planning process. These eight impediments included teaching in isolation, experience lost, research denied, curriculum conundrum, structural paucity, lack of planning time, cultural scripting, and blaming others. The first impediment to teacher collaboration in the lesson planning process identified was teaching in isolation. Most teachers have limited experience

planning with others and there are few expectations of teachers to collaborate in lesson planning. The second impediment was experience lost. Experience lost means that veteran teachers leave the profession without passing their knowledge onto new teachers, leaving them frustrated and isolated for another generation. The third impediment was called research denied. Research denied referred to the fact that teachers conduct limited action research in their classrooms providing little if any reflection on the practice of teaching and learning. The fourth impediment to teacher collaboration and planning was called the curriculum conundrum. Curriculum conundrum explained the issue of curriculum alignment pertinent to teacher collaborative planning. If teachers plan collaboratively, the research by Jalongo et al. (2007) suggests that curriculum alignment can be achieved school wide. The fifth impediment to teacher collaboration in the lesson planning process described was structural paucity. Structural paucity referred to the lack of administrative or structural support for collaborative lesson planning. The sixth impediment was the lack of planning time. If principals fail to schedule common planning periods, then teacher collaboration regarding lesson planning can not be achieved. The seventh impediment described was cultural scripting. Educators establish cultural scripts from their own experience as students of how teaching should be done; therefore, teachers do not change styles of planning and instruction. The final impediment identified by Jolongo et al. (2007) was blaming others. "Collaborative planning, once again, would be a reasonable and expected venue for shifting the focus from blaming others to more introspective thoughts aimed at sorting out problems and concerns, deciding where the locus of control lies, and strategizing possible solutions" (p. 62).

Lewis (2000) researched Japanese science lessons and how Japanese teachers prepared for class in a process called lesson study. Lewis' (2000) research in Japanese science classrooms

shows ultimately what Little (1990) meant by the term joint work. The five characteristics of

lesson study are: research lessons are observed by other teachers; research lessons are planned

collaboratively for a long time; research lessons are designed to bring to life in a lesson a

particular goal or vision of education; research lessons are recorded; and research lessons are

discussed. In Japanese Lesson Study, the teaching profession is professionalized by teachers

analyzing each other's lessons complete with high level discussions of how these lessons can be

improved. Lewis (2000) described eight ways in which research lessons through the utilization

of teacher collaboration improved Japanese science lessons: individual professional

development; learn to see children; spread of new content and approaches; connect individual

teachers' practices to the school goals and broader goals; competing views of teaching bump

against each other; create demand for improvement; shape national policy; and honor the central

role of teachers.

   Stigler and Hiebert (1999) described lesson study or *kounaikenshuu* in Japan:

   In lesson study, groups of teachers meet regularly over long periods of time

   (ranging from several months to a year) to work on design, implementation, testing,

   and improvement of one or several "research lessons"(*kenkyuu jugyou*). By all

   indications, lesson study is extremely popular and highly valued by Japanese teachers,

   especially at the elementary school level. It is the linchpin of the improvement process

   (pp. 110-111).

Stigler and Hiebert (1999) stated:

   The premise behind lesson study is simple. If you want to improve teaching, the most

   effective place to do so is in the context of the classroom lesson. If you start with

   lessons, the problem of how to apply research findings in the classroom disappears.

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The improvements are within the classroom in the first place. The challenge now

becomes that identifying the kinds of changes that will improve student learning in the

classroom and, once the changes are identified, of sharing this knowledge with other

teachers who face similar problems, or share similar goals, in the classroom. (p. 111).

Japanese lesson study was the ultimate form of teacher collaboration in which teachers work

together to improve their individual lessons by critiquing one another in a highly professional

fashion.

Stigler and Hiebert (1999) explained the eight steps of Japanese Lesson Study. The steps in

Japanese Lesson Study were defining the problem, planning the lesson, teaching the lesson,

evaluating the lesson and reflecting on its effects, revising the lesson, teaching the revised lesson,

evaluating and reflecting again, and sharing the results. It is evident that the Japanese value

teacher collaboration and they realize the impact that it has on student achievement. When

achievement was compared to American students, it was evident that students in Japan scored

higher than American students being assessed in math and science in the Third International

Mathematics and Science Study (TIMSS). Japanese educators emphasize the importance of

evaluating, reflecting, and revising lessons collaboratively to increase their efficacy.

Additionally in Lesson Study, the Japanese are conducting action research in their classrooms

with the intention of always improving.

Gill and Hoffman (2009) examined teacher beliefs about learning and instruction during

teachers' common planning periods. Their qualitative study examined mathematics teachers

interacting during their common planning periods in a suburban Florida city in a 6-8 middle

school. The school had a 28% minority population. Gill and Hoffman audio-taped the teachers'

common planning periods to determine if their common planning period shaped their beliefs

about curriculum and instruction. The researchers found that their common planning period in fact shaped their educational beliefs and the transcribed audio-tapes provided rationales for teacher decision making and thinking.

Classroom Structure and Student Achievement

Woods' (1967) study of two eighth grade schools, one self-contained and the other departmentalized, compared scores on the Stanford Achievement Test that showed the departmentalized school achieved 18 points higher on the intelligence quotient. These results were inconclusive because the students in the self-contained classroom achieved eight points higher in the equated score on the Stanford Achievement Test.

Lamme (1976) examined the reading habits of fourth grade students in both self-contained and departmentalized classrooms. The study showed that students in self-contained classrooms read more books than their fourth grade departmentalized counterparts. In addition, Lamme's research asserts that the self-contained classroom teacher was more influential to the reading habits of the students. Lamme's study implies that the self-contained classroom is superior to the departmentalized classroom as it pertains to student reading because fourth grade students are more likely to read more books in a self-contained classroom.

Research studies opposed to departmentalization (Bowser, 1984; Dawson, 1974 and McPartland, 1987) claim that the self-contained classroom provides much needed emotional stability to students. Dawson (1974) stated:

> The self-contained classroom offers teachers and children a considerable number of options. The self-contained classroom affords the opportunity for flexibility. The teacher can provide for individual differences, and generally can do whatever he thinks will be most beneficial for the children. (p. 207)

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According to Bowser (1984) and McPartland (1987), self-contained classrooms are more child-centered than departmentalized classrooms.

Bowser (1984) studied academic achievement of fourth and fifth grade self-contained and departmentalized classrooms. Fifty students in fourth and fifth grade were randomly sampled. They were selected from a large school system in Indiana. Social studies and science scores were compared on the Iowa Tests of Basic Skills. Social studies and Science scores were assessed in the study because they are highly content oriented subjects. Fourth grade self-contained students outperformed their departmentalized peers on the social studies measure of the Iowa Tests of Basic Skills, but there was no difference on the science section of the assessment. The study showed that there was no difference in the fifth grade social studies and science section of the test.

In addition to examining student achievement, Bowser also examined teacher perceptions of departmentalization. This was done through the use of a questionnaire. The results of the questionnaire suggested that the classroom teacher is a better predictor of student achievement rather than the classroom organization. Teachers also emphasized that the self-contained classroom better meets the emotional needs of students than the departmentalized classroom. One would expect teachers to answer a survey in this manner because the self-contained classroom affords teachers more flexibility than the departmentalized classroom. In addition, it is evident that teachers would perceive themselves as more important than the classroom structure (Bowser, 1984).

The Des Moines Public School study (1989) surveyed Midwestern university department chairs (n=25), Midwest school superintendents (n=24), and Des Moines' elementary school principals (n=41). The results failed to discern a preferential organizational structure which

increased student achievement. This was similar to Bowser's finding in which teachers surveyed

also believed that the organizational structure of a school does not have any bearing on student

achievement, rather that the individual teacher has more of an effect.

The studies of Garner and Rust (1992) suggested that student achievement in

departmentalized fifth grade classrooms was significantly higher than students in self-contained

classrooms. Ninety-six students' scores from a rural low SES school in Tennessee were

compared on the Stanford Achievement Test (SAT) in the areas of reading, mathematics,

science, and social studies. Students all attended a self-contained classroom in fourth grade.

SAT percentiles were compared between fourth and fifth grade. Students who were in the self-

contained classroom increased group means on the SAT in science. They dropped slightly in

reading, math, and social studies. There were significant declines on the SAT group means in all

areas. The study also confirmed the studies of Alspaugh and Harting (1995) suggesting that

students show significant decline in the first year of transition from a self-contained to a

departmentalized classroom.

Alspaugh and Harting (1995) examined student achievement as students transitioned from

self-contained to departmentalized classrooms. The study included K-4, K-5, K-6, K-7, and K-8

school organizations. The study showed that the year in which students transitioned from a self-

contained classroom to a departmentalized classroom, regardless of school organization, losses

in achievement were evident during the first year of transition. The loss of achievement was

regained in later years. Similar results were found by Harris (1996) as she studied a random

sample of 30 departmentalized and 30 self-contained students from a Chicago Public School.

Most of the students were predominately low income Hispanics. Her study verified the

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Alspaugh and Hartig (1995) study by once again showing that during the transitional year from a self-contained classroom to a departmentalized classroom reading achievement declines.

McGrath and Rust (2002) examined the relationship between class transition time for self-contained and departmentalized fifth and sixth grade students. They confirmed the results of Garner and Rust (1992) suggesting that the self-contained classroom increases student achievement. A sample of 103 fifth graders and 96 sixth graders were compared from two schools in rural Tennessee. All students in the study attended a K-6 elementary school in which fourth grade was self-contained. Norm curve equivalents and scale scores on the Tennessee Comprehensive Assessment Program (TCAP) were compared between school A which employed departmentalization for fifth and sixth grades and school B which utilized self-contained fifth and sixth grade classrooms. The self-contained fifth and sixth grade students in school B scored significantly higher on the TCAP in total battery, language, and science proving that the best way to increase student achievement in the upper elementary grades is to implement the self-contained elementary organization.

Administrative Support of Teacher Collaboration

Little (1981) explained that principals can support teacher collaboration by announcing expectations, enacting expectations, sanctioning behavior, and protecting teachers' efforts. Little (1981) also established the importance of the principal in fostering teacher collaboration: "By virtue of office and then of performance, principals are in a unique position to establish and maintain the important norms of collegiality and experimentation, and to promote and foster the critical practices of talk about practice, observation of practice, joint work on materials, and teaching each other about teaching" (p. 24). Hargreaves (1994) also examined the impact that principals have on elementary teacher collaboration. The results of his research suggest that

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administrators forcing teachers to be collaborative has a negative impact on teachers and that the collaboration is the result of administrative intimidation and rigid scheduling as opposed to teacher initiative.

Cranston (2009) identified eight themes of Professional Learning Communities through the perceptions of principals from seven private and five public schools in Manitoba Canada. Twelve principals were interviewed, with a the following breakdown: eight worked in elementary schools, three worked in secondary schools and one worked in a mixed (K-12) school. The eight themes selected by the principals in determining the makeup of a Professional Learning Community included: Professional learning communities about process, structural supports that enable the development of professional learning communities, trust as the foundation for adult relationships, congenial relationships dominate conceptions of community, learning is an individual activity, professional teaching is derived from attitudinal attributes, teacher evaluation shapes how principals think about learning in professional communities, and teacher evaluation impacts principal and teacher relationships in professional learning communities.

The second theme identified by the principals by Cranston (2009) was exclusively examined in this study on teacher collaboration. Cranston identified his second theme: Structural supports enable the development of professional communities. According to the principals in the study, these structural supports included "time, school plans, interconnected teacher roles, teacher empowerment, and institutional identity" (Cranston, 2009, p. 10).

Impact of School Architecture on Teacher Collaboration

The California Department of Education published a guide in 1997 for school construction to meet various educational reforms in the state. The report served as a guide to California School

Districts at all three levels (elementary, middle school, and high school) and gave examples of award-winning schools that embedded the reform movement in the school design and structure (Ong, 1997). The California Department of Education listed the following implications common to all grade levels when designing new schools: technology/media centers, aesthetics, safety and security, flexibility, lighting, storage and furniture, display areas, cleanliness, socializing space, physical education, outdoor space, utilities and design, performance and assembly space, and teacher as professional. The teacher as a professional was emphasized in the California Department of Education's guide for construction and implementation of reform.

> Teachers will expect professional work space with an area for storage of personal belongings and for small group conferences with parents or students. Preparation for teaching and planning with colleagues will be supported with well-equipped spaces for working and conferencing. Teachers will have telephones in the classroom, video display monitors, and a computer work station connected to a local area network through which they receive electronic mail (Ong, 1997, p. 26).

Within this report, it was evident that teacher collaboration in the construction of schools was seen as a vital component of school design and architecture.

In regard to middle school design, the California Department of Education based construction and design of new middle schools as was outlined in *Caught in the Middle: Educational Reform for Young Adolescents in California Public Schools* (1987). The middle school taskforce identified seven basic components of reform in the construction of new middle schools in the State of California (Ong, 1997). These seven included:

1. Engaging students in a meaning-based, integrated curriculum.
2. Implementing performance-based accountability and assessment.

3. Providing effective student support and reducing the dropout rate.

4. Establishing an environment of professionalism for teachers and staff.

5. Initiating effective parent in-service programs and parent/community involvements.

6. Making instructional and organizational changes to allow students to reach higher performance levels.

7. Creating a school climate conducive to learning (p. 92).

The report listed and explained design implications for each basic component listed in the *Caught in the Middle* (1987) report.

According to the report (Ong, 1997), design implications for establishing a professional environment for teachers to collaborate was evident. The design implications included:

- Planning space for interdisciplinary teams

- Secure areas for personal equipment and materials

- A central location in which to congregate and exchange ideas, small group spaces, and space for staff research activities

- Space for computers and an infrastructure for networking and access to electronic materials on and off campus

- Work stations in the classroom with desktop computers connected to a local area network and the Internet, a video display monitor, and a telephone

- Storage areas for year-round teachers and work stations for off-track teachers (p. 97).

It was evident that providing a culture of teacher professionalism and teacher collaboration was one of the major goals of the California Department of Education's reform efforts seen in the architectural design of middle schools throughout the state.

Burch (1994) examined perceptions of architects, administrators, and teachers' identification of identifying essential design elements for new middle schools. The following seven categories were identified as essential to the design of middle schools by architects, administrators, and teachers: planning, design, site selections, environmental factors, space utilization, technology, and school community service. This study showed a discrepancy in the amount of input teachers and administrators had in the design and implementation of new middle schools. The study failed to explain the importance of teacher collaboration in the design and construction of a new middle school.

There have been numerous school construction projects including middle schools throughout the United States. Many of these schools have not been evaluated to see if the planning and construction is a product of educational function. Lackney (2001) presented at the Annual Meeting of the Environmental Design Research Association and found that few newly constructed schools undergo a post-occupancy evaluation to examine if the new facility meets the educational needs of students and the professional needs of teachers. The paper explained the importance of school districts in conducting a post occupancy evaluation. The paper reports on the use of the post-occupancy evaluation tool called "School Construction News/Share Awards 2000".   Lackney (2001) stressed the importance of conducting a post occupancy evaluation of the educational program in the newly constructed school.

Uline, Taschannen-Moran, and Wolsey (2009) examined the link between the school facility and student achievement. Through the use of a qualitative instrumental case study design, the researchers studied two economically disadvantaged schools (one rural and one urban). Their research suggested that the facility shapes the environment/climate of the school which in turn affects the student achievement. They identified the following themes between the building and

those working and learning in the environment: movement, aesthetics, play of light, flexible and responsive classrooms, elbow room, and security.

Review of Methodologies

The first area of literature is devoted to student achievement as it relates to the three major classroom structures to be examined. In chapter one, a brief history of departmentalization was reviewed (Garner & Rust, 1992; Bowser, 1984; Dawson, 1974; McPartland, 1987 and O'Looney, 1993).   Chapter one also examined the literature on student achievement as it pertains to self-contained classrooms (Wood, 1967; Wolf & Loomer, 1966; Lambert, 1995; Shields 1997; and Lamme, 1976). Most of these studies were quantitative and assessed which classroom structure is best for student achievement. Chapter one also reviewed the history of the middle school movement (Dickenson, 1997) and types of teaming evident in middle schools across the nation (Jackson & Davis, 2000). Chapter one ended with a brief introduction to the literature on teacher collaboration.

The second major area of the literature review examined research on teacher collaboration as it pertained to student achievement (DuFour et al., 2004 and DuFour et al., 2005). Several other studies showed significant benefits to teaching students through the use of collaboration and professional learning communities such as: Little and McLaughlin, 1993; Kruse, 1996; Louis, 1992; Newmann, 1991; Osterman, 1990; Darling-Hammond and Goodwin, 1993 and Riley, 2000. Most of these studies employed qualitative research techniques.

Evaluation of the Literature

The literature is very favorable for schools to establish Professional Learning Communities as a means of increasing student achievement as well as increasing teacher efficacy and job satisfaction. There were numerous research studies that showed favorable findings and adequate

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reasoning to implement a teaming structure that fostered teacher collaboration and joint work (Little, 1990). DuFour et al., (2004) and DuFour et al., (2005) utilized case studies to show how the employment of professional learning communities contributed to high rates of student achievement in many struggling schools. Several other studies showed significant benefits to teaching students through the use of collaboration and professional learning communities such as, Little and McLaughlin, 1993; Kruse, 1996; Louis, 1992; Newmann, 1991; Osterman, 1990; Darling-Hammond and Goodwin, 1993 and Riley, 2000. Most of these studies employed qualitative research techniques and yielded positive results of teacher collaboration.

The literature review examined numerous studies that failed to tie classroom achievement directly to the way in which schools are organizationally structured. Many of these studies employed quantitative research methodologies. These studies attempted to examine if departmentalized or self-contained classrooms yielded higher levels of student achievement. The results of these studies were inconclusive with the exception of Alspaugh and Harting (1995) when replicated showed that when students transition from a self-contained classroom to a departmentalized structure, student achievement decreased. The studies of Bowser (1984), McPartland (1987), and Garner and Rust (1992) showed varying results of the impact of school structure on student achievement.

The literature that examined the impact teacher collaboration on classroom instruction was positive. Jalongo et al., (2007) examined teacher collaboration as it related to teachers writing of lesson plans together. Lewis (2000) examined Japanese Lesson Study and how it positively impacted the quality of teacher instruction. Gill and Hoffman (2009) researched teacher common planning periods and the impact on teacher beliefs as they collaborate together. This literature reflects the highest levels of teacher collaboration originally identified by Little (1990).

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Chapter Summary

Purpose of the Study

The purpose of this study was to evaluate the level of teacher collaboration in a 6-8 middle school in the coal region of Northeastern Pennsylvania evident pre and post teaming implementation. The secondary purpose of this study examined what if any effect a new middle school building contributed to any increase in teacher collaboration.

Current research studies on teacher collaboration fail to make a conclusive connection between teacher collaboration and student achievement; however, there is some limited evidence beginning to emerge that when teachers work together to improve instruction, student achievement increases (Inger, 1993; DuFour, 2005). Because previous research studies fail to correlate school structure with increased student achievement, the purpose of this research was to examine the level of teacher collaboration in a 6-8 middle school before and after teaming implementation. Additionally, the purpose of the study was to expand the current body of knowledge on the middle school teaming and teacher collaboration. The issues of teacher collaboration are inherently complex. Because of this complexity, it was critical to conduct this study with no assumptions that teachers or principals would respond to surveys and interviews either positively or negatively to teacher collaboration after teaming was implemented.

Gaps and Saturation Points

There were several gaps evident in the literature on teacher collaboration. Researchers such as Little (1990) and Kruse (1996) examined teachers working collaboratively. Studies are sparse on the issue of collegiality using a teamed approach and there was very little qualitative research on teachers working collaboratively while teaming or during the utilization of a common planning period. Additionally, limited research exists on which school structure provides the

greatest opportunities for upper elementary teachers to collaborate to improve curriculum, instruction, assessments, and student achievement. It is critical to see which elementary school structure best presents itself to what Little (1990) called "joint work." Another large gap exists on how architecture of a school impacts teacher collaboration as well as student achievement. The State of California disseminated a guide for school construction but there is very limited research on the impact of school architecture on student achievement. The literature is saturated with achievement studies on classroom organization and its impact on student achievement, but the results were inconclusive. Additionally, many more studies are examining the impact of teacher collaboration in the areas of lesson planning Jalongo et al., (2007), common planning periods Gill and Hoffman (2009), and the impact of teachers reflecting on practice Lewis (2000).

Introduction

Throughout the United States, most middle schools implemented one of five teaming models. These models included interdisciplinary teams, multidisciplinary teams, teacher collaboration, team teaching, or partnering. This study examined the level of teacher collaboration identified by Little (1990) evident in a 6-8 middle school pre and post implementation of teaming and construction of a new middle school that embraces the middle school concept identified by Jackson and Davis's *Turning Points* (2000). The study employed qualitative research techniques developed by Yin (2009) to determine levels of teacher collaboration found in a 6-7-8 middle school pre and post implementation of teaming and pre and post construction of a new middle school which fosters the middle school concept.

Overview of the Study

The study examined levels of teacher collaboration as defined by Little (1990) evident in a 6-7-8 grade middle school located in the coal region of Northeastern Pennsylvania. Qualitative research techniques, through the use of five teacher interviews, were employed to determine levels of teacher collaboration pre and post teaming implementation and pre and post the construction of a new middle school. The new middle school was developed to foster the middle school concept as seen in *Turning Points 2000* by Jackson and Davis (2000). Teachers who instructed in the old middle school before the implementation of teaming were surveyed, interviewed individually, and observed during common planning time to ascertain the level of teacher collaboration pre and post teaming implementation.

Qualitative research techniques utilizing the case study approach outlined by Lin (2009) were the guiding framework for the study. Teachers who instructed in the old middle school were both surveyed and individually interviewed regarding their perceptions of teacher collaboration pre and post implementation of teaming. (N=5). Additionally, observations were conducted of teachers at the new middle school during their common planning periods to ascertain levels of teacher collaboration identified by Little (1990). Historical documents such as the school's improvement plan and the construction documents of the new school were examined to triangulate the data observed.

Problem

In *Turning Points 2000*, Jackson and Davis (2000) listed seven points that all middle grades should possess. They included:

- Teach a curriculum grounded in rigorous, public standards for what students should know and be able to do, relevant to the concerns of adolescents and based on how students learn best.

- Use instructional methods designed to prepare all students to achieve higher standards and become lifelong learners.

- Staff middle grades schools with teachers who are expert at teaching young adolescents, and engage teachers in ongoing, targeted professional development opportunities.

- Organize relationships for learning to create a climate of intellectual development and a caring community of shared educational purpose.

- Govern democratically through direct or representative participation by all school staff members, the adults who know the students best.

- Provide a safe and healthy school environment as part of improving academic performance and developing caring and ethical citizens.
- Involve parents and communities in supporting student learning and healthy development (pp. 23-24).

In order to achieve these goals, it is evident that teacher collaboration needs to be at the forefront. This study examined the issue of teacher collaboration pertaining to pre and post teaming implementation at this particular middle school in the coal region of Northeastern Pennsylvania. This study examined the issue of teacher collaboration and whether teacher collaboration identified by Little (1990) increased with the introduction of teaming and the construction of a new middle school based on teachers' reactions.

According to DuFour et al., (2005), Professional Learning Communities and teacher collaboration have the potential of increasing student achievement. Many schools throughout the United States have been deemed failures because of poor student achievement. If teacher collaboration has the opportunity to increase student achievement, then this study was conducted to determine if the middle school structure identified by Jackson and Davis (2000) impacted student achievement and if the *Turning Points'* recommendations were being adhered to.

Purpose

The purpose of this study was to evaluate teacher collaboration levels on pre and post implementation of teaming. The type of middle school teaming that best describes the school being studied is interdisciplinary teaming. Defined by Erb (1999) in *Turning Points* (2000):

Interdisciplinary has two distinct meanings; one that refers to the organizational structure of teams that include teachers from different disciplines and another that refers to curriculum design that makes connections across disciplines. An interdisciplinary team is

certainly well suited to teaching an interdisciplinary (or "integrated") curriculum, but such

a team could also deliver a subject-centered curriculum. In short, people may refer to

interdisciplinary teaming without implying interdisciplinary curriculum. However,

teachers would find it very difficult to create an interdisciplinary curriculum in the

departmental organizational structure, since that structure does not give them

opportunities to coordinate 'student support, curriculum, instruction, their own workloads,

or [much] else in their professional lives' (Jackson & Davis, 2000, p. 136).

The purpose of this study was to examine levels of collaboration after the implementation of an

interdisciplinary teaming approach and after the construction of a new middle school. The data

collected and triangulated showed levels of teacher collaboration before and after teaming

implementation. Teachers that taught at the middle school before and after teaming

implementation were interviewed. All teachers that taught at the middle school (N=26) were

surveyed.

Many research studies on teacher collaboration failed to make a connection between

classroom structure or school organization on student achievement because of the numerous

variables in each of the studies. More recently, there was evidence that when teachers work

together to improve instruction, student achievement increases (Inger, 1993; DuFour et al. 2005).

However, there is recent evidence (DuFour et al, 2004) that teacher collaboration through

professional learning communities has positive effects on student achievement. Because of this

positive impact, it was important to study teacher collaboration levels developed by Little

(1990). Additionally, the purpose of the study was to expand the current body of knowledge on

teacher collaboration based on the interdisciplinary approach to middle school teaming. The

issue of teacher collaboration is inherently complex. Because of this complexity, it was critical

to conduct this study with no assumption that teacher collaboration increased under the implementation of the interdisciplinary teaming model as well as the construction of a new middle school. Rather, the qualitative case study approach through the utilization of school documents, teacher surveys, teacher interviews, and historical background of the implementation of teaming and construction of a new middle school was examined. As the study progressed, no stone was left unturned to uncover the complex nature of interdisciplinary teaming at this 6-8 middle school located in the coal region of Northeastern Pennsylvania.

Research Questions

The study examined levels of teacher collaboration before and after the implementation of interdisciplinary teaming and the construction of a new middle school based on levels of teacher collaboration introduced by Little (1990). The following questions were answered in the research study:

1. How was teacher collaboration impacted after teaming and the construction of a new middle school?

2. How did principals' perceptions of teaming and a new middle school impact teacher collaboration?

3. What positive and negative aspects of teacher collaboration did teachers and principals perceive were evident in this 6-8 middle school?

4. What stages of collaboration (Little, 1990) are evident after eight years of teaming and three years in a new school building?

Research Techniques

The research study employed predominately qualitative case study research techniques evident in Yin (2009). Research techniques adopted from Little (1990) and expanded by Legters

(1999) were advanced to survey and interview teachers to determine pre and post teaming implementation levels of teacher collaboration (See Appendix A and Appendix B). Using the four levels of collaboration devised by Little (1990), teachers were observed during their common planning period to determine current levels of teacher collaboration to assess how frequently they engaged in conversations, one-on-one assistance, routine sharing, and joint work during a typical work week (Little, 1990).

A qualitative case study approach was utilized to determine the level of teacher collaboration evident at the middle school to have a high frequency of joint work. Both surveys and interviews of teachers were corroborated through observations during team meetings to determine the level of teacher collaboration. Extensive notes were taken during teacher interviews and the interview process was taped and transcribed to ensure that all data were accurately described and analyzed. Upon gathering data through teacher surveys and teacher and principal interviews, the principal investigator observed teachers during their common planning periods to see if survey and interview information match what was currently happening at the school.

In addition to teacher interviews and teacher observations, numerous documents were examined. The middle school improvement plan was also examined to see if teacher collaboration was mentioned in the improvement process. Finally, various blueprints and construction documents were examined to determine if teacher collaboration efforts were included in the construction of the new middle school.

Sample/Population

The first sample population in the study was the entire teaching staff at Coal Valley Middle School. The entire population of teaching staff was twenty six teachers (N=26). Twenty-four surveys were returned from the teachers for an overall response rate of 92.3%. In the study,

twenty-four surveys were tabulated. The sample population in the teacher questionnaire portion of the study was (N=24). A twenty-fifth survey was not tabulated because it came in late through the principal's office.

The second sample population in the study was five teachers that were interviewed. The original sample population was seven teachers (N=7) that taught at the middle school and the same seven (N=7) that taught at the old middle school before teaming was implemented and the new middle school was built. Responses as to the level of collaboration as defined by Little (1990) will be described in Chapter four utilizing thick description of what interviewees stated about teacher collaboration before and after teaming implementation and before and after the new middle school construction. The actual sample interviewed was five (N=5). Two teachers failed to return their consent forms to be interviewed even after being called once and emailed twice. It was assumed that these two teachers did not want to be interviewed. Furthermore, one of the two teachers had limited knowledge of teaching at the middle school before teaming implementation because he taught in the Title I program at a local non-public school.

The same teachers with other colleagues were observed during common planning time to determine the level of teacher collaboration evident in the new middle school. This data was analyzed and compared. The purpose of conducting the observations during common planning time was to corroborate data collected in both surveys and interviews regarding current collaboration practices.

The third sample population was the three principals (N=3) who were principals at the school from 2002-2011. The first principal began teaming implementation and began planning the new middle school project from 2002-2004. The principal investigator utilized the pseudonym Robert to describe his experiences at the Coal Valley Middle School during the planning phases

of the new school as well as his experiences implementing teaming. The second principal

continued the teaming concept while the new middle school was built from 2004-2007. The

principal investigator used the pseudonym Amy to describe her experiences while she was

principal at the school during the building project. The third principal continued teaming in the

new middle school from 2007-2011. The principal investigator described her interview

information with the pseudonym Linda.

Instrumentation

The teacher questionnaire, teacher interview protocol, and the principal interview protocol

was the same that was utilized by Letgers (1999). The teacher questionnaire adopted from

Letgers (1999) measured the working environment in the school with particular emphasis on the

levels of teacher collaboration achieved from the stages of teacher collaboration identified by

Little (1990).   Letgers (1999) study sampled 1,601 participants. The following data showed the

extent of the study conducted by Letgers in a larger sample than this study (N=1601; M=0;

SD=.19; Min=61, Max =.39. Cronbach's Alpha=.84). The existing tool utilized by Letgers in

the study is considered both reliable and valid.

Teacher Surveys

The data was disaggregated as follows in the teacher structured interviews: years of

experience, years of experience at current school, gender, frequency of collaboration (informal

conversations, one-on-one assistance, routine sharing, and joint work) adapted from Letgers

(1999) pre and post implementation of teaming (Appendix A). Teacher responses were reported

utilizing thick description from data collected during the interviews in Chapter four and in

Chapter five anonymously to protect teacher identity to promote validity and reliability during

teacher interviews   (Appendix B). Pseudonyms were used for both the school (Coal Valley

Middle School) as well as teacher names in the study.

Principal Interviews

The data was disaggregated as follows in the principal structured interviews similar to the

teacher survey: length of service to Coal Valley Middle School, duties performed, likes and

dislikes about the job, and greatest source of stress on the job. (Appendix C). Similar to the

teacher interviews, the principal interviews also examined interactions, groupings, and norms.

Principals were asked to describe interactions they had with others on the job and how often they

attended common planning periods. Principals described how they worked with teachers to

achieve various accomplishments, and how they perceived teachers worked collaboratively on

teams together. Additionally, the principal interview addressed the issue of whether their

faculties were cohesive or divided and the source of those divisions. Principals' responses were

reported using thick description.

Qualitative Case Study Research

The process followed, utilized Yin (2009) Case Study Methods were completed in the

following order:

1. Teachers (N=24) were surveyed through the use of Letgers' (1999) survey to determine
   teacher perceptions of their collaboration at Coal Valley Middle School.

2. Utilizing Letgers' (1999) interview format, five teachers (N=5) were interviewed and
   audio taped. The teachers were interviewed by an outside interviewer. The interviews
   were transcribed and thick description was utilized to report teacher perceptions.

3. Various historical documents such as the school improvement plan, construction and
   architectural blueprints and/or notes, achievement data to see if teacher collaboration

effected student achievement, district and school vision statement, and any other

pertinent document that may pertain to teacher collaboration was analyzed and described

in the study.

4. Utilizing Little's (1990) stages of teacher collaboration, teachers were observed on three

   separate occasions during their common planning periods to determine the level of

   teacher collaboration.

5. Data were analyzed and verified employing techniques of Yin (2009) to check for pattern

   matching in the data. The survey, interviews, documents, and observations were

   triangulated and explained in detail in Chapter four of this report.

Data Collection

First, data were initially collected through the utilization of a survey created by Letgers

(1999). The questions were adapted to ascertain information pre and post teaming

implementation. The survey is listed as Appendix A. The teachers taking the survey answered

questions and the surveys were hand delivered to a trusted faculty member and he or she

distributed the surveys to the teachers, ensuring a 100% response rate. Teachers returned their

surveys to one of the teachers in a secure envelope so that no one other than the researcher

accessed the results. Teachers did not place their names on the survey ensuring strict

confidentiality of the survey. The data were sorted by the researcher and placed into an Excel

spreadsheet for data analysis. Data were analyzed to help determine the level of teacher

collaboration at the 6-8 middle school.

Secondly, utilizing Letgers (1999) interview questions, seven teachers were initially identified

as faculty that were present before teaming implementation and before the construction of a new

middle school. Following two emails and a phone call, two of the seven teachers did not return

the consent form and therefore, were not interviewed. One of these teachers might not have been able to contribute considerably because he taught Title I at a local non-public school even though he was employed by the Coal Valley School District. The five teachers were interviewed by the use of an outside interviewer. These questions are listed in Appendix B. Extensive notes were taken by the outside interviewer during these interviews. Additionally, interviews were audio-taped and transcribed. The five interviews occurred at the school including a retired teacher by the outside interviewer.

Third, various applicable historical documents such as architectural blueprints and/or notes, achievement data, district and school vision statement, school improvement plan and any other pertinent document that pertained to teacher collaboration were analyzed although many of these documents were not used because they made limited or no mention to teacher collaboration at the middle school. Notes and emails between the superintendent, principal, and architects were of great value in describing the vision for the new middle school and how it applied to teacher collaboration.

Fourth, teachers were observed in their natural setting during their common planning periods to determine the level of collaboration present defined by Little (1990). Observations were conducted to corroborate data collected in both teacher and principal interviews and teacher surveys. In addition to observing teachers during their common planning periods, the principal investigator was given access to the school between common planning periods to observe some classroom instruction. This also assisted in corroborating teacher and principal interviews and teacher surveys.

Analysis

Finally, data were analyzed to determine the frequency of the four types of teacher

collaboration identified by Little (1990) evident in surveys, interviews, historical documents, and

team planning periods. In addition to the frequency of collaboration types, the data were

analyzed to determine the level of authentic teacher collaboration present at this 6-7-8 middle

school. Patterns were identified and negative comments of teaming and teacher collaboration

were explored based on the data collected. The data analysis appears utilizing thick description

from notes, audio-tapes, and the transcriptions of these audio-tapes in Chapter four of this report.

Table 4

Alignment of Research Questions to Teacher Questionnaire and Teacher/Principal Interview
Questions

Research Question	Teacher Survey Questions	Teacher / Principal Interview Questions
How was teacher collaboration impacted after teaming and the construction of a new middle school?	- During a typical week in this school, how often do you interact with other teachers in the following way? Informal conversations? Solving student problems? Offering/receiving advice on a one on one basis? Routine sharing of materials, methods, and ideas? Joint work involving shared responsibility for teaching and cooperative organization of tasks, time and resources? (current / after	- Describe interactions with other adults during the day. Did these interactions increase or decrease after teaming implementation / new middle school built? - With whom do you have primary professional relationships? How have these relationships changed before/after (teaming and new building). - Have you ever worked with another teacher or group of teachers on a common task this year? - Are teachers here rewarded for working together? Were they rewarded before implementation of

	teaming and after construction of the new middle school)	teaming? Middle School Construction?
How did principal's perceptions of teaming and a new middle school impact teacher collaboration?	Not – Applicable because principals did not take the teacher survey.	- Would you characterize the faculty here as cohesive or divided? What are the sources of that cohesiveness/those divisions? - How does / did your group of teachers work together? Please describe and give examples of specific things you have accomplished together. Would these accomplishments have come to fruition without teaming? Without the new middle school?
What positive and negative aspects of teacher collaboration did teachers and principals perceive were evident in this 6-8 middle school?	Which are mostly true of the teaching faculty of your school and which are mostly false? Apathetic, cohesive, enthusiastic, frustrated conservative, and innovative.	- How does / did your group of teachers work together? Please describe and give examples of specific things you have accomplished together. Would these accomplishments have come to fruition without teaming? Without the new middle school? - Have you ever worked as a team before? Do teachers at this school turn to each other for help? Before / After teaming and before / after building the new middle school?
What stages of teacher collaboration identified by Little (1990), were evident after eight years of teaming and three years in a new building?	- During a typical week in this school, how often do you interact with other teachers in the following way? Informal	- How does / did your group of teachers work together? Please describe and give examples of specific things you have accomplished together. Would these

	conversations? Solving student problems? Offering/receiving advice on a one on one basis? Routine sharing of materials, methods, and ideas? Joint work involving shared responsibility for teaching and cooperative organization of tasks, time and resources? (current / after teaming and after construction of the new middle school)	accomplishments have come to fruition without teaming? Without the new middle school? - Have you ever worked with another teacher or group of teachers on a common task this year?

Assumptions, Limitations, and Delimitations

The following terms were defined for the proceeding study and should be assumed throughout:

1. Teaming classroom – A classroom whereby two or more teachers instruct various academic subjects. Doda and Lounsbury's (1981) definition of teaming was used. It states: "Teachers from varying disciplines [who] are organized into core groups to share [the] instruction of a given community of learners" (p. 5)

2. Teaming Types (Jackson & Davis, 2000):

   A. Interdisciplinary teams – consist of five teachers from different departments that work together to create thematic units and project-based instruction for students. The middle school in this study contains elements of interdisciplinary teaming.

B. Multidisciplinary teams – teachers share instructional responsibilities with

other members of the team but are responsible for their departmentalized area.

The middle school in this study predominately reflects multidisciplinary teaming.

C. Teacher collaboration – teachers that work and learn together in a Professional

Learning Community providing each other with professional development.

D. Team teaching – occurs when the same grade level or department of teacher

come together to share teaching responsibility for a brief period of time.

E. Partnering – occurs when two teachers work together and teach a class. An

example of partnering could be a special education teacher working daily with a

regular education teacher in a regular education classroom.

This study was a case study that only reflected events described for this specific 6-7-8 grade

middle school in the coal region of Northeastern Pennsylvania. The results here are difficult to

generalize to other school districts, but they provide a snapshot of teacher collaboration in this

middle school after the implementation of teaming as well as the construction of a new middle

school that affords the opportunity to maintain the teaming structure.

The sample teacher population (N=5) is a limitation because it is not a very large sample. It is

not a large sample because the school has undergone much turnover due to numerous staff

retirements in the past five years. The teachers surveyed, interviewed, and observed were

specifically those teachers that were present in the school district both before and after teaming

implementation. The primary investigator only observed teacher common planning periods a

total of one time per grade level. This was a limitation because teachers function at both higher

and lower stages of collaboration based on the topics discussed. Finally, the study was submitted

to the Institutional Review Board at East Stroudsburg University of Pennsylvania and Indiana University of Pennsylvania for review before data was collected and analyzed.

Summary

Chapter three provided a detailed methodology as to how the study was conducted. Terms were specifically defined and two appendices show the teacher questionnaire and interview questions adopted from Legters (1999). The next chapter (Chapter IV) will provide basic information about the school district that was studied and some historical information about the district and information on the five teachers being surveyed, interviewed, and observed.

CHAPTER IV
ANALYSIS OF THE DATA

Background

During the 2002-2003 school year, the Coal Valley School District located in Northeastern Pennsylvania transformed its junior high school into a teamed middle school. The old building was constructed in 1911 and was based on a factory model junior high school configuration. The school housed sixth, seventh, and eighth grade students. The district leadership team determined that a new middle school facility would have to be constructed, preferably one that would foster the middle school concept and teaming with an emphasis on teacher collaboration. Before the new school was built, the leadership implemented the team based model. Teaming was fully operational during the 2003-2004 school year. Teachers were given common planning time and met in an old faculty lounge to discuss various student issues and plan interdisciplinary projects. Since then, the new middle school was constructed and the team-based philosophy encouraging teacher collaboration continued to be supported by district leadership. Three principals served as educational leaders during this period from 2002-2010. Given the commitment of financial resources and leadership initiatives to teacher collaboration and a team-based philosophy, this study examined the principals' and teachers' perceptions of their collaboration and teaming efforts from 2002-2010 and their perceptions of the influences upon their actions.

This study examined the amount of teacher collaboration pre and post implementation of the teaming concept and the construction of a new middle school which was built to foster teacher collaboration. Through the research of Little (1990) and Letgers (1999), levels of teacher collaboration were ascertained pre and post leadership teaming initiatives as well as before and after construction of a new middle school.

The main purpose of this study was to examine teacher collaboration efforts before and after the implementation of teaming in a 6th, 7th, and 8th grade middle school in the coal region of Northeastern Pennsylvania to determine if teachers and principals perceive that the leadership initiatives encouraging teaming have impacted teachers' collaboration, that the structure of the new building has assisted in teacher collaboration, and other factors they perceive to have influenced the ways in which they interact with each other. Additionally, a secondary purpose of the study was to determine benefits or limitations the teachers and principals perceive from these changes.

Research Questions

The following research questions were answered in this chapter:

1. How was teacher collaboration impacted after teaming and the construction of a new middle school?

2. How did principals' perceptions of teaming and a new middle school impact teacher collaboration?

3. What positive and negative aspects of teacher collaboration did teachers and principals perceive were evident in this 6-8 middle school?

4. What stages of collaboration (Little, 1990) were evident after eight years of teaming and three years in a new school building?

The first question (How was teacher collaboration impacted after teaming and the construction of a new middle school?) was answered in this chapter through teacher interviews, a walkthrough of the middle school to examine the impact of the new structure on teacher collaboration, an examination of school construction documents, and principal interviews. All

current teachers participated in a teacher questionnaire regarding their perceptions of their level of collaboration.

The second question (How did principal's perceptions of teaming and the construction of a new middle school impact teacher collaboration?) was answered through interviews of three principals, walkthrough observations, teacher questionnaires, and teacher interviews. The first principal interviewed had the vision of implementing teacher collaboration as a means of increasing student achievement. This principal was highly involved with various constituencies such as the superintendent, school board, architects, and parents in designing the new middle school on the premise of teacher collaboration playing a central component of increasing student achievement. The second principal interviewed was the building administrator during the construction phase of the project. The second principal continued teaming and teacher collaboration in the old factory model building while the new building was being constructed. The third principal interviewed continued teaming as a central component in the newly constructed middle school and utilized the various spaces to maximize teacher collaboration.

The third question posed in the study (What positive and negative aspects of teacher collaboration did teachers and principals perceive as evident in this 6-8 middle school?) was answered through the use of teacher questionnaires, teacher interviews, principal interviews, and naturalistic observation during a walkthrough. The fourth question posed in the study (What stages of collaboration (Little, 1990) were evident after eight years of teaming and three years in a new school building?) was answered through the utilization of a teacher questionnaire, teacher interviews, principal interviews, and naturalistic observation during a walkthrough.

Teacher Questionnaire Data

The questionnaire devised by Letgers (1999) was divided into three major sections. These sections included general information, working environment, and collaborative interactions with colleagues. During data collection, there were twenty-six educators teaching at Coal Valley Middle School. Overall, twenty-five questionnaires were returned, but one questionnaire was not counted due to the fact that it came via the principal's office. Therefore, twenty-four questionnaires were returned and counted for a 92.3% response rate.

Educators at Coal Valley Middle School that responded were 33.3% male and 58.3% female. Two respondents (8.3%) did not report their gender on the questionnaire. The next category of the questionnaire was age. The age ranges on the questionnaire were as follows: 21-30, 31-40, 41-50, 51-60, 61-70, and 71-80. The 31 – 40 year old age range had the largest amount of respondents at 33.3%. Teachers in the 21-30 age range constitute 20.8% of the respondents and 25% of respondents were between the ages of 41-50. Sixteen point seven percent of the respondents were between the 51-60 age range and one responded that his or her age range was "21+", leaving his or her age range as unidentified. No respondents identified their age as being in the 61 – 80 age ranges. The staff at Coal Valley Middle School is highly educated as 62.5% of the staff has Master's Degrees and all teachers are highly qualified under the *No Child Left Behind Act* (2001).

Teachers were given the definitions of teaming types. These teaming types included: interdisciplinary, multidisciplinary, teacher collaboration, team teaching, and partnering. A small majority of teachers, thirteen out of twenty-four, identified the school's teaming type as team teaching. The definition of team teaching in the study stated, "Team teaching occurs when the same grade level or department of teachers come together to share teaching responsibility for

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a brief period of time." Eight of the respondents reported that Coal Valley Middle School utilizes a multidisciplinary approach to teaming. In multidisciplinary teaming, "Teachers share instructional responsibilities with other members of the team but are responsible for their departmentalized area." Three of the respondents circled two answers instead of one. Two respondents believed that the school could best be described as team teaching with partnering and another circled both team teaching and multidisciplinary. One responded that he or she could not identify the teaming type based on the provided definitions. It is evident through the questionnaire that teachers believe the teaming type that best describes Coal Valley Middle School is team teaching followed by multidisciplinary. Only three teachers believed that the term teacher collaboration best describes Coal Valley Middle School while two respondents believed that partnering best describes Coal Valley Middle School.

The following tables depict teacher demographics at Coal Valley Middle School. Table five shows the percentage of males and females that taught at Coal Valley Middle School at the time of the study. Table six depicts teacher experience at Coal Valley Middle School by showing the number of years the teaching staff taught at the school. Table seven depicts the percentage of teachers with bachelor's and master's degrees at Coal Valley Middle School. Table nine describes the type of teaming structure the faculty believed was apparent at Coal Valley Middle School.

Table 5

Teacher Demographics – Gender

Coal Valley Middle School Gender	33.3% Male	58.3% Female	8.3% Not Identified

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Table 6

Teacher Demographics – Years of Teaching

Years of Teaching	0 – 5	6 – 10	11 – 15	16 – 20	21 – 25	26 – 30	36 – 40
Percentage of Teachers	8.3%	25%	16.7%	12.5%	8.3%	16.7%	4.2%

Table 7

Percentage of Teachers with Bachelors and Masters Degrees

Education Level	Bachelor Degrees	Masters Degrees
Percentage of Teachers	37.5%	62.5%

Table 8

Percentage of Teachers Describing the Teaming Structure at Coal Valley MS

Teaming Structure	Interdisciplinary	Multidisciplinary	Teacher Collaboration	Team Teaching	Partnering
Percentage of Teachers Identified Coal Valley as that Teaming Structure	0%	33.3%	12.5%	54.2%	8.3%

The second part of the questionnaire used a scale to determine how much influence teachers felt they had over various areas of work. Almost half (45.8%) of the teachers responded that they rarely had any influence over determining content of their professional development. Twenty-nine point two percent believed that sometimes they have control over determining

content of their professional development. Although, nine (37.5%) teachers responded that they

very often selected content, topics, and skills they taught in the classroom and another seven

(29.2%) answered often; only one (4.2%) responded that he or she rarely selects content, topics,

and skills for his or her classes. Overwhelmingly, teachers at Coal Valley Middle School select

their textbooks and other instructional materials indicating that teachers at the school are given

latitude in choosing their materials. Twenty-two (92%) of respondents either responded often or

very often that they were able to select textbooks and other instructional materials. It was

evident in the questionnaire that teachers at Coal Valley Middle School do not determine which

classes they teach. Only two (8.3%) responded they very often determine which classes they

teach. Under the *No Child Left Behind Act* (2001), middle school teachers must teach the

secondary level they are certified to teach and there is no flexibility to teach outside of their

certification area. One respondent did not answer the question and wrote N/A as his or her

response indicating that this respondent understands the certification laws under federal

legislation. According to the survey, teachers in this school do not determine which students

they will have in class. Eighteen (75%) of the respondents stated that they never or rarely

determine which students they will have in their class and nineteen (79%) of the respondents

stated that they never or rarely determine the daily schedule. It is evident that the daily schedule

in this middle school is determined by the principal. Additionally, according to the respondents,

administration sets disciplinary policies for students. Evidence of this is that five (20.8%) of the

respondents stated that they never set disciplinary policies for students and another six (25%)

responded that they rarely set disciplinary policies for students; however, ten (41.7%) teachers

felt that sometimes they set disciplinary policies for students. It is important to note that in

Pennsylvania schools' disciplinary policies are set by school boards and procedures are

developed by administrators to implement these policies. Thirteen (54%) of the respondents believe they had the ability to acquire new equipment, materials, or other resources for use in their classrooms and ten (41.7%) believe that they sometimes can acquire new equipment, materials, and other resources for their classrooms.

Through the answers of the respondents at Coal Valley Middle School, it can be stated that teachers have the most influence over selecting content, topics, and skills they teach in the classroom, selecting textbooks and other instructional materials, and acquiring new equipment, materials, or other resources for use in their classrooms. Teachers at Coal Valley Middle School felt as though they have limited influence over determining professional development activities, determining classes they teach, determining which students they will have in their classes, determining the daily schedule, and setting disciplinary policies for students.

The following table depicts numerous questions the teachers responded to regarding the control they had over their working environment at Coal Valley Middle School. Using a Lickert Scale, teachers responded: never, rarely, sometimes, often, or very often to each question. The questions asked teachers how much control they have over choosing in-service activities, selecting content taught, determining classes they teach, student scheduling, determining the daily schedule, setting student discipline policies, and acquiring new equipment and materials.

Table 9

Influence Over Working Environment

Working Environment	Never	Rarely	Sometimes	Often	Very Often
In-Service Activities	12.5%	45.8%	29.2%	8.3%	4.2%
Selecting content taught	0%	4.2%	29.2%	29.2%	37.5%
Selecting books and materials	0%	8.3%	0%	45.8%	45.8%
Determining classes they teach	20.8%	33.3%	29.2%	4.2%	8.3%
Student Scheduling	33.3%	41.7%	8.3%	12.5%	4.2%
Determining daily schedule	45.8%	33.3%	16.7%	0%	4.2%
Setting student discipline policies	20.8%	25%	41.7%	4.2%	8.3%
Acquiring new equipment and materials	0%	4.2%	41.7%	37.5%	16.7%

The third section of the teacher questionnaire examined the extent of teacher collaboration evident at Coal Valley Middle School. The questionnaire examines teacher perceptions of how often they collaborate as identified initially by Little (1990) and later by Letgers (1999). The questionnaire asked teachers: "During a typical week in this school, how often do you interact with other teachers in the following way?"

The first type of interactions identified were informal conversations which were considered by Little (1990) as the lowest level of teacher collaboration. Fifty-four percent of teachers responded that they very often engaged in informal conversations. Twenty-five percent of

teachers responded that they often engaged in informal conversations and 16.7% stated that they sometimes interacted with other teachers through informal conversations. Only one respondent stated that he or she rarely interacted with other teachers though the use of informal conversations. Overall, almost 80% of teachers interact through informal conversations at Coal Valley Middle School.

The second type of interaction identified was solving student problems. Twenty-five percent of the respondents stated that they work together very often at solving student problems. Forty-six percent of teachers responded that they often work at solving student problems and only twenty-five percent stated that they sometimes work together to solve student problems. Seventy-one percent of the teachers responded that they very often or often work together to solve student problems.

The third type of interaction identified was offering/receiving advice and assistance on a one-on-one basis. According to Little (1990), aide and assistance is also a lower level degree of teacher collaboration. Seventeen percent of teachers at Coal Valley Middle School reported that they "very often" offer aide and assistance to other teachers on a one-on-one basis. Twenty-one percent responded that they often offered advice and assistance to other teachers and forty-six percent stated that they sometimes offered aide and assistance. One person responded that he or she never offer one-on-one advice/assistance and three responded that they rarely offer one-on-one advice/assistance.

According to Little (1990), when teachers engage in routine sharing of materials, methods, and ideas, they are engaging in higher levels of teacher collaboration. Half of the respondents at Coal Valley Middle School responded that they very often (16.7%) or often (33.3%) routinely share materials, methods, and ideas. Thirty-seven percent responded that they sometimes engage

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in routine sharing of materials, methods, and ideas. Only 8.3% responded that they rarely engage in sharing materials, methods, and ideas and only 4.2% or one person responded that he or she never shares materials, methods, and ideas. Coal Valley Middle School shows a high level of teacher collaboration in the category of teachers sharing materials, methods, and ideas.

The highest level of teacher collaboration identified by Little (1990) is joint work involving shared responsibility for teaching and cooperative organization of tasks, time, and resources. Fifty percent of respondents stated that they rarely (25%) or sometimes (25%) engaged in joint work together. Twenty percent of the teachers responded that they never engage in joint work involving shared responsibility for teaching and cooperative organization of tasks, time, and resources. Only 16.6% of respondents believed that they often (8.3%) and very often (8.3%) were engaging in joint work. It is evident through the perceptions of the teachers, that they have not yet achieved the highest level of teacher collaboration identified by Little (1990). Forty-six percent of the respondents believe that they never or rarely perform joint work involving shared responsibility for teaching and cooperative organization of tasks, time, and resources. Additionally, three respondents (or 12.5%) failed to answer the question by leaving it blank. This suggests that they do not understand the conceptualization of joint work and have not yet fully achieved maximum level of teacher collaboration per the teacher questionnaire.

Table 10

Extent of Teacher Collaboration at Coal Valley Middle School

Collaboration Type	Never	Rarely	Sometimes	Often	Very Often
Informal Conversations	0%	4.2%	16.7%	25%	54.2%
Solving Student Problems	4.2%	0%	25%	45.8%	25%
Offering aide/assistance	4.2%	12.5%	45.8%	20.8%	16.7%
Sharing materials and ideas	4.2%	8.3%	45.8%	20.8%	16.7%
Joint Work	20.8%	25%	25%	8.3%	8.3%

The last section of the teacher questionnaire asks teachers, "Which are mostly true of the teaching faculty of your school and which are mostly false?" The questionnaire lists six terms that including apathetic, cohesive, enthusiastic, frustrated, conservative, and innovative. Teacher responses are summarized in the table below:

Table 11

Teacher Emotions at Coal Valley Middle School

Emotion	Mostly True	Mostly False
Apathetic	8.3%	91.7%
Cohesive	91.7%	8.3%
Enthusiastic	95.8%	4.2%
Frustrated	58.3%	41.7%
Conservative	66.7%	33.3%
Innovative	83.3%	16.7%

Teacher apathy at Coal Valley Middle School is very low and the faculty identified itself as a very cohesive unit. The great majority of teachers were perceived to be enthusiastic about teaching. Most teachers identified their faculty as conservative; the great majority of teachers considered their faculty to be innovative. Unfortunately, fourteen (58.3%) teachers responded that they were frustrated.

Teacher Interview Data

Five teachers at Coal Valley Middle School were interviewed by an outside interviewer. (Appendix B). The outside interviewer had an extensive background in education. Her credentials included four Master's Degrees in the educational field. Her four Master's Degrees were M.Ed.'s in Political Science, Special Education, English as a Second Language, and Curriculum and Instruction. Additionally, she had a principal's certification. The outside interviewer prepared for the task by reading interviewing techniques evident in Yin (2009). Before conducting teacher interviews, the outside interviewer received the certification from the National Institutes of Health: *Protecting Research Subjects*. The outside interviewer taped each interview at the Coal Valley Middle School site. Prior to conducting the interviews, teachers mailed back the permission to be interviewed (Appendix E). The audio tapes were delivered by the principal investigator to a transcriber. The transcriber was paid a modest two hundred dollars for her work. The outside interviewer was not paid for her work.

In order to have qualified to be interviewed, teachers were teaching before teaming implementation and after the construction of the new middle school. The purpose of the final sample (N=5) was chosen to corroborate answers to the following three questions:

1. How was teacher collaboration impacted after teaming and the construction of a new middle school?

2. What positive and negative aspects of teacher collaboration did teachers and principals perceive were evident in this 6-8 middle school?

3. What stages of collaboration (Little, 1990) were evident after eight years of teaming and three years in a new school building?

Initially, seven teachers were chosen to participate in the interview. Two teachers did not return their permissions to be interviewed. Subsequent attempts through two emails and one phone call also failed to secure the permissions; those two teachers were not interviewed. It was difficult to determine if one of those interviews could have produced any valuable data anyway, because the one teacher taught in the Title I Program at a local Catholic School prior to teaching the first year of teaming implementation and would not have any prior experience teaching in a regular classroom setting before teaming. The second teacher would have provided valuable data because she was a special education teacher before and after teaming implementation and she continues to teach in the new middle school. The teachers were not identified by name in the study. Pseudonyms were used to protect the identity of each of the participants.

The teacher interview protocol devised by Letgers (1999) was divided into two sections. The first section was background information on each of the five teachers interviewed and the second section examines teacher interactions, groupings, and norms. The second section of the teacher survey will be one data point to answer the following questions:

1. How was teacher collaboration impacted after teaming and the construction of a new middle school?

2. What positive and negative aspects of teacher collaboration did teachers and principals perceive were evident in this 6-8 middle school?

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3. What stages of collaboration (Little, 1990) were evident after eight years of teaming and three years in a new school building?

The first teacher interviewed was Susanne C. Susanne was in her twentieth year of teaching. Her entire career was spent in the Coal Valley School District at the middle school. She taught special education for nineteen years. She was transferred last year to eighth grade where she taught special education, mathematics, and U.S. history. Additionally, Susanne partnered with other eighth grade regular education teachers by assisting in the regular education classroom for earth and space science, reading, and language arts. She also tutors struggling students after school. Susanne stated, "The fact that I am able to go into the classroom with the teacher and do some of the teaching [*sic*]. Right now in science we are doing that. I may start the class and she will finish it or she'll start the class and then I will finish it in some aspect. I adapt the study guides for the tests and we go over them. I help in preparing the test and in preparing the material for the students that she's going to be teaching." Susanne appears excited about teaching in the regular classroom with another teacher. "I would say the fact that I am able to go in and the students know me and are not afraid to come to me for help and not only special education students but students in the inclusion classroom that have not been identified as special education. They are not afraid to come to me and ask for help." Susanne stated that her greatest amount of stress on the job is the special education paperwork. She enjoys the opportunity in working with the science teacher and working with students not identified as special education.

The second teacher interviewed was John R. John is the most senior staff member at Coal Valley Middle School. He taught for the last thirty-eight years and saw many changes in the district during his tenure. John taught every grade level K-8 with the exception of fourth. He was the building union representative for the past thirty years. Over the years, John has been on

numerous committees and served as a coach in the school district. John loves interacting with the students and seeing them flourish academically. "As far as my work, the students that I see that have become successes. Doctors, lawyers, those types of people we have many of them for a small area like this. We have quite a few doctors in this area that I have seen." John describes his greatest source of stress on the job as follows: "Too much micromanagement by people and the biggest thing that I have a problem with is many of the decisions that are made are made by people that have no educational background. School boards in other words. I have a problem with them telling me this is what should be done or this is how you should do it and they've never been involved in doing it."

The third teacher interviewed was Michele S. Michele was a twenty-six year veteran in the Coal Valley Middle School. She was certified in secondary English and taught seventeen years in seventh grade and the last nine years in eighth grade. She taught PSSA Reading Prep and she was the Middle School English Department Head. In the past, she served as the eighth grade team leader, directed the talent show, served as a moderator of Odyssey of the Mind, and organized an annual event called "Field Day." She was very active with the students in the school as the students gave her the most enjoyment in her job. "In terms of my work, when that light bulb comes on in a child's mind. I have a lot of kids staying after school right now just because they need a quiet place to do homework or they need that extra help. We have after school PSSA tutoring but I actually stopped doing that as a paid job so I could stay here with the kids that just wanted extra help not that they were part of that other program. So when the light bulb comes on when they're struggling, struggling, struggling that's it. That's my paycheck." Michele explained that the Standards Align System (SAS) currently being implemented by the State of Pennsylvania gave her the most stress.

The fourth teacher interviewed was Jennifer T. Jennifer is currently retired from the Coal Valley School District. She taught in the district before teaming was implemented and she taught in the new middle school before retiring. Jennifer taught for thirty-four years. All of her teaching career was at Coal Valley. She taught kindergarten for fourteen years. She also taught in fourth, fifth, and sixth grades. She finished her career in 8th grade. Jennifer was the eighth grade team leader the last three years of her teaching career before retiring. Jennifer tutored students after school and was the advisor of the school's recycling program. Jennifer stated, "I loved my job . . . that's it! This is difficult because this is the first time back since I retired. It is the most rewarding profession there is!" Jennifer stated that the most stressful situation in her career was when she had "an administrator that worked against you and not with you. An administrator that did not carry their own weight and pushed things off on the teachers [*sic*]."

The fifth teacher interviewed was Michael Y. Michael was a seventeen year veteran of the Coal Valley School District. Michael taught eighth grade United States History and Pennsylvania History for all seventeen years. He was the Social Studies Department Head and moderated the Eighth Grade Academic Challenge. He also served a short time as the Eighth Grade Team Leader. Michael enjoys working with his students. "I think I understand the kids. I understand the economics of the area and it makes it easier for me to deal with the kids and relate to them. I actually have great rapport with all middle school teachers and we do work well together." Michael was proud and passionate about his profession. "I never regret the fact that I chose teaching as a profession. It keeps me young. I like working with the people who I work with. I enjoy the building and the atmosphere. I can literally say that I actually get up in the morning and not for one-second mind coming to work." Michael could not state a single thing that he does not like about his teaching career.

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The next eight questions in the teacher's interview examined teacher interactions, groupings and norms (Appendix B). These questions examined specific relationships and interactions with colleagues before teaming implementation, after teaming implementation, and after construction of the new middle school.

The first questions under *Teacher interactions, groupings, and norms* (Appendix B) asked teachers to explain a typical workday at Coal Valley Middle School, if teaming increased or decreased these interactions, and how these interactions changed. The second question asked for specific examples of how teachers collaborate. All five teachers stated that teaming and the construction of the new middle school increased teacher interactions within the team. John stated, "Well now the seventh grade team we get together. I will see every member at least once a day." Michele said, "Third floor eighth grade team is always talking to one another. One of us is always in somebody else's room either asking questions, asking advice, collaborating on different projects. The eighth grade science teacher and I often are talking about what we can do to bring the two subjects together. I've collaborated with the math teacher to bring our two subjects together especially as PSSA's draw closer with the open-ended questions and the writing component for that. We will talk about everything from curriculum in our classroom to student intervention that we need to take care of." This appeared to be a function of the new middle school that was constructed, allowing teachers more access to each other. Michael explained that prior to the 2010-2011 school term, teachers teamed two to three times a week; however, this year teaming is only taking place once a week on Mondays. He explained that since the implementation of teaming, interactions between teachers have increased. Michael also explained that the building helped build teaming interactions. Jennifer gave the following example of how teachers collaborated: "Michele and I would work together as far as she would

do more of the literature because she was an English teacher and Michael and I would work together as far as I would read novels that had to do with the different wars or whatever would go with his social studies class and we did a lot together." The following evidence of the benefits to teacher collaboration was also given by Jennifer: "Working that way was better. I saw improvement because it helped. We were able to do more together because we saw each other more often. Before we started teaming in the old days, we did team teaching. It was called lunch and you talked about the students that needed help or whatever and then whoever had the free time or a moment we would take turns calling parents or going to see the guidance counselor and then we would get back to each other and it was just a lot more difficult. Where now you have time set aside you all get to eat together it just made our lives easier [*sic*]." Jennifer also stated that one of the issues with the new building was that it was not big enough and she felt as though it would soon be overcrowded in the coming years. Susanne also believed that teacher interactions increased in the new building as she stated, "I think it probably increased because of the fact that the school was built for the team concept."

Even though the five teachers agreed that teaming increased teacher interactions, some also expressed concern that they do not interact with members from the other teams in the school. The school structure has a three level stacking tower which contains the grade level academic teams. The first floor contains sixth grade academic classrooms, cafeteria, gym, and specials areas. The second floor contains the seventh grade academic classrooms. The third floor contains the eighth grade academic classrooms. According to John, "Years ago we were spread out in the old building so you saw more people from the other grades. Now, I rarely see eighth grade teachers or the sixth grade teachers, but I will see everybody that is a member of my team at least once a day." Jennifer believed that teacher interactions increased within the new team in

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the new building but she stated that ". . . you didn't see the other teachers as much [*sic*]".

Susanne also echoed the sentiment, "We are kind of isolated on this floor so all the eighth grade teachers are in constant contact. . . The worst part of it is we do not see the seventh grade teachers or the sixth grade teachers because a lot of times we don't get downstairs to get our mail or anything else until our prep [*sic*]."

The second question under *Teacher Interactions, Groupings, and Norms* asked interviewees for more specific examples of how they collaborate. All five teachers gave examples of how they collaborate together. Additionally, four teachers gave specific examples of how they plan lessons together in a cross curricular manner. Michael explained how he worked together in a cross curricular manner with the language arts and reading teacher. "We've opened up the walls. I've actually had what we refer to as guest speakers come in and actually do some skits and I mean with the availability to be able to open things up and to work with other teachers get a lot of feedback you get some ideas you know from meeting with other teachers and maybe possibly even sometimes I've actually observed other teachers where I actually sit in other classrooms. You know that sharing is the best way to learn. It really does work. You pick up some ideas believe it or not [*sic*]." Michelle, who can be best described as a caring practitioner, explained how she collaborates often with the science teacher. Jennifer explained how she worked with the English teacher and the social studies teacher. "I would work together as far as she would do more of the literature and Michael and I would work together as far as I would read novels that had to do with the different wars or whatever would go with social studies and we did a lot together [*sic*]." Susanne also explained specifically how the teachers collaborated. "We usually sit and discuss like what we're doing and how we can incorporate it with other subjects' areas. If social studies is doing something, well the language arts teacher will develop a lesson to go with

that. Right now in American History, the teacher does have career speakers coming in to talk to the students about preparing for the transition and going into ninth grade and their careers [*sic*].

The third set of questions under, *Teacher Interactions, Groupings, and Norms* asked teachers the following questions, "With whom do you have primary professional relationships? How have these relationships changed before and after teaming implementation? How has the relationship changed after the construction of the new middle school?" All five interviewees responded that their primary professional relationships were with those members of their teams that they worked with daily. The teachers expressed that while the new building allows maximum communication among the team, it limits their interactions with other colleagues particularly the special subject area teachers. Michelle stated, "As far as our special subject area colleagues, and sixth and seventh grade teachers, we rarely get to see them. This has really been a segregated building to the point where our specialist teachers call themselves the island of misfit toys because they are at the complete opposite end of the building. It is a long walk to get down there and they have no contact with us." Susanne echoed the sentiment that the building segregated some colleagues. "The fact that we don't get to see any other adults except members on our floor" was a problem with the way the new building was structured. She also believed that teaming brought them closer together. Michael explained that the other members of his team compliment what he does in his social studies classes. "I think I have a better understanding I mean the overall picture have a better understanding and just the fact that I know what each teacher's going to ask to become more educated in the other subject areas which allows me to become a better teacher in my particular area [*sic*]." Before teaming, Jennifer believed that she worked well with others in the school. "That's hard to say because they

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worked closely with the people that I worked with prior to teaming [*sic*]". All five teachers believed that teaming brought them closer together and that they benefited greatly from teaming.

The fourth set of questions under *Teacher Interactions, Groupings, and Norms* asked teachers to list some specific problems they see working with other teachers by teaming. John responded that he did not see specific problems working in teams other than "certain members of the team have certain biases towards certain students. I see that as a problem but I see it more so as a problem where parents don't want their kids to have this certain teacher and I don't know if I'm in favor of that kind of thing [*sic*]." Michael explained the most difficult aspect about teaming was coming to consensus.   Most respondents preferred to discuss the benefits of teaming and that their colleagues turned to one another for help and assistance. Michael stated, "I just think you have a better understanding and a better knowledge of all of the aspects that are important in teaching." He continued to explain the benefits, "You know you're more willing and you're just more open and I think it's because of the teaming. Because of what we do in the formal meetings you don't think twice about going to a teacher and asking for advice or suggestions or if you need any information [*sic*]." Susanne further added,

> The fact that we can work as a team to discuss the student, the fact that I can go into the classroom and be a part of the class and actually do teaching with them and not just being there just to observe or to make sure they behave in class. The fact that we can get together as a group and help students is most beneficial. The fact that we are in close quarters sometimes is an asset and then sometimes it is not. In this case with the teaming approach it is an asset because the students just move from one place to another and we can control behavior a lot better as well [*sic*].

Michelle explained that the first person she turns to for help is the team leader. She gave the following vignette as an example of how the team worked together in the new middle school,

Sometimes, a perfect example, a couple of months ago we had an issue with a student who's parents are pretty vocal, very vocal and in a fairly authoritative position within the school district. The other teacher said, "What do we do, what do we do?" She was out of dress code. I said we do what we always do. So it's not just me going to somebody else but they come to me as well and she was sent to the office just like everyone else that was out of dress code that day. We collaborate and talk and if any of us are in a quandary about something we definitely talk to one another. It's not a unilateral decision by any means [sic].

John also gave an example how teaming helped:

I think that if you are departmentalized, your subject, that's it that's the goal . . . that's golden. Now in the team part you get a little bit of understanding like we have to put some English into this, you have to put some Social Studies, some Science, particularly Math and Science can go with one another and that seems to be say I know Mr. K. is working on this so this is how you might use his math theory in a science class. The teaming seems to be working pretty well. I can't say for sure in twenty years from now [*sic*].

The fifth question under *Teacher Interactions, Groupings, and Norms* asked teachers if they worked on a common task during the current school year, if teaming helped in the effort, and if teachers worked collaboratively before the new school was built. Michele explained, "Prior to teaming we were more concentrating on what's going on in 6th grade English, 7th grade English, and 8th grade English. Where now it seems to be cross-curricular. . . department stuff is

secondary [*sic*]." It was evident through the interview with Michelle that before teaming implementation in the junior-high model, the focus was on departmentalization rather than grade level cooperation. John explained that even before teaming, the teachers worked well together. He explained that he still meets in a departmentalized setting with fellow math teachers and he explained how as the department head he collaborates with other math teachers. "Yesterday the department heads had to go and observe classes not for any time just to make sure the standards are being met. I didn't have one person that would not allow me to come in." This was an example of teachers working together "jointly" (Little, 1990) on improving teaching and learning. Michael explained that he constantly works with other teachers either formally or informally. Michael was adamant that teaming significantly contributed to teacher collaboration and that if teaming did not exist, this form of collaboration would not be possible. "You know you're more willing just more open and I think it's because of the teaming". Additionally, Michael believed that teaming made him, as well as others, better teachers. Jennifer also stated that teaming was an overall advantage to teaching and learning. She explained that prior to teaming, the teachers did not have common planning time and they had to talk over lunch.

The sixth question under *Teacher Interactions, Groupings, and Norms*, asked teachers if they were rewarded for working together and if they were rewarded for working together in the old middle school before teaming implementation. Michelle, Michael, Susanne, and Jennifer explained that the reward they received was strictly intrinsic. The goal of helping students was the best reward expressed by the four teachers. John explained that the only financial incentive was reserved for the team leader which received a modest stipend for his or her work.

The seventh question asked during the teacher interviews under *Teacher Interactions, Groupings, and Norms*, asked the teachers if they believed their faculty to be cohesive or divided

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and the sources of cohesiveness or divisiveness. All five teachers described the faculty as

extremely cohesive. Michael stated, "Okay, well first of all I mean teaming is important and as a

result I think we have become more like a family [*sic*]." John also believed that the faculty was

cohesive but expressed some concern about the generational divide. "You know everybody has

their own opinion a lot of times different than the younger people's opinion." Michelle

explained that the greatest source of cohesion is that the staff on the eighth grade team, get along

and they like each other. Susanne explained, "if there is a problem we don't keep it hidden. We

say, look I'm having a problem with whatever. We talk about it we discuss it. There's nothing-

no secrets-no backstabbing [*sic*]."

   The last question under *Teacher Interactions, Groupings, and Norms* asked if teachers were

willing to work after school and what the faculty's ideas and expectations were about what

teachers should and should not do. Michelle, the caring practitioner, explained how she connects

with students.

> My kids and their parents have my cell phone number, my home phone number, email,
>
> my facebook page and I have a lot of kids that are on it. I have a website up that not
>
> only has the homework for the day, but it has all the notes, it has PDF pages so that if
>
> they're absent they can just print them off and keep up with the work. For the kids that
>
> stay after school because they just need a quiet place to work I have actually went out
>
> and bought snacks because they are not part of the after school PSSA so they don't fall
>
> under the grant. A lot of us spend our own money providing snacks for the kids,
>
> providing whatever they need. [*sic*].

Susanne explained that some teachers get compensated for after school tutoring.

We do tutoring after school and that we get compensation for but a lot of time students

will ask us to stay because they have no place to do homework or they need help and

their parents can't help them and there are several teachers here that do stay on days that

they don't do tutoring so students can have a place to do their homework and have a

place to ask questions and they don't get paid for that so it is a volunteer type basis. [*sic*].

The final interview question allowed teachers feedback on their thoughts working in the new

building. Some of the teachers restated the issue with the fact that they did not have the

capability of collaborating with members of other teams and the specials teachers. John

explained that in the old teachers lounge, teachers were allowed to smoke in it at one time. "I'm

not a smoker and it was bad. . . Even if you tried to have a parent meeting in that room you

would go in and come out smelling like smoke." He also believed placing the specials

classrooms around the cafeteria was a bad idea because those classrooms absorbed some of the

lunch time noise. Michelle ended her interview by stating:

Like I said, it's hard meeting with your specials teachers where they could be helping me

with their career research paper that the kids do with any other more artsy projects like in

reading class where they make posters and advertisements and things. They could be

working on those as part of Arts and Computer classes; but we never get time to meet

with those other teachers [*sic*].

It was apparent that Michelle realized the importance of teacher collaboration and how it could

be extended to the specials teachers. Susanne also echoed the following sentiment, "The old

building we had a faculty room but there all the teachers were in that one. This one there's a

faculty room on each floor, so therefore only the faculty members on that floor see each other."

[*sic*]. All teachers believed that the new building increased teacher collaboration on their grade

level, but it failed to increase teacher collaboration across grade levels and collaboration between the academic teachers and the specials teachers.

Principal Interview Data

Two former principals and the current principal from Coal Valley Middle School were interviewed by an outside interviewer (Appendix C). The outside interviewer had an extensive background in education. Her credentials included four Master's Degrees in the educational field. Her four Master's Degrees were M.Ed.'s in Political Science, Special Education, English as a Second Language, and Curriculum and Instruction. Additionally, she had a principal's certification. The outside interviewer prepared for the task by reading about interviewing techniques evident in Yin (2009). Before conducting teacher interviews, the outside interviewer received the certification from the National Institutes of Health: *Protecting Research Subjects*. The outside interviewer taped each interview at the Coal Valley Middle School site. Prior to conducting the interviews, principals mailed back the permission to be interviewed (Appendix F). The audio tapes were delivered by the principal investigator to a transcriber. The transcriber was paid a modest two hundred dollars for her work. The outside interviewer was not paid for her work.

The same teacher interview protocol devised by Letgers (1999) was divided into two sections for the principal interviews. The first section was background information on each of the three principals interviewed and the second section examined principal perceptions of teacher interactions, groupings, and norms. The second section of the teacher survey was one data point to answer the following research questions:

1. How was teacher collaboration impacted after teaming and the construction of a new middle school?

2. How did principals' perceptions of teaming and a new middle school impact teacher collaboration?

3. What positive and negative aspects of teacher collaboration did teachers and principals perceive were evident in this 6-8 middle school?

4. What stages of collaboration (Little, 1990) were evident after eight years of teaming and three years in a new school building?

In addition to serving as another data point of collection, the principal interviews served as historical background information on the implementation of teaming, planning process for the building of the new middle school, construction of the new middle school, and current teaming practices evident in the new middle school. Pseudonyms were used for each principal to protect the identities of each principal that was interviewed.

The first principal interviewed was Robert. Robert was principal of Coal Valley Middle School from 2002-2004. Prior to becoming principal at Coal Valley Middle School, he was an assistant principal for ½ year at a seventh through twelfth grade Junior-Senior High School. Robert started middle school teaming and ensured that the teachers had a common-planning period to meet three times each week. He was principal in the old middle school originally constructed in 1911. Robert explained that he enjoyed being principal at Coal Valley Middle School because he "felt that the staff was one of the positive benefits working in Coal Valley because they were always accepting of new ideas and trying new things and teacher collaboration and giving those teachers common planning time assisted in the effort." Robert explained that his proudest moment was raising student achievement after his first year as principal which was a result of the school improvement plan he wrote. Additionally, Principal Robert stated he enjoyed working with the architects, superintendent, and the school board in

planning to develop the new middle school building that embraced the middle school concept. "There was a major transformation from 2002-2004, as we transformed a junior high school model to a true middle school model that embraced teacher collaboration and teaming." Robert explained that the most difficult aspect of his job was that a significant portion of his school was economically disadvantaged. "It was not their fault. They were victims of a depressed economy. Sixty percent of the students qualified for free and reduced lunch and the difficulty was trying to work with families that were kind of disenfranchised and they had a lot of economic and social difficulties. That was one of the more difficult aspects of the job. Finally, Robert explained that the greatest source of stress on the job was dealing with all of the discipline issues and the families of those students that were daily discipline problems.

The second principal interviewed was Amy. Before becoming the middle school principal, she served as the assistant high school principal in the Coal Valley School District. Amy was the principal at Coal Valley Middle School from 2004-2007. She served as the last principal in the old Coal Valley Middle School that was built in 1911. She continued the middle school teaming concept and the practice of giving teachers common planning periods three times a week. Similar to Robert's interview, Amy stated that she liked dealing with everyone. "When I was a teacher you only were with the students in your classroom and I didn't have the chance to interact with everyone, all the students the whole student body, and when I became an administrator, I felt that I had the ability to affect more students and also work with the staff members throughout the whole district. I really enjoyed that." [*sic*] Amy also stated, "the amount of low income and special education students were so high there was a lot of stress on the PSSA scores and unfortunately you can't control the types of students you get into your district. So we had a very high rate of low income and special education students."

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The third principal interviewed was the current Coal Valley Middle School Principal in her fourth year. Linda became principal in 2007, after teaching eighth grade middle school algebra. Linda was a teacher at Coal Valley Middle School, left the district and came back as the middle school principal. Upon her return to Coal Valley School District, she was the first principal of the brand new middle school building. She cited that she is most proud of the fact that she has a great schedule that affords her middle school teaming. "I think it is a benefit that they have common planning time and I've worked in other schools where they haven't had the team approach and I think the way that we have the schedule running that we have that opportunity to have parent meetings during the day and meetings with students and that type of collaboration. It's very beneficial to our population." Linda finds the most stressful aspect of her job is dealing with issues that are not in her control such as the home environments of the students and the poor parenting skills that reflect in discipline issues within the school.

The next section of the principal interviews examined teacher interactions, groupings, and norms of the teachers through the perspectives of the three principals that served the Coal Valley Middle School from 2002 to the present. The questions asked principals to explain the types of interactions that occurred between teachers while they were principal from 2002-2010.

The first question under, *Teacher Interactions, Groupings, and Norms* asked the principals to describe interactions between their staff during the day and how often they attended the common planning period. Robert explained that he went to the team planning periods three times weekly to discuss student discipline issues and student achievement. Amy discussed how she was visible during the day interacting with the staff. She explained, "I would go into the cafeteria and I would see staff there along with students. At the end of the day I would see them and also any team meetings that we would have student assistance meetings. So I was very involved with

them everyday, I had pretty much interaction I would say with all of them at some point throughout the day." Amy attended at least one team meeting a week with each team. In addition to attending the team's scheduled team meetings every Monday, "We also have staff meetings throughout the week, twice a week. Then we have team leaders, so most of my communication from Tuesday through Friday is through the team leaders."

The second question under *Teacher Interactions, Groupings, and Norms* asked for specific examples of how each of the teams worked together. Robert gave an example of a lesson that the 6th grade team worked together on creating a cultural food display. "That integrated social studies, it integrated language arts, and it integrated a little bit of mathematics and some science as well." He explained that parents were permitted to come into the school and sample the various foods from around the world. Robert explained that:

> The school was on a decline and I think it would not have been possible had it not been for teaming and teachers actually working and figuring out what's the problem with certain students, why they were acting out. It took the teacher out of the isolated classroom where they would prepare their lesson plans and now they're preparing lesson plans and now they're preparing projects together and that would not have been possible without the common planning period that was implemented during my time as principal [*sic*].

Amy also explained that the teachers conducted an annual event called culture fest in which students and parents would sample food from around the world.

The second half of the question asked the principals if they would have been able to accomplish as much as they did without teaming and without the new middle school. All three principals explained that they would have been able to accomplish teaming without the new

middle school, but they would not have accomplished as much without teaming. Robert
explained,

> I think these accomplishments were well underway without the new Middle School;
> but what the new middle school did was it made it easier for teachers to collaborate.
> During the planning process, we drew up plans on a middle school building that would
> have a series of doors that would open and close and if teachers wanted to teach their
> content area in isolation, they had the ability to do that. They would open the door
> if they wanted to team teach and do some teaching together. So the new building
> provided teachers with a flexibility now of taking down walls and combining classrooms
> and talking to entire classes if necessary. It was already underway when I was principal
> in the old building that was built in 1911, however this gives teaming and the teachers
> more opportunity and when we worked with the architects we talked about a stacking
> tower that would incorporate 6th, 7th, and 8th grades.

In the original plans for the new middle school, Principal Robert discussed the importance of the
Instructional Planning Center being the area where teacher collaboration would predominate. He
talked about the importance of the teacher desks being in the IPC and the importance of movable
furniture. This did not occur and perhaps is one of the reasons why the level of "joint work" has
not been fully achieved (Little, 1990).

   The third interview question under, *Teacher Interactions, Groupings, and Norms* asked the
three principals with whom they had professional relationships, and if these relationships
changed after teaming implementation and after the construction of the new middle school.
Linda, the current principal of Coal Valley Middle School explained that in the old building, the
teams seemed more scattered and in the new building "each floor has a faculty room. When you

walk into the faculty room you kind of see the character of the team and the personalities of the team. . . To not only be a professional community but also just build relationships in general. I think this building has helped do that" [*sic*]. Amy explained that the primary people she had relationships with as principal were the administrative team. She stated that most people agreed that teaming was a good concept implemented in the school before she became principal. Robert explained while he was principal he had primary relationships with various constituency groups including teachers, parents, PTA members, architects, superintendent, and the school board. "The superintendent was very good. Having the community realize the importance of building the new school was critical." Before becoming principal, Robert speculated by saying, "My guess was they probably had departmental meetings and so they didn't talk a lot outside their own content areas. They actually had what were called department chairs. While I was at Coal Valley one of the things we did was we did away with the department chairs and we had team leaders." The team leaders allowed the teachers on the various grade levels to work in a cross-curricular approach to come up with lessons together.

The fourth interview question under *Teacher Interactions, Groupings, and Norms* asked the three principals if they ever worked as a teacher in a subject-area department, team, or self-contained unit. They were also asked to identify some specific problems they saw working with each and the nature of teachers that helped one another in the school while they were the principal. Robert explained that his teaching experience was as a social studies teacher in a departmentalized vocational-technical school. "When I was teaching, the teachers really did not turn to one another for help. I shared some technology items regarding an electronic grade book with other teachers, but teachers did not work collaboratively on a daily basis. We were isolated teaching what we wanted in our social studies classes." He explained that the only time they

worked together was on a joint senior project in which the students had to produce a paper that incorporated social studies, math, English, and science as well as a hands-on project that students had to demonstrate knowledge with their shop teacher. "I think one of the things that they did was have this common planning time and having a planning period that afforded them in assisting one another." Amy explained that she worked in a departmentalized setting as a business teacher before becoming an administrator. "Because I taught computers, I was able to interact with the different subject areas a little bit, not as much as I would have liked to, but that I was able to involve them and they would have us work on projects together." Amy also explained that the younger teachers were more apt to work together than the older teachers. She believed that the younger teachers were more accustomed to collaboration than the older teachers. Principal Linda had an interesting perspective on teacher collaboration because she started as a math teacher the first year Principal Robert became the principal. In her answer, she spoke predominately of how the new building assists with teacher collaboration,

> People just weren't as accessible because of the structure of the building. We didn't have a room that we could go to like we do now. We have the IPC centers. In the IPC centers now we have boards so people can write I have a test this day or I have a project due this day and it lends more to communication. The biggest problem in the old building was finding there wasn't common space for us all to go. We would pick a classroom when it was time for us to have our meeting but it was someone's classroom it wasn't an ownership of the whole entire team.

All three principals believed that they could have teamed the middle school without the new building. Robert and Linda strongly believed that the building structure would contribute significantly to the middle school concept. Amy did not interact with the teachers in the new

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building and did not offer an opinion as to how the new middle school building affected teacher collaboration.

The fifth interview question under *Teacher Interactions, Groupings, and Norms* asked the principals for specific examples of how the teachers worked together on specific tasks. Both Robert and Linda stated that the teachers worked together on common tasks. Specifically, Robert stated, "We also talked a little bit about thematic units and trying to teach utilizing thematic units." Linda stated,

> I get excited for them when they come up with something. I do think they are continuing
> to learn and even newer teachers coming in know how they learn from the senior teachers
> with their conversations. I think some of the senior teachers have learned a lot
> technology wise too from the younger teachers coming in as well [*sic*].

Amy explained that when she was principal, the teachers enjoyed "co-planning time which they did not originally have".

The sixth interview question under *Teacher Interactions, Groupings, and Norms* asked the principals if they rewarded teachers for working together. Robert explained that teachers were intrinsically rewarded as they had the opportunity to affect change in the lives of their students. ". . . I wasn't providing them with candy or any kinds of bribery incentives or anything like that, but they certainly were provided with common planning time, which they really liked. To have the extra time to work together to increase student achievement [*sic*]." Linda also agreed with Robert that the teachers were intrinsically rewarded and they increased their level of professionalism which made their careers more rewarding. Amy explained that the atmosphere was familial in nature. "If one member of the staff was having an issue or a hard time whether it

be personally or professionally, I felt that we cared enough about each other that were there to support that person."

The seventh interview question under *Teacher Interactions, Groupings, and Norms* asked the principals if their staff was cohesive or divided and the source of the cohesiveness or divisiveness. All three principals agreed that the faculty was very cohesive. Both Linda and Amy explained that their staffs were like a cohesive extended family. Families work together to make the household better. In the same fashion, members of the faculty were like extended family members. Robert explained, "I think the willingness to listen to one another, and the willingness to stay after work and to work on different projects and different things together solidified the faculty making them extremely cohesive."

The eighth interview question under *Teacher Interactions, Groupings, and Norms* stated, "How would you describe this faculty's ideas and expectations about what a teacher should or should not do? Are your teachers willing to do extra work after school hours? Why or why not?" Linda answered the question by explaining that she has two groups of teachers. The first group of teachers were teachers that went above and beyond and were willing to work after school without being paid and the second group of teachers were those teachers that followed the contract exclusively. Robert was very positive and felt that the teachers were extremely professional. "I would walk through the building at 3:30-4:00 and I would still see teachers there planning and working together." Robert also gave specific evidence of their professionalism as they enjoyed learning together attending conferences in other areas of the country without getting paid. Amy agreed with Linda in that she had two camps of teachers, one that was professional and another one comprised of teachers that would say, "No, I'm done at three o'clock and I'm out of here." She also stated that "90% of the staff was willing to take that extra

step and go the extra mile for the student because the students were the most important factor everyday." It was evident in both teacher interviews and principal interviews that students were always the beneficiaries of caring teachers and principals in the study.

School Walkthrough Observation Data

The principal investigator performed a walkthrough observation on March 14, 2011 to gauge the level of teacher collaboration described by Little (1990) at Coal Valley Middle School in an attempt to corroborate data collected through teacher surveys, teacher interviews, principal interviews, and to examine the impact of the architecture on teacher collaboration. In addition to observing team meetings, the principal investigator also examined the architectural accoutrements and there contribution to teacher collaboration. The most basic level of teacher collaboration identified by Little (1990) was storytelling and scanning. This lowest level of teacher collaboration was achieved to a maximum level during the walkthrough during 6th, 7th, and 8th grade team meetings. Most teachers were not observed engaging in storytelling and scanning as they were observed using higher levels of teacher collaboration. The second level of teacher collaboration identified by Little (1990), aid and assistance was achieved to a maximum level. Teachers were observed giving aide and assistance to one another during their common planning periods. The third level of teacher collaboration was also achieved at a high level. This level of teacher collaboration identified by Little (1990) was sharing ideas with one another. This level represented the largest category observed during the common planning periods. Finally, the only evidence of the highest level of teacher collaboration called joint work by Little, 1990 was observed only in one situation that involved co-teaching. The observation occurred in a seventh grade English class whereby teachers were prepping students for the upcoming PSSA assessment tests in reading.

Many of the same items were on the agenda during each of the three grade level team meetings. Items discussed at all three team meetings included distribution of PSSA materials, upcoming dance announcements, various student issues, sharing discussion from an in-service day on Common Core Standards, SAFARI technology, and an issue in which students were late to the buses.

Each of the common planning periods lasted forty-two minutes. Each grade level was observed most of the time with the exception of the sixth grade team as they met with a parent for twenty minutes before the team meeting began. Each team meeting took place in their IPCs (Instructional Planning Centers). The IPCs each had tables and chairs, soda machines, sinks, photocopiers, and staff bathrooms. The new middle school was constructed with a three level academic stacking tower. Sixth grade was on the ground floor, seventh grade was in the middle or second level, and eighth grade was on the third level.

The first observation took place during the seventh grade team meeting. Teachers were observed for forty-two minutes. The team meeting was attended by the guidance counselor, principal, academic teachers, special education teachers, and paraprofessionals. The guidance counselor began the meeting providing aid and assistance (Little, 1990) by passing out small bags of materials that teachers needed for the upcoming state assessment tests. They announced information for the upcoming seventh grade team dance.

The principal asked for names of problem students. They discussed the issue of a student coming in late for school, one student failing for the year, and another student that was being sent to an alternative placement. The guidance counselor provided aid and assistance (Little, 1990) to the teachers by discussing student issues and helping them get ready for administering the PSSA assessment. They also shared ideas (Little, 1990) of how these issues could be

resolved by providing solutions. Aide and assistance was provided to the teachers by the guidance counselor explaining how the PSSA assessment test should be administered.

One of the seventh grade teachers shared (Little, 1990) information with the teachers on the Common Core Standards recently adopted by the state. He attended an in-service and his goal was to bring the information back to the team. He explained that the Common Core Standards related to the state's Keystone Exams. The principal explained the curriculum mapping function of the Standard's Aligned System (SAS). The type of activity being shared by the teacher was information that he brought back to the team from a conference that he attended. This type of collaboration during the team meeting was teacher sharing (Little, 1990), but it also bordered on joint work. If teachers began working with the Core Academic Standards during the common planning period, it would qualify as the highest level of teacher collaboration. The teacher simply shared the information with the teachers and as a result, it failed to qualify as joint work.

The next order of business at the seventh grade team meeting was a discussion regarding technology. The principal reminded teachers to complete the online technology survey and she asked them to share information from a recent in-service on SAFARI vs. video streaming. Teachers expressed concern with the new technology because they felt that they did not have adequate band width and that showing movies using SAFARI was not as good as video streaming. Teachers were telling stories as to how effective they believed the new technology would be as they compared it to the current video streaming capability. The stories regarding SAFARI were the lowest form of collaboration identified by Little (1990).

As the forty-two minute common planning period progressed, the principal had several "public service" announcements for the team which included reminders that teachers should ensure that students get to their lockers quickly to avoid making buses late at the end of the day,

sending work / books to the office for sick and suspended students, and reminding teachers to utilize the numerous report card comments available to them to engage parents and provide them with adequate information on student progress. Each of these items aided and assisted the teachers, providing them with information (Little, 1990). These items were lower levels of collaboration. During the meeting, the teachers discussed how they were collaborating in a co-teaching situation to help special education students on the upcoming reading assessment test.

Teachers were collegial with one another. As the meeting ended, teachers discussed the fact that many of their special education students couldn't stay on task during the test. Additionally, they discussed the role of PSSA (Pennsylvania System of School Assessment) Coaches for the upcoming assessment. As the teachers were discussing the role of the coach for the upcoming assessment test, it was evident that the teachers were engaged in co-teaching and that they were engaging in higher levels of teacher collaboration. As the teaming period ended, the principal investigator asked to observe the co-teaching period with the reading teacher, learning support teacher, and the PSSA Coach.

The principal investigator observed the co-teaching period with the English Teacher, the PSSA coach, and the Learning Support Teacher. The PSSA coach was the lead teacher during the class period. Additionally, two learning support aides were observed working with two life-skills students during the period. The PSSA coach distributed a reading passage to the students. The English teacher was observed at her computer for most of the class period. The only thing the English teacher did during the period was assist in passing out highlighters. She explained that she was working on team leader work as well as placing grades into the computer. Most of the collaboration occurred between the PSSA coach and the learning support teacher. The PSSA coach called upon students to read the article. The Learning Support Teacher assisted the Coach

by teaching students the main ideas by highlighting them in the reading passages. Students were observed following along. The PSSA coach asked students numerous comprehension questions about the article in which many of the students in the learning support classroom answered many of the questions successfully. The collaboration between the PSSA coach and the Learning Support Teacher can best be described as joint work (Little, 1990).

After the co-teaching observation concluded, the principal investigator observed the 6th grade team meeting in the sixth grade IPC. During the first half of the meeting, the sixth grade teachers met with a parent to discuss his child's academic progress. Immediately following the parent meeting, the principal opened the team meeting. The guidance counselor was not present during this meeting. The principal addressed a number of "house keeping" items similar to the seventh and eighth grade meetings by announcing the upcoming 6th grade dance, upcoming field trip, and PSSA test security items. The math teacher collaborated by explaining the rules for utilizing calculators on the test. The principal distributed items in brown bags from the guidance counselor. These items were aid and assistance or a lower level of Little's (1990) stages of collaboration. The teachers were very collegial with one another as they talked about a boy who asked a girl to dance at their last team dance. They shared this story with one another as it was an example of Little's (1990) lowest stage of teacher collaboration called storytelling and scanning. The principal discussed students being late for buses because one of the teams failed to let him out of class early enough to pack up at the end of the day. This was also an example of lower levels of teacher collaboration. Similar to the seventh grade team meeting, teachers also expressed concern about the slow bandwidth of a new browser called SAFARI.

The final observations conducted at Coal Valley Middle School took place in the eighth grade IPC. Many of the same items that were discussed at the sixth and seventh grade team meetings

were also discussed at the eighth grade team meeting. Similar to the seventh grade meeting, the guidance counselor began the meeting by addressing the state assessment test issues offering aid and assistance (Little, 1990). Her role included announcing PSSA breakfast ideas, calculator distribution, and PSSA pledges. The pledges were promises that the students would give a 100% effort to doing a great job on the PSSA's and teachers were asked to distribute them. During the observation, the teachers discussed the following items: which teachers were staying for after-school tutoring, student issues pertaining to student completion of work, and special education. These issues were an example of Little's idea of sharing. As the meeting continued, the principal shared the idea of the common core standards with the teachers and the fact that she wanted teachers to use various positive and negative report card comments. The principal's comments best reflect Little's (1990) middle stages of teacher collaboration called sharing. The following table summarizes the information gathered during the walkthrough observation: the team grade level, collaboration type (specifically how collaboration occurred), and the collaboration stage or level identified by Little (1990).

Table 12

Collaboration Stages Gathered Through Walkthrough Observation

Grade Level Team(s)	Collaboration Type	Collaboration Stage
6th, 7th, 8th Grade Teams	Distribution of PSSA assessment materials	Aid and Assistance
6th, 7th, 8th Grade Teams	Announcement of upcoming team dance	Sharing
6th, 7th, 8th Grade Teams	Individual student issues	Sharing
6th, 7th, 8th Grade Teams	Brainstorming resolution of student issues	Sharing
6th, 7th, 8th Grade Teams	Discussion relating to common core standards	Sharing
6th, 7th, 8th Grade Teams	SAFARI/Technology issues/complaints	Storytelling/Scanning
6th, 7th, 8th Grade Teams	Student bus issues	Aid and Assistance
7th Grade Team	Co-teaching observation	Joint Work
6th Grade Team	Parent Meeting	Sharing
8th Grade Team	After-School Tutoring	Aid and Assistance

Architectural Impact on Teacher Collaboration at Coal Valley

The school educated thousands of children of miners from 1911 to the end of the coal era in

1956. A major disaster along the Susquehanna River in Pittston Township called the Knox Mine

Disaster ushered the end of coal mining in Northeastern Pennsylvania. During the Knox Mine

Disaster, the miners drilled into the surface of the Susquehanna River and consequently the

miners drowned as water quickly flooded the mines they were laboring in. This was seen as the

end of the coal mining era in Northeastern Pennsylvania. Even though the coal mining era ended,

the area of Coal Valley continued to deep mine coal into the 1970's. The majority of mining that

continues today is predominately strip mining. The area around Coal Valley School District was scarred by strip mine pits and column banks of coal which is still visible today. The area is economically disadvantaged and 60% of the students qualify for free and reduced lunch at the middle school.

During the time period (2002-2004), the Coal Valley Board of Education hired architects to design a new middle school that would effectively allow teachers to build a professional learning community through common planning and teaming. In an effort to ensure the middle school concept would become incorporated into the design and planning of a new middle school, an important meeting was held on October 7, 2003 with the architects, the middle school principal, and a professor from Lehigh University seen as an expert in the area of middle school education. During the meeting, twelve design suggestions were discussed and listed in the architects notes. These twelve design suggestions were:

1. Solid flexible full height walls preferred for room divisions.

2. Noise distraction greatest problem.

3. Carpeted floors a must.

4. Teachers must have the greatest flexibility of space, the future of classroom design.

5. Teacher's home base and desk type space should be located in the IPC (Instructional Planning Center) with individual and group work areas through flexible furnishings.

6. Furnishing sends a message, couch implies relaxation. Movable comfortable chairs with casters are recommended and applied tablet arm implies work comfortably.

7. TAS to pursue 3 banks of 2 classrooms with flexible walls and locker corridor toward seminar rooms.

8. Flexible furniture must be part of plan or walls won't move since furniture doesn't easily. [*sic*]

9. Space should be able to conform to program requirements.

10. "Open Space" type vocabulary needs to be avoided it creates connotations of the 60's and 70's failed models.

11. Teachers need to be instructed on classroom opening configurations.

12. Corridors created in Team area are flexible so they disappear. (White, Grevera, Brobst, & Santee, 2003, p. 1).

District leaders as well as the architects wanted to construct a building that would enhance teacher collaboration by giving the teachers various architectural accoutrements such as movable walls and moveable furniture that would aid in teacher collaboration. Moveable walls gave the teachers both a traditional classroom as well as an opportunity to co-plan and co-teach lessons collaboratively. The faculty, according to Principal Robert, wanted to avoid the "open space" concept because they feared significant noise and distraction issues. Moveable walls that were sound proof would encourage teachers to team teach and provide for maximum collaboration. Without flexible furniture, teachers would be unable to open up classrooms and collaborate because the furniture would be against the moveable panels. In addition to flexible spacing, district leaders decided that the middle school would have three main academic houses or floors to coincide with the three teams. The plans called for the first floor to house the sixth grade team, the second floor to house the seventh grade team, and the third floor to house the eighth grade team. Each house or team would have an IPC (Instructional Planning Center) that teachers would meet and discuss curriculum and student achievement during their common planning periods. The first floor of the building would also house the district office, main office, gym,

cafeteria, and special subject area classrooms. The cafeteria area would be built so that adolescents could feel comfortable socializing with each other in a positive climate similar to a food court at the mall.

During the period 2004-2007, the Coal Valley Middle School was under construction and the plans for increasing teacher collaboration in a 21st century middle school was in the making. Both the principal of the middle school and the superintendent left the district and were replaced by a new principal and superintendent during the construction phase of the project. Even though the principal and superintendent changed, the architectural firm involved in the new middle school design remained committed to the continuation of the vision of the middle school concept with an emphasis on teacher collaboration.

When the new middle school opened on September 4, 2007, the district had undergone another change in leadership. A third principal remains in the district from 2007 – present and is also committed to the middle school concept and teacher collaboration as a means of increasing student achievement as well as teaching efficacy.

The impact of the construction of the new middle school appeared to be very minimal as many of the areas of the building that could be used for co-teaching and higher levels of teacher collaboration identified by Little (1990) were not being utilized as the planners had envisioned. (see principal interviews). During the walkthrough, the principal investigator answered "yes", "no", or "partially" to the recommendations discussed during the October 7, 2003 meeting at Lehigh University to ensure that the architectural requirements became a reality.

The first four recommendations discussed at the October 7, 2003 meeting were based on walkthrough observations that examined architecture. The first recommendation discussed between the Lehigh University professor, middle school principal, and the architect was to

develop solid flexible full height walls preferred for room divisions. The school was observed as having flexible walls whereby teachers can open them up and utilize co-teaching and other collaborative approaches. Additionally, the second recommendation regarding elimination of noise distractions was also achieved as there were no distractions observed during the observation and virtually all classrooms were observed closed. The third item was also evident as all academic classrooms contained carpeting to keep down the level of noise in each of the academic rooms; however, tile was used in the hallways, cafeteria, and science labs. Although the science labs can best be described as traditional classrooms totally enclosed with doors, there was no evidence of distractions. The fourth recommendation was that teachers should have the greatest flexibility of space in the design. The final design during the principal investigator's walkthrough showed the greatest evidence of flexibility of space as teachers had control over whether or not they wanted the doors open for collaboration or closed for traditional isolated classrooms.

The fifth and sixth recommendations discussed at the October 7, 2003 meeting are similar in nature and were not realized. Teacher desks were located in the teacher classrooms as opposed to the IPC's. The fifth recommendation in an effort to increase teacher collaboration was that teacher desks and home base was to be located in the IPC rather than the classroom. None of the three IPC's contained teacher desks and the IPC's had limited planning materials; they were more equipped as teacher faculty rooms than planning centers. If teachers had their desks in the IPC, they would be more accepting of joint lesson planning. (Lewis, 2000; Jalongo, et al. 2007). Additionally, no flexible furnishings were observed in the classrooms or IPC's. The sixth recommendation was that furnishings send a message of comfort or work. The tables and chairs purchased for the IPC were comfortable and suitable for a work space conducive to teacher

collaboration. Although there was a lack of teacher materials, the IPC still holds promise of

becoming an area of immense teacher collaboration and joint work (Little, 1990). There was no

evidence of casters on wheels allowing furniture to move easily back and forth from the IPC to

the classrooms.

The seventh recommendation at the October 7, 2003 meeting recommended the

implementation of flexible walls so that classrooms can open up into larger seminar rooms. This

was a big part of the planning process in making the new middle school facility more teacher-

friendly. Even though the school was constructed with classrooms, whereby walls can easily

open and close, there was very little evidence to suggest that this is happening.

During the walkthrough observation, a wall that can easily be opened to allow teacher's to work

together was observed closed and student work was hanging on it. The closed wall was evidence

that the architecture was not being utilized effectively to benefit teacher collaboration.

Ironically, this was the classroom in which teachers were observed co-teaching, which suggests

that architecture of the building played a minor role in teachers achieving joint work. Another

wall was observed with a white board attached to it, suggesting that the wall was never opened.

 If teachers utilized this space, perhaps they might have achieved Little's highest level of "joint

work" together in planning together, teaching together, and assessing each other's work and

performance.

The eighth recommendation was that the implementation of flexible furniture had to be part

of the building plan to facilitate opening the wall for maximum teacher collaboration or "joint

work" (Little, 1990). The implementation of flexible furniture never occurred because the

school lacked desks and chairs on casters affording easy movement from classroom to IPC. This

important recommendation at the October 7, 2003 meeting was not followed. This can be one

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reason why the school has yet to achieve joint work and common lesson planning. (Little, 1990; Jalongo, et al. 2007; Lewis, 2000).

The ninth recommendation was that space should conform to program requirements. Although space currently does conform to the program requirements, some teachers expressed concern both during teacher interviews and during the sixth grade team meeting that space may become an issue due to the large class sizes of some of the current elementary enrollment. Additionally, the space lends itself significantly to middle school teaming and teacher collaboration. The space currently is not being used to its fullest potential to encourage maximum levels of teacher collaboration.

The tenth recommendation at the October 7, 2003 meeting was to drop the term "open space" from the vocabulary because it created connotations of the 60's and 70's models of school architecture that were deemed a failure because of the noise and distractions. This recommendation was followed as a new vocabulary term of "flexible spacing" was established to better explain the middle school teaming concept and make the building more conducive to teacher collaboration practices.

The eleventh recommendation of instructing teachers on classroom opening configurations was not adhered to based on the walkthrough evidence of the numerous classrooms that were not open, affording teachers maximum levels of teacher collaboration and joint work. If teachers were instructed and encouraged to open the walls between their classrooms, whiteboards would not be affixed to walls, student work would not be displayed on them, and teacher decorations would not adorn the walls. Teachers should be instructed on how to operate the walls and be encouraged to use them.

The twelfth and final recommendation was that corridors created in team areas would be flexible and would disappear. This final recommendation was occurring, as one teacher had his or her door open to allow sunlight in from a window to keep a watchful eye on students walking to and from class in the corridor. With the flexible door open, the corridor disappeared and students can be observed walking to and from class. If the wall was closed, a traditional classroom would exist. With the wall open, the teacher can monitor students walking in what otherwise would be a corridor. Additionally, if the other wall was open, the teacher could co-teach with the teacher in the other room. It was evident that during the observation, that wall does not open because there were many materials stacked against the wall.

It is evident through the walkthrough observation that most of the recommendations from the October 7, 2003 meetings were met. Perhaps, if all of the recommendations were met, teachers would be engaging at the highest level of teacher collaboration called joint work introduced by Little (1990). Additionally, by utilizing the IPC in the manner it was conceived would also contribute to higher levels of teacher collaboration. The table below summarizes the walkthrough observation findings related to the architectural component of teacher collaboration at the Coal Valley Middle School.

Table 13

Indicators of the Architects Recommendations Adhered to and Utilized by the Teachers

Recommendation	Recommendation Achieved	Architectural Evidence	Teacher Utilization
Solid full height walls preferred for room divisions.	Yes	Solid full height walls were installed for room divisions.	Teachers are not opening the walls.
Noise distraction greatest problem.	Yes	Closed walls limit distractions.	Teachers keep closed. No distractions noted.
Carpeted floors a must.	Yes	Classrooms are carpeted.	No noise or distractions noted.
Teachers must have the greatest flexibility of space.	Yes	Flexible spacing was observed through use of mechanical doors.	Teachers are not fully utilizing this recommendation.
Teachers home base and desk type space should be located in the I.P.C. with individual and group work areas through flexible furnishings.	No	Teacher desks were located in their classrooms rather than I.P.C.'s and evidence of very few flexible furnishings.	District has not supplied flexible furnishings and teacher desks were located in classrooms. Teachers were not utilizing this recommendation.
Furnishings send a message, couch implies relaxation. Movable chairs with casters were recommended.	Partially	Furnishings in the I.P.C.'s were of good quality for teacher collaboration but no movable chairs/desks with casters observed.	Teachers use the I.P.C. for team planning but the district did not supply movable desks and chairs.
Flexible walls and locker corridor toward seminar rooms.	Yes	Flexible walls / flexible spacing observed throughout.	Teachers are not utilizing the flexible walls although some corridors are open with locker areas.
Flexible furniture must be part of the plan or walls won't move since furniture doesn't easily.	No	There is no flexible furniture in the building.	No flexible furniture amounts to teachers not opening the walls.

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Recommendation	Recommendation Achieved	Architectural Evidence	Teacher Utilization
Space should be able to conform to program requirements.	Yes	Adequate space observed for teaming and the middle school program.	Teachers making use of most space but not all.
"Open Space" type vocabulary needs to be avoided.	Yes	Building architecture is referred to as flexible space.	Teachers are not fully utilizing the flexible space concept.
Teachers need to be instructed on classroom opening configurations.	No	Limited to no evidence that teachers are utilizing the opening configurations.	Teachers are not using the opening configurations thereby showing that they are not being instructed on use and operation.
Corridors created in team are flexible so they disappear.	Yes	Teachers can open corridors if they choose.	One teacher was observed with an open corridor.

Prior to the walkthrough observation, it was determined through a discussion from the principal that the amount of common planning periods each week was reduced from three days to one day. The amount of common planning periods is critical and the fact that it was reduced this school year suggests that teachers at Coal Valley Middle School are now less likely to engage in "joint work" (Little, 1990).

Middle School Improvement Plan

The principal investigator examined the school improvement plan that was written for the school in 2009. Although there was only minimal mention of teacher collaboration in the plan, it was evident that a team wrote the plan and was collaboratively part of the process. The school improvement plan listed the team members as the principal, three regular education teachers, one special education teacher, and the guidance counselor. The school principal, one special education teacher, and one regular education teacher were interviewed by the outside interviewer. Although the school made adequate yearly progress, the school still wrote a plan

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even though they were not mandated. Teacher collaboration was cited as an inclusion strategy for the special education subgroup. "Teachers continue to plan lessons together to offer the students the best type of instruction to meet their needs." (p. 35).

Evidence of teacher collaboration in the improvement plan was cited, "Faculty meetings, department meetings, and team meeting agendas all show evidence that professional development is occurring to meet the needs of the staff". Further evidence of teacher collaboration in the plan was cited as supporting evidence, "department meetings, special education meetings, team meetings, and faculty meetings occur on a regular basis for teachers to interact and share instructional strategies. . . " (p. 26).

Data Triangulation / Summary of the Findings

Question 1

The first question answered in the research study was: How was teacher collaboration impacted after teaming implementation and the construction of a new middle school? Through teacher surveys, teacher interviews, principal interviews, and walkthrough observations of teacher common planning periods in the new middle school, it was ascertained that teacher collaboration was achieved at a high level exclusively through teaming implementation and minimally through the construction of the new middle school.

Teacher interviews provided significant evidence that teacher collaboration was impacted through the implementation of teaming. All five teachers provided examples of how the implementation of the common planning period assisted them in teaching. Prior to implementation of the common planning period, teachers explained that they met informally during lunch periods or in hallways. Before teaming, teachers had very limited opportunities to meet and plan together. Data showed from the teacher questionnaire that half of the respondents

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believed that they *very often* or *often* shared materials, methods and ideas with each other while another 33% responded that they *routinely* shared materials, methods, and ideas with colleagues. Although not recognized as the highest level of teacher collaboration identified by Little (1990), it is still recognized as a high level of teacher collaboration. The three principal interviews that were conducted also revealed the importance of teaming in teacher collaboration.

Through multiple data points such as teacher interviews, principal interviews, and walkthrough observations, it was evident that currently the new building was not having as dramatic an impact as teaming implementation on teacher collaboration. However, with the proper utilization of the new middle school building, Little's (1990) highest level of teacher collaboration called "joint work" may have been achieved. The walkthrough observation found that teachers were not opening the walls to collaborate together. The evidence of student work and whiteboards hanging on the walls was dramatic evidence that the teachers were not using the architecture appropriately envisioned by Principal Robert.

There was minimal evidence that "joint work" was taking place. One teacher interviewed reported that he does in fact open up the walls for special programs. During the walkthrough observation, it was noted that two teachers were observed co-teaching for the PSSA even though they did not have the wall open. This was specific evidence of "joint work" identified by Little (1990). Another example of "joint work" was cited in teacher interviews. There was evidence when the special education teacher interviewed explained how she co-teaches with regular education teachers. This was also direct evidence of "joint work" being conducted. However, the observations showed limited evidence that teachers were opening up the walls and teaching together. That is why Coal Valley Middle School can only be described minimally utilizing "joint work". Principal Robert explained in his interview how the architecture was meant to

increase teacher collaboration. However, there was only minimal evidence that the architecture was being used as it was intended.   Proper utilization of the architectural accoutrements could have contributed to Coal Valley Middle School achieving the highest level of Little's teacher collaboration practices. Additionally, Principal Linda's reduction from three days to one day a week in common planning was another contributing factor that teachers are not engaging in "joint work".

Question 2

The second question answered in the research was: How did principals' perceptions of teaming and the new middle school impact teacher collaboration? Through the primary use of principal interviews and secondary use of teacher interviews, and walkthrough observations, insight was gained regarding principals' perceptions of teaming and the impact of the new middle school on teacher collaboration. Principal Robert explained how he gave the teachers a common planning period and teaming to achieve maximum teacher collaboration. He also explained the planning process and he provided the insight behind the planning of the new middle school as well as the architect's notes. Principal Amy continued common planning periods and the middle school concept. By the time Principal Linda led the school, the district constructed a new building and the teaming concept was firmly established. All three principals explained how they each supported teacher collaboration. Teacher interviews provided numerous ways in which teachers worked together to achieve common goals and the walkthrough observation corroborated principal interviews, teacher interviews, and the teacher surveys. Teachers ranked themselves highly in the areas of informal conversations, solving student problems, and offering/receiving advice and assistance on a one-on-one basis. A fairly

high percentage of teachers believed that they routinely shared materials, methods, and ideas on the teacher questionnaire.

The question can best be answered through the principal interviews. All three principals explained that they believed that teachers were collaborating at high levels. All three principals used the example of the common planning period being utilized to prepare for the cultural food festival each year. This was a higher degree of collaboration identified in the study. Additionally, only a few examples of such as the food festival and co-teaching observed during the walkthrough observation constituted the highest degree of teacher collaboration or "joint work" (Little, 1990).

In his interview, Principal Robert believed that the teachers were collaborating at a high level early on in the teaming process:

> The school was on a decline and I think it would not have been possible had it not been for teaming and teachers actually working and figuring out what's the problem with certain students, why they were acting out. It took the teacher out of the isolated classroom where they would prepare their lesson plans and now they're preparing lesson plans and now they're preparing projects together and that would not have been possible without the common planning period that was implemented during my time as principal [*sic*].

Teachers working together to increase student achievement appeared to be the major emphasis with teaming and teacher collaboration. The principal interviews also explained that teacher collaboration was functioning at high levels even before the construction on the new middle school.

Question 3

The third question answered in the research was: What positive and negative aspects of teacher collaboration did teachers and principals perceive were evident in this 6-8 middle school? Teacher surveys, teacher interviews, principal interviews, and the walkthrough observations of teacher team meetings and photos of the new middle school showed that teacher collaboration was enhanced through teaming implementation and minimally through the construction of a new middle school. Both teachers and principals interviewed gave many positive examples of how teaming impacted their own teaching as well as student learning. Positive aspects of teacher collaboration cited were: teachers working together with parents to discuss student discipline and academic progress; teachers working after school to assist struggling students; teachers working together to learn the *Standards Aligned System* (SAS); department heads observing colleagues to ensure standards-based instruction; co-teaching between the special education and regular education teachers to prepare students for the state assessments in math and reading; and the IPC's gave teachers common work space where they could work in a collaborative fashion.

Although there were many positive facets to teacher collaboration at Coal Valley Middle School, there were only a few negative components cited. One teacher interviewed discussed that sometimes it is difficult for the team to come to consensus. He also expressed concern about teacher negativity about certain students and families. Additionally, he had concerns about the generational divide and that sometimes younger teachers and veteran teachers have different viewpoints. Another negative aspect discussed in the teacher interviews was the fact that the new building segregated grade levels and special subject level teachers; however, all of the teachers interviewed and surveyed reported a high degree of collaboration between colleagues on

their grade level in the new building and they all understood that the building was constructed specifically for teacher collaboration at each grade level.

Question 4

The fourth question answered in the study was: What stages of collaboration (Little, 1990) were evident after eight years of teaming and three years in a new school building? Through the teacher survey, teacher interviews, principal interviews, and walkthrough observations of common planning periods, it was determined that Coal Valley Middle School achieved Little's (1990) stage of teacher collaboration of sharing. According to Little (1990), "Through routine sharing, teaching is presumably made less private, more public. . . By making the ordinary materials of their work more accessible to one another, teachers expose their ideas and intentions to others" (p. 518). Teachers at Coal Valley are exposing their ideas to one another as seen in the teacher and principal interviews and observations. However, they have not met the highest level of teacher collaboration identified by Little (1990) which was termed "joint work." There were numerous examples of teachers sharing with one another at Coal Valley Middle School, but only limited "joint work" examples were found.

It was evident that the data collected in the teacher questionnaire, the teacher interviews, the principal interviews, and the walkthrough observation was triangulated in to show that teachers were just below the "joint work" stages of teacher collaboration (Little, 1990). The teacher questionnaire reported that only 16.6% of teachers responded that they often or very often engage in joint work involving shared responsibility for teaching and cooperative organization of tasks, time, and resources. Fifty percent responded that they rarely and sometimes engage in joint work and 20.8% responded that they never engage in joint work. Eight teachers, which is

considered a large portion of the sample, left the question blank indicating that they were unaware of whether or not they were engaging in joint work.

Teachers were beginning in many respects to work jointly with one another. Examples were the cultural food festival whereby teachers had to plan the lesson together and work together jointly to achieve the goal as cited in the principal interviews. Teachers were observed working jointly in the co-teaching exercise whereby teachers were preparing students for the upcoming state assessment tests. This was observed during the walkthrough observation. The walkthrough observation also indicated limited use of architectural components that were envisioned by Principal Robert, the architects, and the Lehigh University professor to facilitate teacher collaboration at high levels. Because the walls were not being properly used, teachers were still continuing to teach in a rather isolated manner. The teacher described in the interview as Michael did mention that he does occasionally open up the walls for various grade level programs, but this was not observed the day of the walkthrough observation.

Next Chapter

Chapter five examined the ramifications for the research presented in the study. It also made recommendations for the Coal Valley Middle School in what should be done for the school to achieve the maximum level of teacher collaboration identified by Little (1990) termed "joint work." In addition to making recommendations for Coal Valley Middle School, Chapter five lists recommendations for further study regarding teacher collaboration and teacher collaboration at Coal Valley Middle School.

CHAPTER V
AVENUES FOR FURTHER RESEARCH AND DISCUSSION

Summary of Research Findings

This study was an extension of Little (1990) and Letgers (1999) to determine the levels of teacher collaboration evident at Coal Valley Middle School after teaming implementation and the construction of a new middle school conducive to the teaming concept. The findings of this research study showed that Coal Valley Middle School is beginning to employ Little's (1990) highest stage of teacher collaboration called "joint work". The highest stage of teacher collaboration would have been more apparent if the school more readily utilized the various architectural accoutrements that were described in the construction documents and what was observed during the walkthrough observation. The study examined four major questions:

1. How was teacher collaboration impacted after teaming implementation and the construction of a new middle school?

2. How did principal's perceptions of teaming and the new middle school impact teacher collaboration?

3. What positive and negative aspects of teacher collaboration did teachers and principals perceive were evident in this 6-8 middle school?

4. What stages of collaboration (Little, 1990) were evident after eight years of teaming and three years in a new school building?

The first question (How was teacher collaboration impacted after teaming implementation and the construction of a new middle school?) was answered through teacher surveys, teacher interviews, principal interviews, and walkthrough observations of teacher common planning periods / teaming periods. It can be ascertained that teacher collaboration was achieved at a high level exclusively through teaming implementation and minimally through the construction of the

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new middle school. The study showed that teaming implementation was the key to teacher collaboration at the Coal Valley Middle School. Because teacher collaboration is functioning at such a high level and some of the architectural accoutrements are not being utilized, it was ascertained that teaming implementation was more vital than the construction of the new middle school and that the new middle school construction played a secondary role in teacher collaboration.

The second question, (How did principal's perceptions of teaming and the new middle school impact teacher collaboration?) was answered primarily through the use of principal interviews and secondarily through the use of teacher interviews and walkthrough observations. A historical perspective to the implementation of teaming as well as their perceptions regarding its use was ascertained. All three principals believed that their teachers were collaborating at high levels. All three principals interviewed, supported the teaming effort, and continued the practice of teaming.

The third question, (What positive and negative aspects of teacher collaboration did teachers and principals perceive were evident in this 6-8 middle school?) was answered through teacher surveys, teacher interviews, principal interviews, and a walkthrough observation of teacher team meetings and classrooms. The results showed that teacher collaboration was enhanced through teaming implementation and minimally through the construction of a new middle school. Overall, during the teacher interviews, teachers felt that teaming helped their instructional practices and pedagogy. Additionally, they felt better about the teaching profession and utilized teaming as a means for improving instruction in their classrooms. Additionally, co-teaching with special education teachers was observed. Co-teaching was considered the highest level of teacher collaboration or "joint work" identified by Little (1990). Additionally, teachers

expressed one common concern about the new middle school. The concern was that they rarely had opportunities to work with teachers from the other grade level teams and particularly the special subject teachers because they were located in other parts of the building.

The fourth question (What stages of collaboration (Little, 1990) were evident after eight years of teaming and three years in a new school building?) was examined through the use of teacher surveys, teacher interviews, principal interviews, and walkthrough observations of common planning periods. It was determined that Coal Valley Middle School achieved Little's (1990) stage of teacher collaboration of sharing. Although few examples of "joint work" were noted and found, Coal Valley Middle School is working at the third level of "Sharing".

Comparison of Findings / Results with Existing Studies

It was evident that the researchers that contributed most significantly to this study were Little (1990) and Letgers (1999). Little's (1990) stages of teacher collaboration made a significant impact to this study by providing the theoretical framework for this research. It was evident in the study that Coal Valley Middle School significantly achieved the following levels of Little's (1990) stages of collaboration: storytelling and scanning, aide and assistance, and sharing. There was minimal evidence that teacher's at Coal Valley Middle School utilized the highest stage of teacher collaboration identified by little called "joint work". Letgers (1999) provided the teacher questionnaire, the principal interview protocol, and the teacher interview protocol used in this study.

Jackson and Davis (2000) provided a framework for the study of what exceptional middle school programs offer and provided background knowledge to the principal investigator for the study of effective middle school programs. The literature on professional learning communities DuFour et al., (2004); DuFour et al., (2005); and Mitchell (2007) discussed the importance of

teacher collaboration and it's positive influence over student achievement. Although this study is not a study on student achievement, there appears to be a positive correlation because when Principal Robert was principal, Coal Valley Middle School was on the State of Pennsylvania's School Improvement List. Principal Lisa explained that they continued to write an improvement plan for the school and in 2009, the school was no longer on the school improvement list. There was some evidence to suggest that when teachers at Coal Valley Middle School worked together and planned instruction jointly, student achievement increased.

The research at Coal Valley Middle School also agreed with research on collaborative lesson planning (Jalongo et al., (2007); Lewis (2007); Stigler & Hiebert (1999) and Gill & Hoffman, 2000). Teachers were observed during the principal investigator's walkthrough at Coal Valley Middle School planning together and co-teaching. When teachers write lesson plans collaboratively and co-teach, teacher pedagogy and student achievement improves.

The first question answered in the research study was: How was teacher collaboration impacted after teaming implementation and the construction of a new middle school? Through teacher surveys, teacher interviews, principal interviews, and walkthrough observations of teacher common planning periods in the new middle school it was ascertained that teacher collaboration was achieved at a high level exclusively through teaming implementation and minimally through the construction of the new middle school.

Teacher interviews provided significant evidence that teacher collaboration was impacted through the implementation of teaming. All five teachers provided examples of how the implementation of the common planning period assisted them in teaching. Prior to implementation of the common planning period, teachers explained that they met informally during lunch periods or in hallways. Before teaming, teachers had very limited opportunities to

meet and plan together. Data showed from the teacher questionnaire that half of the respondents

believed that they *very often* or *often* shared materials, methods and ideas with each other while

another 33% responded that they *routinely* shared materials, methods, and ideas with colleagues.

Although not recognized as the highest level of teacher collaboration identified by Little (1990),

it is still recognized as a high level of teacher collaboration. The three principal interviews that

were conducted also revealed the importance of teaming in teacher collaboration.

Through multiple data points such as teacher interviews, principal interviews, and

walkthrough observations it was evident that currently the new building was not having as

dramatic an impact as teaming implementation on teacher collaboration. However, with the

proper utilization of the new middle school building, Little's (1990) highest level of teacher

collaboration called "joint work" may have been achieved. The walkthrough observation found

that teachers were not opening the walls to collaborate together. The evidence of student work

and whiteboards hanging on the walls was dramatic evidence that the teachers were not utilizing

the architecture appropriately envisioned by Principal Robert.

There was minimal evidence that "joint work" was taking place. One teacher interviewed

reported that he does in fact open up the walls for special programs. During the walkthrough

observation, it was noted that two teachers were observed co-teaching for the PSSA Assessment

Tests even though they did not have the wall open. This was specific evidence of "joint work"

identified by Little (1990). Another example of "joint work" was cited in teacher interviews.

There was evidence when the special education teacher interviewed explained how she co-

teaches with regular education teachers. This was also direct evidence of "joint work" being

conducted. However, the observations showed limited evidence that teachers were opening up

the walls and teaching together. That is why Coal Valley Middle School can only be described

minimally utilizing "joint work". Principal Robert explained in his interview how the architecture was meant to increase teacher collaboration. However, there was only minimal evidence that the architecture was being utilized as it was intended.   Proper utilization of the architectural accoutrements could have contributed to Coal Valley Middle School achieving the highest level of Little's teacher collaboration practices. Additionally, Principal Linda's reduction from three days to one day a week in common planning was another contributing factor that teachers are not engaging in "joint work".

Limitations of the Study

The following two limitations of the study need to be examined for future research.   The first limitation of the study was that it will be difficult to generalize the results of the study because the study was conducted in one school in the coal region of Northeastern Pennsylvania. The circumstances surrounding this particular middle school could be much different than other middle schools around the country. In the study, teaming was first implemented in an old building that was constructed in 1911. The new middle school was constructed on the premise of increasing teacher collaboration through middle school teaming. Due to fiscal restraints on future middle school projects, it might be difficult to replicate this middle school. If this middle school was replicated and the various architectural accoutrements were utilized, the results may have been different in that middle school.

Secondly, human relationships within groups are complex further making generalizations about the practice of teacher collaboration difficult to generalize from one school structure to another. Both teachers and principals described their school as cohesive in the study. That is not always the case in other schools across the country. Because human relationships within groups are complex, there is always a possibility that these interactions would be competitive within the

group rather than collaborative making teacher collaboration difficult, if not impossible. Additionally, according to Hargreaves (1994) when administrators forced teacher collaboration upon teachers, teacher collaboration results could be negative.

Implications for Future Studies

There are two implications for future studies of middle school teaming and middle school construction. The first implication on future studies is that researchers will continue to focus on the impact of teacher collaboration on student achievement. It was evident that when teachers collaborate, student achievement increases as teachers work together to improve teaching and learning. (DuFour et al., (2004); DuFour et al., (2005); Mitchell (2007). The middle school philosophy of teaming and teacher collaboration is beginning to be the norm throughout the United States (Hackman et al., 2002). Future studies will continue to examine the impact of teacher collaboration on student achievement. A study at Coal Valley Middle School on student achievement isolating the variable of teacher collaboration would add to the achievement studies on the power of professional learning communities. (DuFour et al., (2004); DuFour et al., (2005). Teacher collaboration is changing the methodology of education as teachers are no longer teaching in isolation.

The second implication on future studies is the continued impact of middle school architecture and construction on teacher collaboration, a phenomenon that should be studied in further detail. This study was unique because it examined a model of teacher collaboration and then subsequently a building was constructed to house the teaming model. Many middle schools are currently functioning successfully in older buildings as teachers are collaborating and working together to increase student achievement. An impact study would examine the importance of school architecture on student achievement in middle school.

Recommendations for Coal Valley Middle School

Coal Valley Middle School achieved Little's (1990) third stage of teacher collaboration called "sharing". There was some evidence that the school achieved the highest level called "joint work" (Little, 1990) through co-teaching and common planning periods. However, the following four recommendations are given to Coal Valley Middle School to increase teacher collaboration to the maximum amount established by Little (1990). If Coal Valley Middle School follows these four recommendations, they will fully achieve the highest level of teacher collaboration called "joint work".

The first recommendation for Coal Valley Middle School to increase teacher collaboration is for the teachers to begin utilizing the architectural accoutrements that were not observed during the principal investigators walkthrough observation. Many walls that could have been open jointly with other classrooms were observed closed. With these walls open, teachers could co-teach and there would be positive effects on student achievement as well as increased efficacy of teacher pedagogy as teachers share and jointly plan together (Little, 1990; Jalongo et al. 2007; and Lewis, 2000).

The second recommendation for Coal Valley Middle School to increase teacher collaboration is for the administration to increase common planning time for teachers so that they may have time to meet and plan together on a more regular basis. Jalongo et al. (2007) described a number of impediments to teacher collaboration that appear to be evident at Coal Valley Middle School. One impediment they described was structural paucity. Structural paucity referred to the lack of administrative or structural support for collaborative lesson planning. It was evident in the principal interviews that Principal Robert and Principal Amy allowed three days of common planning period while Principal Linda cut the planning period back to one day a week.

This was also highlighted in the teacher interviews as well. Another impediment described by Jalongo et al. (2007) was the lack of planning time which is evident at Coal Valley Middle School. If principals fail to schedule common planning periods, then teacher collaboration regarding lesson planning can not be achieved.

The third recommendation is to establish some time for specials teachers to meet and plan with the grade level academic teachers at various points in the school year to plan cross curricular lessons. During the teacher interviews, the teachers expressed a common concern that they do not have time to meet with special subject area teachers and teacher across grade levels. Making connections across content areas and planning jointly will help the students learn the relevance of content rather than teaching it in isolation.

The fourth recommendation is for the Coal Valley Middle School to continue implementing teaming and ensure adequate time to plan together to achieve "joint work" (Little, 1990). The current state of the economy as well as impending state budget deficit common planning periods will come into question and may inevitably perish. Some may come to examine common planning time as too costly and call for its elimination. The various studies including this one show the importance of common planning time for teachers to work collaboratively are imperative if we as a nation want the best means of instruction for our students. These ideas are best reflected in the work of Lewis (2000) when she examined the role of Japanese Lesson Study on the quality of Japanese lessons. In order to compete with Asian nations, we must adopt the practices inherent to their success.

Overall Significance of the Study

This study was significant because it examined how teacher collaboration through the perceptions of teachers and principals was impacted after teaming implementation and after the

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construction of a new middle school that focused on teaming as its cornerstone. Through teacher surveys, teacher interviews, principal interviews, examination of various school documents, and a walkthrough observation, teachers and principals responded positively to teaming implementation. The study demonstrated how teachers improved their practice through middle school teaming and the subsequent construction of a new middle school building similar to the work of DuFour et al., (2004); DuFour et al., (2005); Mitchell (2007); Jalongo et al., (2007); Lewis (2007); Stigler & Hiebert (1999) and Gill & Hoffman, (2000). Teachers in the study were cognizant that teaming implementation assisted them in the practice of teaching. Through the various teacher surveys and interviews as well as the principal interviews, numerous examples were obtained from teachers and principals as to how teaming promoted teacher collaboration by assisting them in their professional growth as well as how it assisted struggling students. The study also examined some negative aspects to teaming such as the generational divide in coming to consensus within the group and the perceptions of the teachers regarding the way the middle school building was constructed. More specifically, the segregation of the specials teachers to their own area of the school was found to be problematic from the teacher interviews. Even though the study replicated the interview protocol and survey protocol of Letgers (1999), it examined a different and unique circumstance of the transformation of a junior high school to a teamed middle school structure.

The study is significant due to it's uniqueness of the way the school building was constructed in the study. Because financial concerns are typically the primary concern when constructing a new school, this particular middle school was built around the concept of teacher collaboration and teaming with fiscal concerns of a secondary importance. Studies that show how the architecture of a school impacts teacher collaboration levels are virtually non-existent making

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this study truly unique. Furthermore, it is recommended that future studies be conducted to examine the architectural impact on programming and curriculum in a school and how these building plans foster or hinder teacher collaboration practices.

This study adds to the literature review on the benefits of middle school teaming as it applies to the efficacy of teaching through teacher collaboration (Jalongo et al., 2007; Lewis, 2007; Stigler & Hiebert (1999), and Gill & Hoffman, (2000). Through the use of Little's (1990) research on stages of teacher collaboration, the principal investigator was able to utilize Little's (1990) stages of teacher collaboration as the theoretical basis for this research. Additionally, future investigators of teacher collaboration will expand upon this research in accurately identifying collaboration levels, some of these types of teacher collaboration are yet to be discovered.

Conclusion

It was evident that the key ingredient that made teacher collaboration successful in this study was leadership. Even though the study showed that teachers were collaborating at high levels, it was teaming implementation that was more imperative than the construction project. However, both teaming implementation and new school construction became a reality because of the strong leadership shown by Coal Valley School District leaders. Without the leadership, teaming implementation would not have led to the high degree of teacher collaboration shown in the study. All three principals in the study stated that they supported teaming by attending team meetings and encouraging teachers to work together on various projects. Leadership was shown by the middle school principal during the researcher's observation of common planning periods as she led each team meeting observed. Leadership was the key to this schools effort at increasing teacher collaboration.

Although this was not a study on correlating teacher collaboration with student achievement or correlating school structure with student achievement, it was evident throughout the study that student achievement increased throughout the utilization of teaming implementation in this school. The first principal inherited a school that was on the State of Pennsylvania's School Improvement List, the school was excluded from the list due to an increase in student achievement the second year of his becoming principal. During the tenure of the second and third principal, the school was meeting Adequate Yearly Progress (AYP). With the combination of excellent leadership with the implementation of teaming and it's support in the school historically over the past decade student achievement increased as the level of teacher collaboration increased!

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Dear Coal Valley Middle School Educator:

My name is Ron Grevera. I am a doctoral student at Indiana University of Pennsylvania and East Stroudsburg University. I am doing a study on teacher collaboration for my dissertation. The purpose of this survey is to obtain teachers' opinions on the amount of collaboration that occurred from 2000-2010. As the first step, I am conducting a teacher questionnaire to determine the level of teacher collaboration in the middle school over the last ten years. There have been several changes that have occurred at the Coal Valley Middle School over the past decade. The three major changes that have occurred were: introduction of the teaming concept, different principal leadership, and the construction of a new middle school.

This survey will be kept completely anonymous. You should not write your name on the survey. You will be given five days to complete the survey. Upon completion of the survey, please return your survey to the designated faculty member who will ensure that your name has not been affixed to your survey. The designated faculty member will send me the surveys in the provided self addressed stamped envelope. The questionnaire should take about fifteen minutes to complete.

Yours in Education,

Ron Grevera

Teacher Questionnaire

Part A: General Information

Please circle your answer that best describes you:

1. Sex: Male   Female

   b. Race: Caucasian, African-American, Hispanic, Native American, Pacific Islander

3. Age: 21-30   31-40   41-50   51-60   61-70   71-80

   b. How many years have you been teaching?

0-5   6-10   11-15   16-20   21-25   26-30   31-35   36-40   41-45   46-50

   b. What level of education have you attained?

Bachelor's Degree   Master's Degree   Doctorate Degree

6. What grade do you teach?   6th   7th   8th

   b. Which teaming structure best describes your school?

Interdisciplinary   Multidisciplinary   Teacher Collaboration   Team Teaching   Partnering

Part B: Working Environment

Using the scale provided, indicate <u>how much influence</u> you feel you have over the following areas of your work. If you did not teach during the given school years, leave that time period blank. Choosing the following never or rarely if you have limited control or influence to often and very often if you have a great amount of control over your work.

   A.   Determining the content of your professional development and in-service activities.

      Never   Rarely   Sometimes   Often   Very Often

   B.   Selecting content, topics, and skills you teach

      Never   Rarely   Sometimes   Often   Very Often

   C.   Selecting your textbooks and other instructional materials.

      Never   Rarely   Sometimes   Often   Very Often

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D.   Determining which classes you teach.

Never   Rarely   Sometimes   Often   Very Often

E.   Determining which students you will have in your class.

Never   Rarely   Sometimes   Often   Very Often

F.   Determining the daily schedule.

Never   Rarely   Sometimes   Often   Very Often

G.   Setting disciplinary policies for students.

Never   Rarely   Sometimes   Often   Very Often

H.   Acquiring new equipment, materials, or other resources for use in your classes.

Never   Rarely   Sometimes   Often   Very Often

1. During a typical week in this school, how often do you interact with other teachers in the following way?

Informal conversations?

Never   Rarely   Sometimes   Often   Very Often

Solving student problems?

Never   Rarely   Sometimes   Often   Very Often

Offering/receiving advice
and assistance on a one-on
one basis?

Never   Rarely   Sometimes   Often   Very Often

Routine sharing of materials,
Methods, and ideas?

Never   Rarely   Sometimes   Often   Very Often

Joint work involving shared
responsibility for teaching
and cooperative
organization of tasks, time
and resources?

Never   Rarely   Sometimes   Often   Very Often

2.   Which are mostly true of the teaching faculty of your school and which are mostly false?

Apathetic   Mostly True   Mostly False

Cohesive   Mostly True   Mostly False

Enthusiastic   Mostly True   Mostly False

Frustrated   Mostly True   Mostly False

Conservative   Mostly True   Mostly False

Innovative   Mostly True   Mostly False

Background
1. How long have you been teaching at the Panther Valley Middle School?
    > Probe: How many years have you been in this district? At this school?
    > At this grade level? What grades did you teach before?
2. What subject(s) do you teach? Do you have any other responsibilities? Leadership? Extra Curricular?
    > Probe: Supervise or train other teachers, serve on school planning committee,
    > Participate in any special programs, volunteer duties on the team?
3. What do you like most about your job? Of what are you most proud of in your work?
4. What do you dislike most about your job? What is your greatest source of stress?

Teacher Interactions, Groupings, and Norms
5. Thinking about a typical work day here, could you describe the interactions you have with other adults during the day? Did these interactions increase or decrease after teaming was implemented? Did these interactions increase or decrease after the construction of the new middle school? How did these interactions change?
6. How is your group of teachers working together? Please describe and give examples of specific things you have accomplished together. Would these accomplishments have come to fruition without teaming? The new middle school?
    > Probe: Have you been on an interdisciplinary team before? Has teaming helped your teaching?
    > Probe: How often do you meet as a team? What do you meet about? What generally happens in your team meetings?
    > Probe: What is working the best on your team? What isn't working?
    > (conflict resolution, learning from each other, solving student problems, sharing strategies).
    > Probe: Have you ever changed the schedule within your team? Planned an interdisciplinary unit?
7. With whom do you have primary professional relationships? How have these relationships changed before and after teaming implementation? How have these relationships changed after the construction of the new middle school?
    > Probe: Are there teachers here without whom you simply could not do your work? About how many? Describe how they help you.
    > Probe: Whom do you go to when you have questions or problems regarding a lesson/unit, a particular student (behavior and teaching)?
8. Have you ever worked as a member of a subject area department? Team? Or self-contained unit before? What are some specific problems you see working in this manner? Do teachers in this school turn to each other for help with their teaching? Do they help each other out? In what ways? Did they turn to each other for help before the implementation of teaming? Did they turn to each other for help before the construction of the new middle school?

Probe: Based on your experience, what are some of the specific problems to working in a departmentalized organization versus a team? What are some of the advantages?
Probe: Swapping stories, one-on-one assistance/mentoring, routine sharing of information and ideas, joint work.
Probe: Is this any different before teaming implementation? New middle school construction?

9. Have you ever worked with another teacher or group of teachers on a common task this year?
Probe: What was the nature of the work? Did you achieve your goal? If so, would this goal have been accomplished before teaming? Before the new middle school was built?

10. Are teachers here rewarded for working together? Were they rewarded before implementation of teaming? Middle school construction?

11. Would you characterize the faculty here as cohesive or divided? What are the sources of that cohesiveness/those divisions?

12. How would you describe this faculty's ideas and expectations about what a teacher should or should not do? Are you willing to do extra work after school hours? Why or why not?

13. In your opinion, how has the design of the new middle school impacted teacher collaboration?
Probe: Where specifically do teachers work together in the new building vs. in the old middle school? Are these places especially designed for shared work?

Appendix C
Principal Interview Questions

Background
1. How long have you been (were) you the principal at the Panther Valley Middle School? What years?
2. Other than Middle School Principal, what other duties do you perform for the school district?
3. What do you like most about your job? Of what are you most proud of in your work?
4. What do you dislike most about your job? What is your greatest source of stress?

Teacher Interactions, Groupings, and Norms
5. Thinking about a typical work day here, could you describe the interactions you have with your staff during the day? How often do you attend common planning period meetings?
6. How does /did your group of teachers work together? Please describe and give examples of specific things you have accomplished together. Would these accomplishments have come to fruition without teaming? The new middle school?
7. With whom do you have primary professional relationships? How do you think these relationships changed after the district implemented teaming? After the new school was constructed?
8. Before becoming principal, have you ever worked as a member of a subject area department? team? Or self-contained unit before? What are some specific problems you see working in this manner as a teacher and as a principal? Do teachers in this school turn to each other for help with their teaching? Do they help each other out? In what ways? Did they turn to each other for help before the construction of the new middle school?
9. While you were principal, did your teachers work with other teachers or groups of teachers on a common task? What was the nature of the work? Did you achieve your goal? If so, do you think this goal have been accomplished before teaming? Before the new middle school was built?
10. When you were principal, were teachers rewarded for working together? Middle school construction?
11. While you were principal, was your faculty cohesive or divided? What are the sources of that cohesiveness/those divisions?
12. How would you describe this faculty's ideas and expectations about what a teacher should or should not do? Are your teachers willing to do extra work after school hours? Why or why not?

Appendix D
District Permission

I Ron Grevera, a doctoral student at Indiana University of Pennsylvania and East Stroudsburg University wish to conduct a case study of your 6-8 middle school. The study will examine the level of teacher collaboration evident in your middle school pre and post teaming implementation and pre and post new middle school construction.

First, during the case study, I am asking for permission to survey your middle school staff to determine the levels of teacher collaboration. Secondly, I wish to interview seven of your teachers, two former principals, and your current middle school principal. Third, I wish to observe the level of teacher collaboration during their common planning time a minimum of one time to determine the level of teacher collaboration currently present. I also wish to conduct a walkthrough observation of classroom instruction. I am also asking that I be allowed to examine district documents such as the strategic plan, school improvement plan, archival notes from former administrators, and various construction documents of the new middle school.

Teachers and principals will remain anonymous in the study. All references to the school district will be anonymous. I will give you a full report on the study after it has been conducted. I Rose Porambo, Superintendent of Schools give Ronald J. Grevera permission to conduct a case study on teacher collaboration at the 6-8 middle school in my school district.

_____
Superintendent of Schools

_____
Ronald J. Grevera, IUP Researcher

Appendix E
Teacher Interview Permission

I, Ron Grevera, a doctoral student at Indiana University of Pennsylvania and East

Stroudsburg University would like you to participate in a case study I am conducting of your 6-8

middle school. The study will examine the level of teacher collaboration evident in your middle

school pre and post teaming implementation and pre and post new middle school construction.

You were chosen as one of seven teachers who taught in the old middle school building and

you have been identified as a teacher who taught in the middle school before the implementation

of teaming. Your responses will be completely anonymous and will not be reviewed by the

administration and you will not be identified by name in the study.

I _____ give Ronald J. Grevera permission to interview

me for a case study he is conducting on teacher collaboration at the Panther Valley Middle

School.

_____
Teacher

_____
Ronald J. Grevera, IUP Researcher

Appendix F
Principal Interview Permission

I, Ron Grevera, a doctoral student at Indiana University of Pennsylvania and East Stroudsburg University would like you to participate in a case study I am conducting of your 6-8 middle school. The study will examine the level of teacher collaboration evident in your middle school pre and post teaming implementation and pre and post new middle school construction.

You were chosen to be interviewed for this case study because you were one of the principals employed between the years 2000-2010. Your responses will be completely anonymous and will not be reviewed by the administration and or school board members. Your name will not be identified in the study. Additionally, the school districts' name will not be identified in the study.

I _____ give Ronald J. Grevera permission to interview me for a case study he is conducting on teacher collaboration at the Coal Valley Middle School.

_____
Principal

_____
Ronald J. Grevera, IUP Researcher