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Lesson Study: Restructuring Teacher Professional Development in the United States

Anthony G. Buono
Lesley University

LESSON STUDY: RESTRUCTURING TEACHER PROFESSIONAL DEVELOPMENT IN THE UNITED STATES

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Anthony G. Buono

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Abstract

This study reports how teachers at one suburban elementary school in the United States launched, organized, and structured lesson study, as well as how participants interpreted and perceived the lesson study experience. Additionally, it examines how lesson study supports teachers' professional learning and the development of collaborative teacher teams. In doing so, it attempts to answer the following research questions: What does the lesson study experience look like at one elementary school in the United States? How does lesson study support and influence school based professional learning teams? How does and to what extent does the lesson study experience impact individual teacher's perceptions about teaching, learning, and working collaboratively? A case study methodology was utilized in conducting research that involved exploring a bounded system through in-depth data collection, using multiple sources of information in an effort to develop a triangulation of data. Ultimately, through the collection and analysis of multiple data points, I attempted to construct an in depth understanding of lesson study and how it impacts the individual and collective development of teachers.

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Chapter I

Introduction

Based on the widely-held view that improving instruction improves student achievement, the professional development of teachers is an integral component of nearly every school improvement effort in the United States (Darling-Hammond, Wei, Richardson, Andree, & Orphanos, 2009; Garet, Porter, Desimone, Birman & Yoon , 2001; National Staff Development Council, 2001; Thompson & Goe, 2009) Recent research on effective professional development emphasizes the importance of changing the form of professional development for teachers from the traditional workshop or conference format to one aligned with the learning community concept where teachers work collaboratively to examine and resolve problems of practice (Barth et al., 2005; DuFour & Eaker, 1998; Garet et al., 2001; National Staff Development Council, 2001; Thompson & Goe, 2009). Researchers have identified the following six traits commonly present in effective professional development: learning experiences are focused on specific content and the related pedagogy to teach content; they incorporate active learning experiences for teachers; they are connected to teacher's collaborative work on learning teams; the initial learning experience is supported by ongoing coaching, modeling, and reflective feedback; and their work is embedded in the reality of day to day teaching (Darling-Hammond, Wei, Richardson, Andree, & Orphanos, 2009). Unfortunately, the United States' investment in teacher learning appears too focused on the least effective models, the short-term workshops that research has shown are unlikely to influence practice or student performance (Wei, Darling-Hammond, & Adamson, 2010). Historically, many elementary school teachers in the United States have

functioned independently of one another and collaboration between teachers has been absent from their daily work. Risk taking, dialoguing, and critically examining previous held assumptions about effective instruction and student learning are frequently foreign, difficult, and uncomfortable for many teachers (Servage, 2008). However, a growing body of research indicates that if schools are to be significantly more effective they must break away from the industrial model of the past and embrace a new model that enables them to function as learning organizations or professional learning communities (DuFour & Eaker, 1998).

These findings are also supported by a number of contemporary learning theories. For example, Transformative Learning Theory, one of the most fully developed adult learning theories of our time, is based the on tenant that significant, sustainable changes will only occur when the assumptions underlying one's beliefs are examined and modified (Mezirow, Taylor & Associates, 2009). Jack Mezirow, the father of transformative learning theory, explains that we transform our frames of reference through the process of critically reflecting on our own beliefs, habits of mind or points of view (Mezirow, 1997). Although the development and growth of the individual is fundamental to transformational learning, reflective discourse inherently suggests a social, collaborative context for learning. Learning is viewed as an active process where people attempt to make meaning of their experiences. It is when these experiences don't make sense or fit a person's previous view of how the world functions that learning and in turn change can occur.

For many educators this will require a significant modification in how professional learning is viewed and conceptualized. As a result, concrete support

mechanisms may help to facilitate and support the transition. Lesson study, a widely utilized and highly regarded form of teacher professional development in Japan, may offer educators in the United States a pragmatic mechanism for supporting and developing effective professional learning communities. Lesson study is a teacher-led, learning community form of professional development that is embedded into the daily work of teachers. Lesson study gained recognition in the United States at the turn of the century with the release of *The Teaching Gap* (1999), a book by Stigler and Hiebert that identifies successful practices from around the world that have improved teaching and learning. However, the research on specifically how lesson study can be used to improve teacher practice and student performance in the United States is very limited. Although lesson study has thrived in Japan and is frequently credited for significant improvements in teaching and learning, it has yet to be seen if it is compatible in with the school context in the United States context. The research presented here is intended to explore the implementation of the lesson study process and its impact on instruction and professional learning in the United States.

The primary purpose of this study is to describe how the teachers at a suburban elementary school in the United States launched, organized, and structured lesson study. It also examines how teachers interpreted and perceived the lesson study experience as well as analyzes the impact of lesson study on professional learning teams and teachers' underlying beliefs about teaching, learning, and content. In doing so, I also attempt to identify barriers to implementation and issues that may require further research and consideration by practitioners. Ultimately, my intent is to add to the existing knowledge and research about lesson study in the United States and to examine and understand how

and if lesson study can be utilized as a mechanism for fostering transformative learning experiences for in service teachers.

Lesson Study

Despite its name, lesson study is not about developing and delivering a perfect lesson. Lesson study is a teacher-led professional learning process where teachers systematically examine their practice in order to improve instruction and learning (Yoshida, 2005). Although lesson study is similar to other types of teacher collaboration in the United States, it also differs in that it offers a coherent and seamless approach to developing lessons to advance student learning. This work goes beyond meeting together outside of the classroom to analyze student work; teachers also work together in classrooms to observe and analyze students working. The classroom becomes the teachers' laboratory for the continuous improvement of teaching and learning.

During the implementation of lesson study, teachers meet several times over the course of a few months to develop a research lesson (Dubin, 2010). After identifying a broad research theme, teachers form grade level or subject area lesson planning teams. The teams then select a lesson goal that is aligned with the broader research theme. Teams may invite a knowledgeable other to assist the team with content knowledge and/or support the lesson study process (Yoshida, 2005). These experts may include college professors with specific content knowledge, cognitive science experts, or master teachers (Dubin, 2010). The goals can be general at first but as teams work on developing the lesson they also work on refining and focusing the goal so that in the end they develop a very specific research question. Members of the team then develop and write the lesson, choosing a teaching approach or strategy that makes student learning visible.

The main purpose for this step is not to plan a perfect lesson but investigate teaching strategies and investigate questions of teaching in an authentic context (Hart, Alston, & Murata, 2009). During this time, teachers are encouraged to examine curricular materials, discuss content, and explore books and articles that have been written on the topic being explored.

Relatively early on in the process, the team decides who and when the studied and revised lessons will be taught. While one of the team members teaches the lesson the others observe and take detailed notes on a selected group of students (Lewis & Hurd, 2011). This provides teachers with the opportunity to closely observe and collect evidence of student thinking and learning in a way that is not typically possible while instructing an entire class. In some cases, lessons are video recorded so teachers can review and reference them (Dubin, 2010). The purpose of the observation is to gather data about instruction and learning, not to evaluate the teacher (Stepanek et al., 2007).

Upon completion of the lesson, teachers participate in a post-lesson discussion. During this time participants share the data collected and identify issues for further consideration. The teacher who taught the lesson is given the opportunity to speak first. Then the other team members share the data they collected and identify areas that can be improved (Dubin, 2010). Information from the discussion is then utilized by the planning team to make revisions to the initial lesson (Takahashi, 2005). After the lesson has been revised, it is taught by another member of the planning team to a different group of students. Once again, the remaining team members observe the lesson, take notes, and collect data on student learning. Following the lesson, the team meets one last time to

write up what they learned from the entire experience of teaching, reflecting, revising and reteaching (Lewis & Hurd, 2011).

Lewis and Hurd (2011) depict the lesson study cycle as having four critical components.

1. Study Curriculum and Formulation of Goals – Consider student learning goals and curricular expectations
2. Plan – Write detailed instructional plan, including student learning goals, anticipated student thinking, and plan for data collection
3. Conduct Research Lesson – One team member presents lesson while other members observe and collect relevant data
4. Reflect – Formal lesson colloquium

Although the literature provides some variation regarding implementation, the four components outlined by Lewis and Hurd (2011) are consistently represented (Dubin, 2009; Lewis, 2002; Stepanek et al., 2007; Wang-Iverson & Yoshida, 2005).

Figure 1: Lesson Study Cycle

(Lewis & Hurd, 2011, p. 2)

Research Statement and Questions

This study reports how the teachers at one suburban elementary school in the United States launched, organized, and structured lesson study, as well as how participants interpreted and perceived the lesson study experience. Additionally, it examines how lesson study supports teachers' professional learning and the development of collaborative teacher teams. In doing so, it attempts to answer the following research questions:

1. What does the lesson study experience look like at one elementary school in the United States?
2. How does lesson study support and influence school based professional learning teams?
3. How does and to what extent does the lesson study experience impact individual teacher's perceptions about teaching, learning, and working collaboratively?

Conceptual Lens

The rationale for this study developed through a combination of my personal experience as school administrator and the review of literature on effective professional development for teachers, transformational learning, and lesson study. For about the last fifteen years I have designed and delivered professional learning experiences for teachers and worked to establish and improve professional learning communities in schools. During this experience, I observed that there were times some teams would reach the point where the combined intelligence and production of the group was far greater than that of the individual members. Additionally, I felt that these experiences resulted in significant growth of the individual teachers as well as the students they serviced. In

other words, when teachers became more skilled in their pedagogy and knowledge content, student achievement increased. This observation is consistent with the current research cited in Chapter 2. However, there have also been occasions when the combined intelligence and production of the group has been less than that of the individual participants. For various reasons these teams never benefited from their collaborative work in the way others did. To support this work and these struggling teams, I have consistently reviewed research on effective professional development and have often contemplated how to develop high performing teams. However, it wasn't until I began learning more about adult learning theories, specifically Mezirow's transformative learning theory that I began piecing together the integral and complicated relationship between prior experience, reflection, underlying beliefs and adult learning. During this time, I was also introduced to lesson study. Although I had read about it previously, this was the first time I had the opportunity to see the process in action. Shortly thereafter I participated in the lesson study process and my conceptions of these three fields began to coalesce into a single idea: lesson study may represent a form of effective professional development in that it can potentially provide self-directed, collaborative opportunities for teachers to examine and reflect upon their prior experiences in a manner that may result in changes or modifications to their underlying conceptions about teaching and learning.

Epistemological Framework

The epistemological framework for this study can best be described as a combination of pragmatism and social constructivism. According to Creswell (2007) social constructivism is a worldview where people seek to understand the world in which

they live and/or work. Thus, social constructivism asserts the social nature of knowledge and the belief that knowledge is constructed through social interactions. Frequently, meanings are varied and multiple and the researcher significantly relies on the participants' perspectives. Meaning is formed through interaction with others and rather than starting with a theory, one is generated. This research study largely focuses on the discussions and interactions of teachers and careful observation of what they do in their work setting. My intent is to make sense of the meanings and experiences of the participants. I recognize that people construct their reality and that there are multiple, equally valid, socially constructed versions of the truth. I will also look for commonalities of experience among participants, which is another form of constructed reality. This is further supported by the use of focus groups which will allow participants to share and dialogue with their team members about their learning and feelings regarding the lesson study experience. However, ultimately my goal is to potentially find a solution to an existing problem of practice. What can schools do to overcome the barriers to developing effective learning communities? This overarching question creates an aura of pragmatism throughout the study.

Organization of the Case Study

Chapter Two provides a review of the literature related to the my research study, including a section summarizing the current professional development research; a section on transformational learning theory; and a section describing lesson study research in the United States.

Chapter Three outlines the methodology used to collect and analyze data. It details the rationale for using a case study methodology and explains in detail the

process, the data collected, and the analysis conducted. It also provides information regarding the participants, participant selection, and procedures for reducing researcher bias and influence. Teachers at this school were introduced to lesson study in 2010 and participated in one lesson study cycle during the 2010-2011 school year. One of the grade level teams participated in a pilot study that was designed to inform research questions and hone the data collection and analysis techniques described in this chapter.

Chapter Four presents the data collected from two separate case studies. Data from each case includes video transcriptions from teacher meetings and focus groups, written reflections by participants, and a review of documents produced during the lesson study cycle. Included in this chapter are the results of the qualitative analysis conducted, which attempts to identify core ideas and themes throughout and within the data.

Chapter 5 presents a discussion of the results and findings of the study. The intent is to present conclusions and ideas that will serve as valuable contributions to both the lesson study research community and school practitioners looking to improve their practice. Additionally, it attempts to identify potential barriers and/or difficulties experienced by practitioners as well as examine the presence and potential for transformative learning in schools.

Chapter II

Literature Review

In 2001, the National Staff Development Council published revised standards for staff development. The National Staff Development Council contends that one of the strengths of these new standards is that they are rooted in the belief that both educators and students should benefit from staff development (National Staff Development Council, 2001). The standards emphasize the importance of content, process, and context when designing and delivering effective professional development. Achieving high levels of learning for teachers, students and administrators requires a form of professional learning far different from the workshop driven approach (National Staff Development Council, 2001). The National Staff Development Council (2001), advocates for the establishment of learning communities where teams of teachers meet regularly, preferably several times a week, for the purpose of planning, learning, and problem solving. Since the publication of these standards in 2001, a growing body of research has supported and highlighted the importance and need for developing professional learning communities in schools (Darling-Hammond, Wei, Richardson, Andree, & Orphanos, 2009).

Professional Development Research

According to Hiebert (1999), research on teacher learning shows that fruitful opportunities to learn new teaching methods share the following common characteristics: (1) ongoing collaboration of teachers (2) the clear and explicit goal of improving student learning (3) grounded in curriculum and pedagogy (4) access to alternative approaches and the opportunity to actively participate in observations, reflection and dialogue about

why they are effective (p.15). In 2001 Garet, Porter, Desimone, Birman, and Yoon provided the first large-scale empirical comparison of the effects of different professional development characteristics on teacher learning. They concluded that sustained and intensive professional development is likely to have a greater impact than shorter, isolated opportunities; professional development that incorporates specific academic subject matter is more effective than professional learning that solely focuses on pedagogy; and professional development that incorporates active learning and is integrated into the daily life of the school has a greater chance of positively impacting teacher learning and practice (Garet et al., 2001).

An analysis of eight professional development programs that had a significant, measurable impact on teacher learning and/or student performance yielded the following commonalities:

- A strong focus on content and content related pedagogy;
- An annual duration of between 45 and 300 hours, in most cases a design of over 100 hours was utilized;
- Explicit link to school curriculum;
- Elements of collective participation i.e. coaching, mentoring by master teachers; lesson study with colleagues, participation on learning teams;
- Designs that are school-based and involve schools as strong partners (Wei, Darling-Hammond, Adamson, 2010, pp. 6-7).

Thompson's and Goe's research report titled, *Models for Effective and Scalable Teacher Professional Development* (2009), delineates the need to attend to both content and process when designing effective professional development. They define "effective"

as professional development that leads to measurable improvements in teaching practices, noting that most of the professional development occurring in U.S. schools is not effective by this definition (Thompson & Goe, 2009, p. 2). Based on their findings, they've begun advocating for teacher learning communities as a means of bringing about systemic changes in teacher practice. They specifically support teacher learning that is embedded within the reality of day-to-day teaching and is sustained over an extended period of time, allowing for repeated cycles of learning, practice, reflection, and adjustment (Thompson & Goe, 2009, pp. 3-4). Darling-Hammond and Richardson (2009) also report that a number of studies indicate that stained and intense professional development is required to improve student achievement (pp. 48-49).

In a recent publication titled, *Professional Learning in the Learning Profession: A Status Report on Teacher Development in the United States and Abroad* (2009), the authors outline several features of professional development that are likely to result in improved teacher knowledge, teaching practice, and/or student achievement. Below is a summary of components identified:

- Focused on specific content and pedagogy needed to teach content;
- Part of a coherent whole school reform effort;
- Incorporates active learning;
- Connected to an analysis of teaching and student performance;
- Supported by coaching, modeling, observation and reflective feedback;
- Connected to or part of teachers' collaborative work on learning teams or in professional learning communities (Darling-Hammond et al., 2009).

A comprehensive review of professional development research done in 2010 affirmed that short, episodic learning opportunities have little impact on practice and student performance whereas well-designed professional learning opportunities can improve both practice and student performance (Wei, Darling-Hammond, & Adamson, 2010).

A common thread throughout the research on effective professional development is the need to develop and implement professional learning communities and/or learning teams (Wei, Darling-Hammond, & Adamson, 2010). DuFour & Eaker (1998) depict professional learning communities as schools with a collective vision and guiding principles that encapsulate what the staff believes and what they hope to create. In order for schools to function as professional learning communities they must be committed to continuous improvement and collective inquiry where teams discuss and question one another's beliefs and assumptions and strive to continually grow and improve. It is assumed that knowledge is situated in the day-to-day experiences of teachers and that understanding is further developed through critical reflection with those who have similar experiences (Vescio, Ross, & Adams, 2008). According to Nelson, Slavit, Perkin, and Hathorn (2008), collaborative inquiry where classroom teachers reexamine their underlying beliefs appears to be connected to positive changes in instructional norms.

Hord (2009) explains that members of professional learning communities thoughtfully study multiple sources of student data to determine where students are performing well and where students are not performing successfully. In turn, the team collectively takes responsibility for learning new content and pedagogy to improve their effectiveness. She explicitly notes that learning is not added-on, but is part of a habitual process where teams of teachers continuously learn together (Hord, 2009). Successful

teams direct their energies toward something greater than the individual members. Their priority is the success of the entire team and the collective group of students they serve. According to Stephanie Hirsh the executive director of National Staff Development Council (2009), "Good teaching occurs when educators on teams are involved in a cycle in which they analyze data, determine student learning goals based on that analysis, design joint lessons, use evidence-based strategies, have access to coaches for support in improving their classroom instruction, and then evaluate how their learning and teamwork affects student achievement" (Hirsh, 2009, pp. 10-11).

There have only been few studies that have attempted to draw causal relationships between the work of professional learning teams and increased student performance. In 2008, Vescio, Ross, and Adams conducted a review of research in an attempt to identify the impact of professional learning communities on teaching and student performance. In doing so, they found that the studies they reviewed leave us hopeful that learning communities may provide the shift needed to improve both teaching and learning, though they also argued that additional, rigorous research must be conducted before a strong case could be formulated (Vescio, Ross, & Adams, 2008). The following year, a longitudinal quasi-experimental study examined the impact of the collaborative work of grade level teams on student achievement (Saunders, Goldenberg, & Gallimore, 2009). Researchers reported that nine schools that implemented grade level teaming outperformed six similar schools within the same district on standardized tests. The authors concluded that this success was significantly related to the training of principals and teacher leaders, the implementation of distributed leadership, the explicit use of protocols, and the coherence of district policies and procedures. These findings provide some support for distributed

leadership models in education. However, more importantly, they provide insight into the potential professional learning teams, and effective professional develop can have on student learning and achievement.

Although many schools throughout the country are professing to be professional learning communities, "a great majority of these schools falter in their efforts to truly create PLCs because they are not implementing them appropriately or they do not provide them with proper support" (Rasberry & Mahajan, 2008, p.3). Experience and critical reflection are essential components of successful professional learning communities, but they are frequently over looked or under emphasized. According to Servage (2007), focusing on student work is not enough. "Teachers need time to have conversations about the meaning behind what they do. The opportunity to explore and sometimes debate the philosophies behind our actions generates the sort of creativity and momentum that is critical to sustaining school improvement efforts" (Servage, 2007, p. 14). It is my belief and experience that Lesson Study is a mechanism for making these opportunities accessible.

"Today, about two-thirds of schools and school districts are invested in a system of professional learning that hinders, rather than promotes, great teaching for every student, every day," write Hirsch and Killion (2008) of the National Staff Development Council (p. 24). Ineffective practices include focusing on individual rather than team-based learning; increasing the number of staff-development days rather than restructuring the workday; and creating isolated staff-development plans rather than embedding them in school and district improvement plans. Much of this work has been absent from the purview of schools throughout the United States and may in part be the reason most

schools in the United States have realized minimal improvements in both teaching and learning. These findings also emphasize the urgency to provide schools and educators with more support and explicit research regarding the implementation of effective professional learning practices.

Transformational Learning Theory and Related Learning Theories

Transformative learning theory, perhaps the most noteworthy adult learning theory of our time, supports many of the findings outlined in the professional development and lesson study research. Mezirow (2009) defines transformational learning as a dynamic process that transforms problematic frames of reference to make them more inclusive, open, and capable of change (p.22). According to Mezirow's transformative learning theory is the process of critically reflecting on the assumptions underlying our and other's beliefs that will enable teachers to make sustainable modifications or changes in the way they perceive the world and accordingly carryout their daily work (Mezirow, 2009). Components of transformational learning have been described by many researchers as essential ingredients of effective professional development and school improvement (Hiebert, 1999; Servage, 2008; National Staff Development Council, 2001), suggesting the necessity to incorporate these learning experiences into the daily work of schools. For instance, Servage (2008) believes the tenets of transformative learning theory have much in common with the characteristics of professional learning communities in that both emphasize critical reflection, dialogue in group settings, and transformative changes (p.69).

Although a number of theorists have contributed to the development and understanding of transformational learning, Jack Mezirow has unquestionably led the

way and is the first to propose a fully developed theory (Taylor, 1998). Transformational learning theory is based on the belief that all people have a need to understand their experiences. It is when old paradigms no longer work or make sense that we have an opportunity to make new meaning or change perspective (Merriam & Caffarella, 1999). According to Mezirow (1997), we transform our frames of reference through critical reflection on the assumptions that are the basis for our beliefs, habits of mind or points of view. He contends that adults often focus on the immediate, practical objectives like getting a driver's license, but must also recognize the importance of the long-term goal of becoming a socially responsible autonomous thinker (Mezirow, 1997). It is through this process that one is able to make significant changes in the way he or she perceives the world. According to Mezirow and his associates (2000), transformational learning is the most significant learning in adulthood.

The absence of these experiences for teachers is in part the reason many schools have remained largely stagnant over time. In fact, one study found that the average reading scores of both elementary and secondary students in the United States showed virtually no change since 1980 (Wagner et al., 2006). Tony Wagner (2008) the author of *The Global Achievement Gap* believes our teaching methods and curricula were created for a different time and for a different purpose and that both are hopelessly outdated, highlighting the urgency to find creative ways to facilitate change.

Central to transformational learning is the development and growth of the individual. According to Merriam and Caffarella (1999), "Individual development is inherent in and an outcome of the process" (p. 330). While transformational learning theory focuses on the development of the individual, reflective discourse inherently

suggests a social context for learning. Although Cranton (2009) views critical self-reflection as central to transformative learning, she does not believe this suggests the preclusion of social or affective facets. Learners are not transformed in isolation, even the most critically discerning individuals benefit from listening to the insights of others (Servage, 2008). Ultimately, the success of the organization, or in this case the school, is dependent on the social context of transformative learning where teams work collaboratively to discourse and dialogue with one another as they work toward personal growth and social transformation.

Mezirow explains that "transformative learning may be understood as the epistemology of how adults learn to reason for themselves – advance and assess reasons for making judgment - rather act on the assimilated beliefs, values, feelings and judgments of others" (Mezirow et al., 2009. P. 23). To understand transformational learning theory, one must differentiate it from empirical-analytical theories. Mezirow (2009) suggests that it be viewed as a reconstructive theory that attempts to explain universal conditions and rules about the dimensions and dynamics of adult learning (Mezirow, Taylor and Associates, 2009, p. 21). Fisher-Yoshida (2009) describes transformative learning as viewing the world as a palette of many possibilities and not as a dichotomy of right or wrong (p. 150). In this sense, the learner has or develops a self-awareness of their own perspective and becomes conscious that there may also be a number of equally valid perspectives.

Transformational learning theory suggests that meaningful change will only occur if teachers begin viewing themselves as having the knowledge and power to make changes to instruction and student learning. They must also embrace the processes of

collaboration, critical reflection, and reflective dialogue as effective strategies for learning, changing, and improving both their craft and student performance. Paulo Freire (2009) believes that during the initial stage of empowerment those being liberated often oppress themselves. He contends that this is so because the structure of their thought has been conditioned by contradictions of the concrete (p. 45). This suggests that facilitating changes in professional development will be difficult and may in part be the reason schools have struggled to develop effective learning communities. Brookfield (1995) believes that becoming aware of implicit assumptions that frame how we think and act is one of the greatest intellectual challenges we face. Many teachers are reluctant to examine assumptions that they have lived by for many years only to conclude that their long held beliefs and, in turn, actions don't make sense or are incomplete. Because instructional practices are typically long standing, many teachers are likely to interpret changes or modifications to their beliefs and practices as an admission that they have been doing something incorrect. In some cases, teachers may be examining practices that have been in place for 10 or 20 years. This will be new and difficult teachers as changes in schools have traditional been in the form of directives from the top down. For better or worse, these directives resulted in little or no change and educators have not embraced a philosophy of continuous improvement and growth. To a large extent changes will be reliant on the desire and ability of schools to move away from top-down models utilized in the past and toward distributive leadership models that empower teachers and encourage reflective dialogue and discourse as a means of facilitating change.

The lesson study process is structured in a manner that supports collaborative discourse and the empowerment of teachers. The process encourages teachers to reflect

on their instructional decisions in the context of student learning. Through direct observation and the analysis of student work teachers assess whether or not their instruction plan resulted in the learning outcomes they anticipated. If not, they are empowered to identify and correct instructional flaws. In many cases, the instructional decisions are based on teachers' underlying beliefs about teaching and learning. Theoretically, meaningful modifications or changes can only be made if these underlying beliefs are discussed and potentially modified. These conversations, which are supported by teacher observations and student work, are the basis for and opportunity for teachers to examine their beliefs and reasons for designing their original instructional plan.

Experiential learning and reflection are two cornerstones of transformative learning theory and both have long legacies in the study of adult learning. John Dewey (1938) in his classic book *Experience and Education*, outlines the organic connection between education and personal experience. He explains that although all genuine education comes from experience, not all experiences result in productive learning (Dewey, 1938). In some cases, experiences are actually mis-educative. He outlines how the traditional focus on automatic drill has left students unable to generalize and act intelligently in new situations (Dewey, 1938, p. 27). Cognitive psychologist, Piaget and Brunner have also acknowledged the important connection between experience and learning (Tennant & Pogson, 1995, p. 150). They view learning as an active process where people attempt to make meaning of and understand their experiences. It is when these experiences don't make sense or fit a person's previous understanding of the world that learning can occur.

Chris Argysis and Donald Schon (1974) label learning from experience as either single loop learning or double loop. Single loop learning is where individuals respond to events in their environment in a cumulative way over time. Decisions and responses are dictated by the schema developed from being involved in similar events. Double loop learning occurs when individuals not only respond based on their cumulative schema, but also base their decisions on their reflection on the process by which they learn from those events. So for example, single loop learning might involve how a school principal's cumulative experience effects how they communicate observations of instruction to teachers. Double loop learning would take the principal's experience and subject it to a reflective analysis. He or she may in turn ask what they learned from the event or what it suggests about their practice. Schon and Argyris (1974) argue that fluent practitioners of single and double loop learning are distinguished by "reflection in action." They emphasize learning from experience that entails reflecting during the experience itself. Basically, the belief being that significant learning occurs when one reflects on his/her intuitive knowledge in the midst of practice.

Building on the early work of Dewey and Piaget, David Kolb identified the following four steps in the learning cycle: concrete experience; observation and reflection; abstract ideas and generalizations; and testing implications and application (Knowles et al., 1998, p. 147). Kolb viewed these steps as being interrelated within a cyclical process. The action that is taken in the final step in turn becomes the experience which initiates the experiential learning cycle. Similarly, Jarvis believes that learning comes from experiences and that learning involves transforming experiences into knowledge. However, he contends that all experience must occur within a social context

and he outlines nine possible paths which a person may take as a result of a social experience (Merriam & Caffarella, 1999). Some responses may lead to learning and the acquisition of knowledge, while others may not. The three actions that result in higher forms of learning all involve reflection and thinking about what is being learned.

Taylor (2009) explains that individual experience is the primary medium for transformative learning and the second core element is the promotion of critical reflection. According to Mezirow (2000), critical reflection is a distinguishing characteristic of adult learning and refers to the questioning of deeply held beliefs based on prior experiences. Theoretically, this has the potential to occur during the lesson study process as teams critically and collaborative examine instruction and reflect on both student outcomes and the teams instructional decisions. Brookfield (1987) writes, "Thinking critically-reflecting on the assumptions underlying our and others' ideas and actions, and contemplating alternative ways of thinking and living-is one of the most important ways in which we become adults" (p. x). Hence, combining teacher experience with reflective dialogue about their underlying beliefs can potentially be one of the most powerful ways for teachers to improve and grow professionally.

Lessons Study

Lesson study, known in Japan as *jugyokenku,* is the core process of professional learning used by Japanese teachers as they to continually work to improve instruction and the educational experience for students (Yoshida, 2005). Yoshida (2005) reports that lesson study has played a key role in transforming teaching in Japan and has helped to significantly improve student learning. Lewis (2002) proclaims that lesson study has been a critical factor in facilitating educational innovation in Japan. Additionally, Matura

(2011) contends that lesson study in Japan has effectively connected theory to practice and helped teachers develop a deeper understanding of content and student thinking.

Although the origins of lesson study can be traced back to the early 1900's, the most common version utilized in Japan became well established in the 1960's (Fernandez & Yoshida, 2004). As this grassroots initiative gained popularity and support, the Japanese government began supporting the practice, encouraging participation by offering schools financial assistance and initiatives. It is estimated that today the vast majority of elementary schools and many middle schools in Japan conduct lesson study (Fernandez & Yoshida, 2004). At times, lesson study is conducted as part of school-based professional development, which is called *konaikenshu* (Stepanek et al., 2007). However, in Japan, lesson study often occurs on a mid-scale, district level and on a large-scale, national level (Mutata, 2011).

At the start of the 21st century, lesson study was largely unknown in the United States (Fernandez & Yoshida, 2004). However, this is no longer the case. The success of Sigler and Heibert's book entitled *The Teaching Gap: Best Ideas from the World's Teachers for Improving Education in the Classroom* has brought with it a growing interest in lesson study (Lewis, 2002). In 2002 it was one of the foci for the Ninth Conference of the International Congress on Mathematics Education and has since been implemented in numerous countries and the topic of discussion at dozens of international conferences (Murata, 2011).

Lesson study incorporates many of the characteristics researchers have identified as being necessary for effective professional development and also encompasses key underpinnings of transformational learning theory (Darling-Hammond, Wei, Richardson,

Andree, & Orphanos, 2009; Mezirow, 2009). For example, it incorporates the ongoing collaboration of teachers; possess the explicit goal of improving student learning; is grounded in curriculum and pedagogy; and provides teachers with the opportunity to actively participate in observations, reflection, and dialogue about instruction. According to Lewis and Hurd (2011), it occurs in an authentic and motivating context (the classroom) and provides an ongoing method for discussing, observing, and analyzing teaching and learning. The idea is simply that teachers come together to investigate a shared question about their students' learning (Hart, Alston, & Murata, 2009).

Although implementation of lesson study in the United States is relatively new and research is somewhat limited, recent studies have identified a number of positive outcomes for teachers as well as the challenges realized during implementation. For example, Olson, White, and Sparrow (2011) concluded that lesson study provides a sound structure for teacher professional develop and advocate for its use in schools. However, they also identified a number of factors that may limit its success: teachers traditionally work in isolation and don't share experiences; collaboration about practices and beliefs can be uncomfortable for many teachers; and the current focus on high-stakes-mandated tests creates tensions for teachers that want to explore and investigate innovative practices (Olson, White, & Sparrow, 2011). Another study reported that there is measurable value for participating teachers, their students, and the schools they work in, but that when teachers are invited to participate, only a small number are willing and able to commit the time and effort required (Alston, Pedrick, Morris, & Basu, 2011).

One study conducted with a group of fifth grade teachers implementing Investigations Mathematics Curriculum indicated that the collaborative nature of lesson

study resulted in an emergence of teacher content knowledge, teacher pedagogical knowledge, and changes in teacher beliefs about instruction (Kamina & Tinto, 2011). These findings are supported by a study conducted by Fernandez and Zilliox (2011) which investigated the use of lesson study with prospective mathematics teachers. In this case, researchers concluded that lesson study assisted prospective mathematics teachers in better understanding and implementing reform-oriented mathematics instruction and facilitated modifications to participants' beliefs about teaching and learning (Fernadez & Zilliox, 2011). A longitudinal study conducted from 2000 to 2006 identified a number of ways in which teachers learned and grew from participating in lesson study: some learned new instructional strategies; others came to appreciate the benefits of working collaboratively; and some participants reported benefiting from shifting their focus from the activity at hand to the learning goals for students (Lewis, Perry, Hurd, & O'Connell, 2006). This same study also identified significant improvements to student performance on state mathematics achievement tests. In fact, they found that the net increase in the mathematics performance of students that stayed at the school they studied was triple that for students that remained at other schools in the same district. Although the authors did not claim a causal relationship, they did state that the only difference they were able to identify between the schools was the structure and form of the professional development offered.

In a collaborative study between the United States and Japan, researchers concluded that teachers in the United States will need to overcome a number of substantial challenges in order to make lesson study purposeful and powerful (Fernandez, Cannon, & Chokshi, 2003). Researchers noticed that Japanese teachers approached

lesson study very differently than teachers from the United States. Based on their analysis, they identified habits of mind that were present for the Japanese teachers, but absent from teachers in the United States. They view the three habits of mind as critical lenses: the researcher lens, the student lens, and the curriculum developer lens. Throughout the study, researchers observed Japanese teachers continually encouraging the American teachers to view themselves as researchers, asking questions and seeking answers to problems of practice. They also observed Japanese teachers encouraging American teachers to critical examine the sequence and content of student learning. This is what the researches described as the curriculum developer lens. Another study also provided a detailed account of the cultural and educational differences between Japanese teachers and those in the United States, noting teachers from the United States were not comfortable being observed and where often defensive when their ideas were challenged (Hart & Carriere, 2011). Both studies reported the importance of providing teachers with active facilitators who are knowledgeable about the lesson study process and embrace its core values (Hart & Carriere, 2011; Fernandez, Cannon, & Chokshi, 2003). Although both these studies identify implementation challenges for teachers in the United States, they also indicate that with proper support successful implementation can occur. Fernandez et al. (2003) believe that teachers in the United States need to move beyond the current view that lesson study is completely teacher-led to one that includes knowledgeable facilitators who can assist in moving their lesson study practice to richer more meaningful levels.

Discussion

Guskey (2009) reports that in the history of education, all accounts of successful school improvement included thoughtfully planned and well-implemented professional development (p. 226). Given this piece of information, it seems logical to conclude that the successful development of teachers is critical to the improvement of student performance. Developing professional learning communities in schools provides the vehicle for integrating transformational learning theory into teachers' professional development. However, based on recent efforts, one can expect implementation to be both complex and challenging. Transformative learning for teachers requires that they critically evaluate, discuss, reflect and revise their core beliefs about learning, their students, their teaching and their schools. Through teacher participation in this process they can begin to critically evaluate the rationale for proposed practices and the underlying conceptual understandings that drive their actions. Teachers identify problems of practice, participate in collaborative discussions, and evaluate existing assumptions in an attempt to identify and understand discrepancies between current actions and underlying beliefs. In the end, systemic changes are put in the hands of the practitioners, which theoretically is necessary if schools are to make transformative changes.

Moving to a model based on transformational learning may seem like an obvious solution for facilitating much needed school change. However, in many cases, the discrepancy between a transformative model and the existing one is so significant that it brings with it many challenges. Mezirow himself said that significant learning is threatening, emotionally charged, and extremely difficult (Mezirow, 1997). Historically,

teachers have largely worked in isolation and/or have not been asked to consider or discuss the underlying issues of public education. According to the factory model that remains prevalent in public education, "it is management's responsibility to identify the one best way, train workers accordingly, and then provide the supervision and monitoring needed to ensure that workers would follow the prescribed methods" (DuFour & Eaker, 1998, p. 20). This has commonly resulted in professional learning experiences that follow a conference/lecture format where an outside expert exposes his or her knowledge to a group of teachers. It has also conditioned teachers to have a limited view of professional learning experiences.

Recently, researchers and authors have begun exploring ways to put transformative learning and critical reflection into practice. Patricia Cranton (2009) contends that the first step in developing critical reflection is to expose people to different perspectives (p. 185). For example, if educators are discussing student engagement and meaningful learning experiences, they might be asked to contemplate a time when they failed to engage students. These experiences can be used to analyze the actions and emotions of the unengaged student and to create an experience where the student's perspective can be explored. Many of the contributors of *Transformative Learning in Practice* discussed the importance of explicitly modeling transformative practices (Mezirow et al., 2009). For example, Brookfield explains that when planning instruction on critical reflection, "The importance of modeling is always at the forefront of my mind. It has long been a tenet of my teaching that before I ask any students to do something, I first show how I am trying to do it" (p. 131). Understanding and being able to facilitate these activities may be instrumental in supporting teachers as they face the challenges of

changing long standing beliefs and practices. In fact, this is consistent with the lesson study research that supports the use of knowledgeable others and the use of facilitators to effectively support reflective discourse and the critical examination of practice (Fernandez, Cannon, & Chokshi, 2003).

To a large extent schools and professional learning communities have focused on improving what the school and teachers are already doing (Servage, 2008). The former assistant secretary of education, Diane Ravitch, argues this focus has resulted in a preoccupation with testing and a dumbing down of standards (Ravitch, 2010). In any case, this narrow focus leaves many unanswered questions and does provide teachers with opportunities to dialogue and discuss deeper educational issues. Does the overwhelming quantity of the curriculum prevent learning opportunities that foster deeper understanding and critical thinking? Is getting the correct answer more important than developing conceptual understanding? Do our current practices serve all children? Does improved performance on standardized tests represent a complete picture of the learning goals we have for our students? What can be done to address racial and economic performance gaps? Many of these systemic problems or questions in education seem to go unaddressed or remain outside the scope of most professional learning communities and school improvement efforts.

Theoretically, transformational learning experiences for teachers are necessary if we expect significant changes in educational practices and improvements in student performance. If this is true, teachers must begin participating in a process that unmasks the assumptions that drive their current actions and evaluates the value of their day to day work. Combining Mezirow's transformational learning theory with the institutional

learning theory of sustained learning communities provides a promising amalgamation for systemic and sustained school improvement. However, educators are faced with the pragmatic challenge of making a significant paradigm shift and creatively integrating these practices into their daily work.

There are gaps in our knowledge of how to successfully implement transformational learning experiences and develop professional learning communities in schools. Nonetheless, the use of lesson study in the United States may provide educators with some insight. Lesson study is a prescribed mechanism that provides the structure and guidelines for examining teaching and learning, fostering reflective discourse, and facilitating instructional change. It examines learning through the eyes of the students and allows teachers and administrators to share in instructional decisions as well as the accountability of student performance. The purpose of this study is to illustrate how lesson study has fared as an import into American schools and the impact it has on professional learning teams and individual teachers. Administrators, teachers, and policymakers who seek to improve schools by developing professional learning communities can benefit from this study by gaining insight and understanding into lesson study and its role and impact on professional learning teams and the collective and individual growth of teachers.

Murata (2011) reports that although there has been significant interest in this form of professional development, it remains at the early stages of adoption in the United States and that we do not yet have a shared understanding of how lesson study works in different contexts. Gusky (2009) contends that in order to make improvements in professional development, educators must develop active partnerships with researchers as

well as conduct and initiate their own research (p. 228). The call for additional research has also been identified by the National Staff Development Council who recently stated, "The field of professional learning requires additional research and evaluation studies that examine the interaction between the effectiveness of the professional learning and its effects on educator practice and student learning" (Mizell, Hord, Killion, & Hirsh, 2011). This study attempts to add to the existing body of research regarding teacher professional development and more specifically, lesson study. It engages teachers as active participants and aims to describe how the teachers at one suburban elementary school in the United States launched, organized, and structured their work, as well as how they interpreted and perceived the lesson study experience.

Chapter III

Methodology

The purpose of this research study is to paint a detailed portrait of how two teams of teachers at a suburban elementary school in the United States launched, organized, and structured lesson study, as well as how participants interpreted and perceived the lesson study experience. It also examines how lesson study supports teachers' professional learning and the development of collaborative teacher teams. In doing so, it attempts to answer the following research questions:

1. What does the lesson study experience look like at one elementary school in the United States?
2. How does lesson study support and influence school based professional learning teams?
3. How does and to what extent does the lesson study experience impact individual teacher's perceptions and beliefs about teaching, learning, and working collaboratively?

Setting and Participants

The setting for this study was a public elementary school in Southern New England. I will refer to this site as Law Elementary School (LES). Law Elementary School houses approximate 450 students and services grades pre-k to four. It is located in a suburban town that has three elementary schools, a middle school, and a high school. At the time this study was conducted, over twenty-five percent of the students at Law Elementary School received free or reduced lunch and over fourteen percent of the students were English language learners. These students came to LES from over twenty-two different countries and spoke twenty different languages. Seventy-two percent of the

students at LES were Caucasian and twenty-eight percent were students of color. Asian Americans and students of Hispanic decent comprised the two largest groups of color, each making up 12% of the student population. Below is a table depicting student demographic data from 2001 to 2010:

Table 1

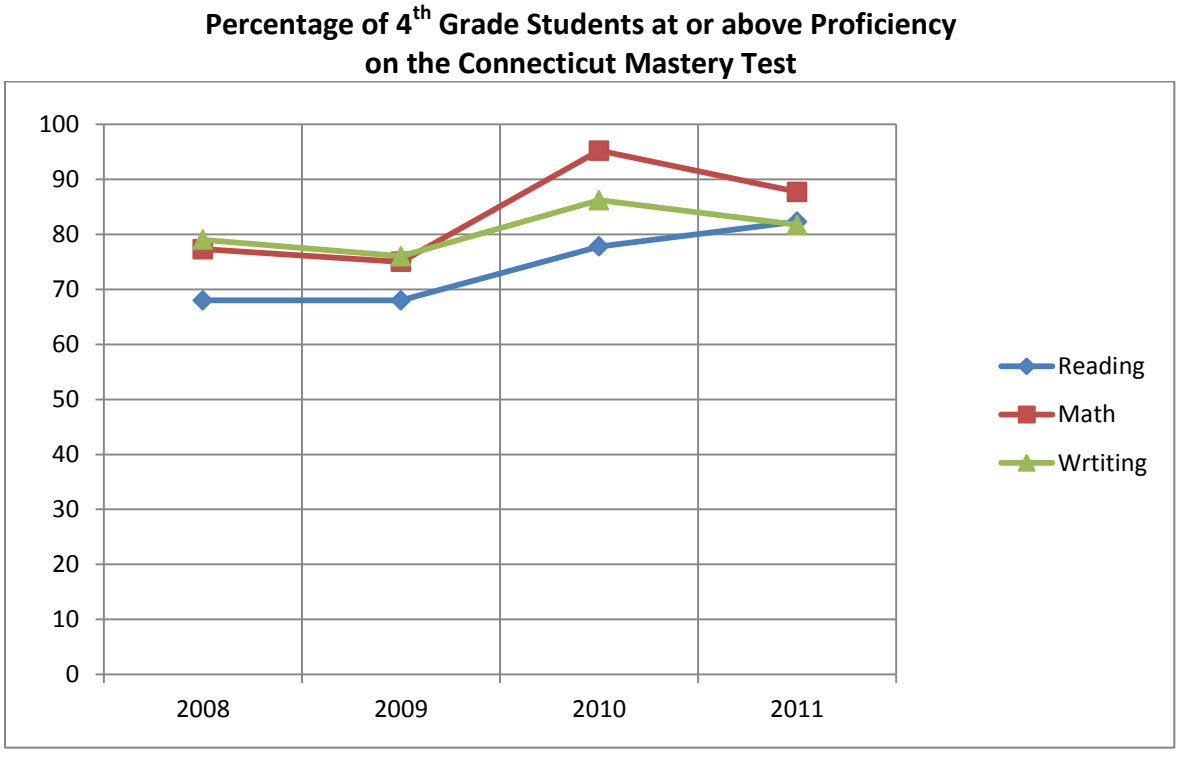
Year	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10
% of Students Eligible for Free/Reduced Lunch	12.8	14.5	12.4	20	20.2	22.5	21.9	26.9	27.7
% of Students Receiving ELL	3.8	5.2	6	11	8.3	10.2	9.9	9.6	12.1
% of Students who Attended School Previous Year	95.4	90.5	90.1	91	94.3	74.7	76.5	83.3	80.5
% of Students Special Education	9.6	11.3	12.2	14	11.6	11.3	11.8	7.3	10.6
% Minorities	17.2	19.3	20.2	21.8	24.9	26.4	25.5	28.1	30.3
%Race/Ethnicity									
Asian	9.4	11.5	11.8	11.3	11.9	12	9.9	11.7	12.9
Black	2.5	2.4	4	5.9	6.9	4.5	5.5	4.4	4.6
Hispanic	5.4	5.2	4.4	4.5	5.9	9.4	9.6	11.5	12.7

White	82.8	80.7	79.8	78.2	75.1	73.6	74.5	71.9	69.7

This data clearly portrays a school whose student demographics have been changing. Most notable of these trends is the significant increase in minority students, ELL students, and students that receive free or reduced lunch. However, another important statistic is the decrease in the percentage of students who attended the same school last year, as this is an indication of an increase in student transiency.

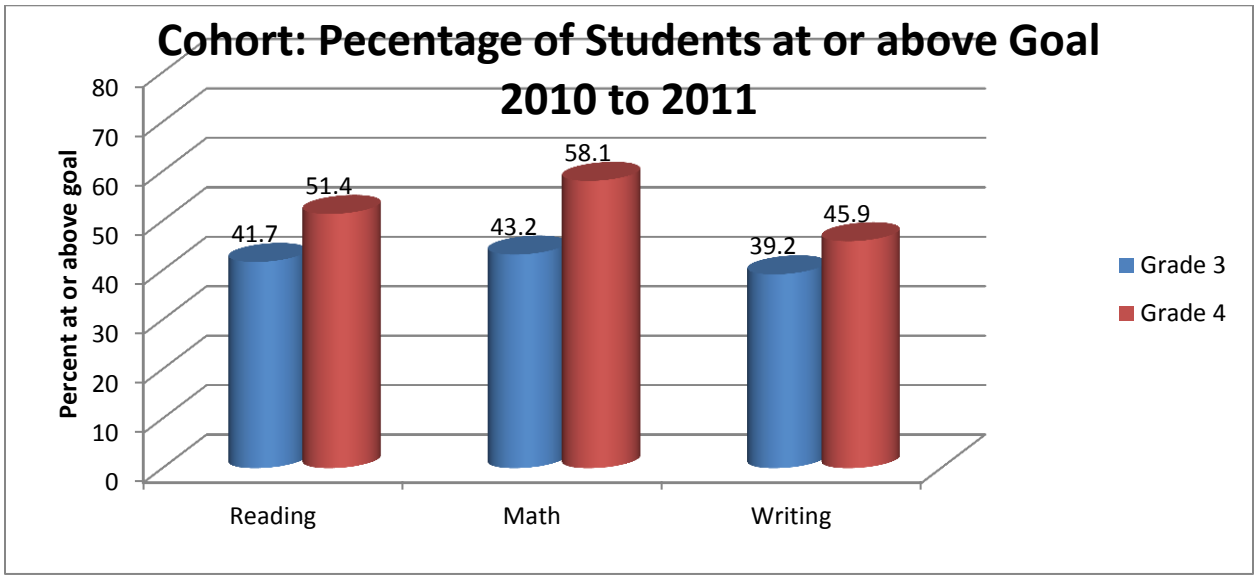
Student Performance on Standardized Test (Connecticut Mastery Test) At Law Elementary School students in grades 3 and 4 take the Connecticut Mastery Test each year. Students are assessed in reading, writing, and mathematics. Based on their individual scores, students are categorized as performing at one of five levels: below basic, basic, proficient, goal, or advanced. Figure 1 below depicts the percentage of students in 4th grade at or above the proficient level on the CMT from 2008 to 2011:

Figure 1



The graph below tracks the performance of a cohort of students from when they initially took the CMT in grade 3 (March 2010) to the subsequent time in grade 4 (March 2011).

Figure 2



Based on Figures 1 and 2, one could argue that student performance is trending upward and that the longer students stay at Law Elementary School the better they perform. I believe to some degree this accurate as well as encouraging, especially in light of the changes in student demographics. However, using one metric as the sole means of evaluating student performance should be cautioned. Standardized tests provide important information, however they should be considered one component of a more comprehensive evaluation of student and school performance.

Setting the Stage Prior to utilizing lesson study at this school, Law Elementary School attempted to develop professional learning teams by providing common times for teachers to meet each week as well as ongoing opportunities to learn and discuss new instructional strategies. Teachers also began to participate in learning walks where they collected and discussed information about teaching and learning by visiting a number of classrooms in the school. Although these efforts resulted in some benefits to teachers and

some improvements to student performance, there were times the work was disjointed and in most cases required consistent facilitation. Some teachers struggled to work collaboratively and/or embrace many of the new teaching strategies being implemented. Perhaps this was partially due to the fact that most of the initiatives were coming from the top down. However, even when teachers were given choices about the content of their work they struggled to collaborate in meaningful ways, frequently spending significant portions of the meetings on trivial or managerial issues.

These opportunities were intended to provide teachers time to have ongoing conversations about teaching and learning. However, in many cases they lacked structure and/or consistent expectations. To address this concern, teams began developing and using meeting norms and protocols. This helped to improve how some teams functioned and provided strategies for how teams could collectively analyze assessments, but it didn't provide a consistent structure that continuously pressed teachers to improve teaching and academics performance. I sensed the need to provide teachers with more power and control. However, when it was simply turned over to them, they floundered and weren't sure what to do. It seemed as though teachers needed more scaffolding and support before they could take this work on independently. As I contemplated how this could be achieved, I was approached by a team of teachers who had recently attended a lesson study conference. This meeting was the catalyst for lesson study at Law Elementary School. Although the above depiction may seem like a series of unsuccessful attempts to develop collaborative teams, I believe these opportunities provided the conditions for successful implementation of lessons study. They allowed teachers the opportunity to observe one another and begin having conversations about instruction and

learning. Teams started to establish common expectations for students and began to appreciate their time together.

In order to better understand the setting of this study, there is also a need to consider the way staff development was structured in the school district and at Law Elementary School. Most of the data analysis and lesson planning conducted by teacher teams occurred during professional develop time scheduled by the district. The district provides three full-days for teacher professional development and ten early release days, one per month. On these days students are dismissed from school at 1:15 PM and teachers remain until 4:30 PM to participate in professional learning activities. Most of this time is utilized to address school based goals and goals established by grade level teams. However, from time to time these days are dedicated to district agenda items.

Law Elementary School is the only school in the district that has been utilizing lesson study as a mechanism for addressing both school and grade level team goals. Although a small portion of the professional develop sessions involved working and sharing as collaboratively as a staff, most of the time was allotted to the active participation and work of teams. During this study there were five lesson study teams: a kindergarten team, a first grade team, a second grade team, a third grade team, and a fourth grade team. Each team was comprised of the classroom teachers at a particular grade level and frequently included a reading or mathematics specialist, a special education teacher, and administrator. On scheduled professional development days, teams met simultaneously so the instructional specialists and the principal rotated between meetings. However, when the research lessons were taught, substitute teachers

were provided and administrators and instructional specialists remained for the entire session.

Who were the study participants? Two of the five grade level teams at a Law Elementary School. One lesson study team was comprised of four first-grade teachers, a reading teacher, the school principal, and a special education teacher. The other team was made up of four fourth-grade teachers, a reading specialist, the school principal, and the school's mathematics specialist who served as a facilitator of the process.

How were participants selected and given assurances of their participation? Upon receiving approval of my study by Lesley University's Institutional Review Board, I solicited volunteers for my study. Teams participated on a voluntary basis. To assure participation was strictly voluntary participants were notified in person of the details of the study and succinctly informed of the voluntary nature of their involvement. This was reiterated via electronic mail and again on an informed consent form that was completed by all participants. As part of this process, participants were also notified that they could withdrawal from the study at any time without consequence.

The identities and names of the participants have remained confidential during all aspects of data analysis and reporting. However, some historical and demographic data about the school and the participants is included in the research report. Participants were made fully aware of their rights to confidentiality and anonymity and received full disclosure of the process and intent of the study. Participants were informed that pseudonyms would be used in any and all reports produced. All those invited to participate were informed both orally and in writing that they could refuse participation in any aspect of the study or could terminate participation whenever they please.

Participants were not at risk of increased stress or harm due to their participation in this study. Although some of the teacher teams originally invited to participate opted not to do so, none of the participants terminated participation once the research study initiated.

Table 2

Summary of Participants

Name	Position	No. of Years Teaching	Lesson Study Team
Tammy	First Grade Teacher	23	Grade 1
Eleanor	First Grade Teacher	18	Grade 1
Larissa	First Grade Teacher	5	Grade 1
Kim	First Grade Teacher	4	Grade 1
Margret	Special Education Teacher	31	Grade 1
Aura	Reading Specialist	18	Grade 1
Jim	Principal	8 teaching, 10 principal	Grade 1 & Grade 4
Lauren	Mathematics Specialist	6 (math specialist)	Grade 1 & Grade 4
Marc	Fourth Grade Teacher	5	Grade 4
Paul	Fourth Grade Teacher	8	Grade 4
Norma	Fourth Grade Teacher	20	Grade 4
Amy	Fourth Grade Teacher	3	Grade 4
May	Reading Specialist	21	Grade 4

Helen	Special Education Teacher	16	Grade 4

Rationale for Qualitative Methods

A qualitative design was selected for this research study. This was based on the nature of the research questions and the desire to develop an in-depth understanding of the lesson study process. It applies the design and methodology of a case study with the goal of collecting enough information about two lesson study groups to understand how the groups function and learn. According to Creswell (2007), case study research, is situated contextually in order to understand the central phenomenon occurring without making the study evaluative or attempting to generalize the findings. Because case study research places the investigator in a real life context and utilizes a various sources of data to make meaning, it was chosen over other types of qualitative methods.

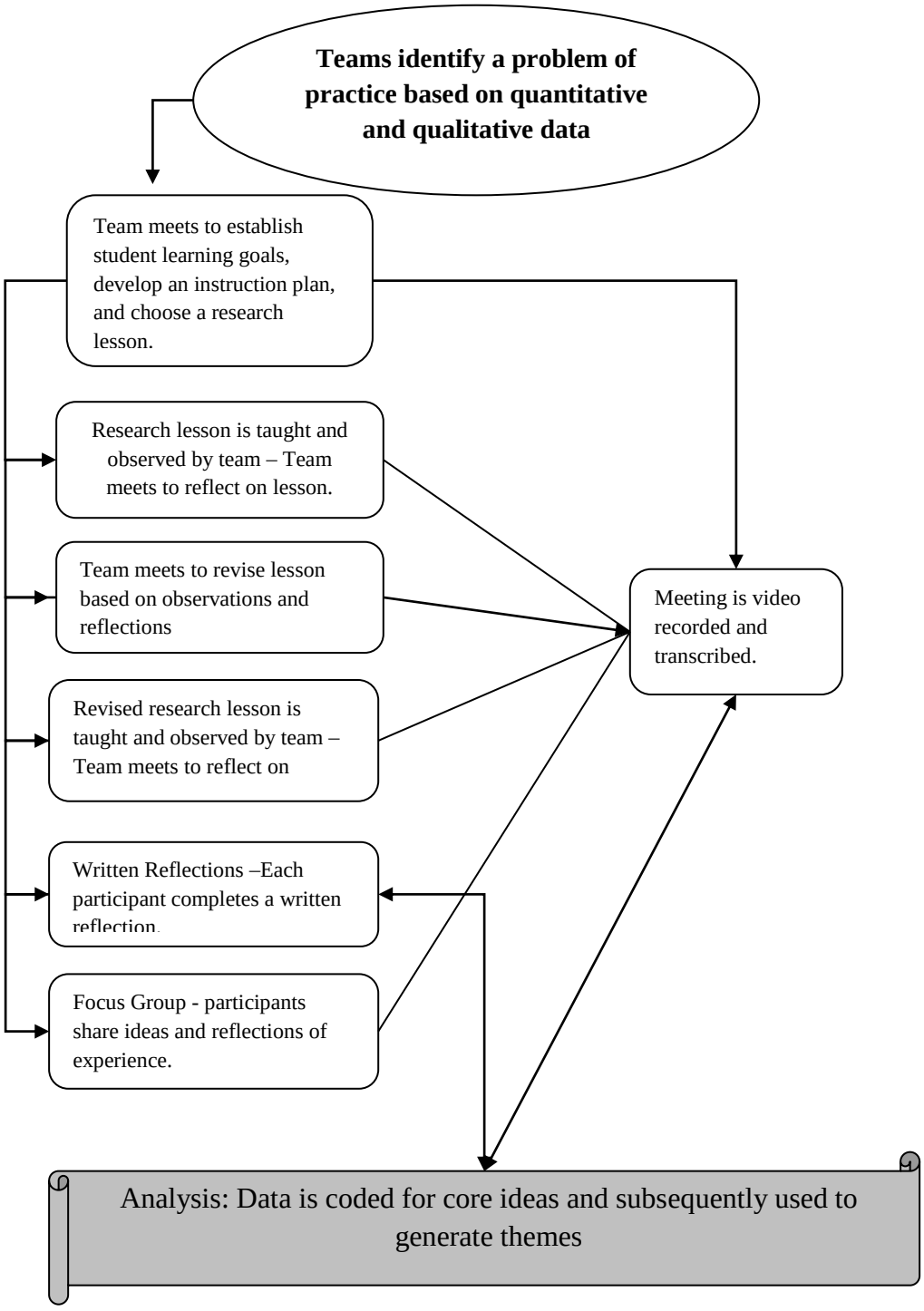
Role of Researcher

Because I was both the primary researcher and the direct supervisor of those involved in the study, I feel the need to address concerns of potential influence. Although there is reason to acknowledge concern regarding power relations and the potential influence associated with this configuration, the fact that participation in lesson study was originally initiated by teachers and participation was voluntary significantly reduced the potential for influence due to my supervisory role. Additionally, I incorporated numerous data points in an attempt to triangulate data. My initial analysis and conclusions were shared with participants for feedback and accuracy. Feedback from participants was in turn utilized to make modifications to my initial findings and report.

Power and authority influences inherently exist between teacher and principal. However, this relationship is representative of the nature and reality of how schools are structured and operate. Although insider research conducted by school administrators often brings about ethical and methodological issues, it also offers a much needed source of knowledge production in the field. Anderson and Jones (2000) contend that traditional educational research has resulted in little impact on practice, proclaiming that knowledge produced by business schools is having a greater impact on school systems than educational research. For this reason, it is critically important that researchers and educators begin enlarging the spectrum of research that might inform the field. I believe that intentional, systematic inquiry by inside administrators has the potential for challenging, confirming, and extending current theory and bringing about new areas of discourse to the field. This is supported by Anderson and Jones (2000) who concluded that research studies that place one's own practice at the center to be those with the greatest potential for individual, professional, and organizational transformation.

I believe efforts to make participation voluntary; the use of a participant checking; and the use multiple data sources significantly minimize the impact of power and authority. Additionally, participants were informed that the intent of this study is not evaluative, but solely to garner a deep understanding of the lesson study process.

Figure 4: Research Design



Data Collection and Analysis

During and following data collection I conducted a theme-based analysis using a qualitative data analysis process that included: coding core ideas and identifying themes. The validity and reliability of the study is strengthened by the use of several data points and the consideration of multiple perspectives shared by participants.

In an attempt to develop a deep and rich understanding of the lesson study practice, I took on the role of participant/researcher. In doing so, I gathered and analyzed data produced throughout the process and relied on naturalistic, highly interactive data collection methods. According to Patton (1990) the naturalistic evaluator works back and forth between data and classifications in an attempt to verify meaning and accuracy and this is exactly what I did. As I collected data I began looking for recurring regularities in the data. These regularities represent patterns that where then coded into core ideas. Core ideas were in turn analyzed and utilized for theme construction.

I observed both lesson study groups for one lesson study cycle. Data collection commenced the first week of September 2011 and concluded the last week of November 2011. Data collection included video recordings and transcriptions of team meetings; a compilation of documents produced during the process; video recordings and transcriptions of focus group discussions; and participants' written reflections.

The first phase of data collection and analysis entailed video recording and transcribing team meetings. I attended and recorded the initial planning meeting for each team. I also observed and participated in the initial research lessons. Following each research lesson an hour long debriefing was conducted which I participated in and video recorded. After the debriefing, the team met once again for approximately two hours to

revise the initial research lesson. This meeting was also video recorded. Transcriptions of all recordings were made and coded for core ideas which were subsequently analyzed to generate themes.

The second phase of this research study involved collecting and analyzing the written reflections of participants. After the completion of the lesson study experience, but prior to the focus group discussions, participants individually completed written reflections. Participants responded to the following open-end prompt: *After designing and delivering both lessons, please prepare a written reflection of your experience. Be sure to include any new or modified knowledge about instruction, learning and/or content. Also include your reflections of the process and whether or not and how the process has affected your team and you individually.* Upon submission, written reflections were also coded for core ideas and themes.

After the completion of the lesson study cycle and the submission of written reflections, each teacher team participated in a separate focus group discussion. These meeting were video recorded and transcribed. The main objective of these sessions was to obtain detailed information from participants regarding their experience throughout the lesson study process. During these meetings, I viewed myself, the researcher, and the participants as having a mutual influence on each other: The participants taught me (the researcher) about their perspective, and I influenced the participants through the use of probes to help the participant explore his or her experiences. I viewed my role as a trustworthy reporter trying to uncover the participants' true feeling and reactions about their experience. Below are the guiding questions that were utilized. However, from time to time additional probing questions were added to elicit elaborated responses.

Focus Group Questions:

1. Based on your participation in lesson study, how would you describe your experience to someone unfamiliar with the process?

2. How was participation beneficial to you and/or your team?

3. What part of the process did you find challenging or frustrating?

4. What part of the process would you change or modify?

5. How has participation in this process changed or modified your beliefs about teaching and learning?

6. Is there anything else you would like to share that would help me to understand your experience with lesson study?

Transcriptions of these meetings were also coded for core ideas and themes. Ultimately, trends identified from team meetings were compared to themes generated after analyzing teachers' written reflections and data collected from focus group discussions. Atlas Ti, a qualitative software analysis tool, was utilized to carry out an inductive analysis. According to Patton (1990), "Inductive analysis means that the patterns, themes, and categories of analysis come from the data; they emerge out of the data rather than being imposed on them prior to data collection or analysis."

As I read, reread, and studied the raw data, I created codes or categories that helped me to make sense of the data. At times I coded the raw data using multiple codes and on other occasions I modified or changed codes as patterns and themes emerged. As themes emerged from the research data, I constructed an organizational system that allowed me to identify patterns that were common to multiple data sources and/or both

cases. Throughout this process, I continuously made reflective memos which served as a way to document my ideas, questions and insights.

Table 3

Meeting times allocated to the lesson study research team for: planning, observation, and debriefing meetings

Meeting Dates Grade 1 Team	**Meeting Activities**	**Total Meeting Time (hours)**
September 14, 2011 1:30 - 4:30	Whole School Meeting – Training • Components of Lesson Study • Review of State Common Core Standards • Planning Forms, Timelines, Starting with Objectives	3.0
September 29, 2011 9:30 – 11:30; 1:30-2:30	Lesson Study Group Meeting • Reviewing Grade Level Standards • Planning Unit and Lesson	3.0
September 29, 2011 11:30 – 12:00; 2:30-3:30	Meeting with other Teams • Sharing Focus and Rationale • Receiving and Giving Feedback • Receiving and Asking Clarifying Questions	1.5
October 12, 2011 2:00 - 4:30	Lesson Study Group Meeting • Planning Research Lesson	2.5
November 8, 2011 8:30-12:00	Grade Level Meeting • Planning Research Lesson	3.5
November 16, 2011 8:15-9:15	Pre-Lesson Meeting	1.0
November 16, 2011 9:15-10:15	Presentation of Research Lesson	1.0
November 16, 2011 10:30-11:30	Formal Lesson Colloquium	1.0

November 16, 2011 2:00-4:30	Revise Initial Lesson	2.5
November 21, 2011 8:15-9:15	Pre-Lesson Meeting	1.0
November 21, 2011 9:15-10:15	Presentation of Revised Research Lesson	1.0
November 21, 2011 10:30-11:30	Formal Lesson Colloquium	1.0
January 4, 2012 8:15-9:15	Focus Group Discussion	1.0
Meeting Dates Grade 4 Team	**Meeting Activities**	**Total Meeting Time (hours)**
September 14, 2011 1:30 - 4:30	Whole School Meeting – Training • Components of Lesson Study • Review of State Common Core Standards • Planning Forms, Timelines, Starting with Objectives	3.0
September 29, 2011 9:30 – 11:30; 1:30-2:30	Lesson Study Group Meeting • Reviewing Grade Level Standards • Planning Unit and Lesson	3.0
September 29, 2011 11:30 – 12:00; 2:30-3:30	Meeting with other Teams • Sharing Focus and Rationale • Receiving and Giving Feedback • Receiving and Asking Clarifying Questions	1.5
October 12, 2011 2:00 - 4:30	Lesson Study Group Meeting • Planning Research Lesson	2.5
October 31, 2011 8:15-9:15	Grade Level Meeting • Planning Research Lesson	1.0
November 7, 2011 8:15-9:15	Grade Level Meeting • Planning Research Lesson	1.0
November 10, 2011 3:30-5:00	After School Meeting • Finalize Initial	1.5

	Research Lesson	
November 15, 2011 8:15-9:15	Pre-Lesson Meeting	1.0
November 15, 2011 9:15-10:15	Presentation of Research Lesson	1.0
November 15, 2011 10:30-11:30	Formal Lesson Colloquium	1.0
November 16, 2011 2:00-4:30	Lesson Study Group Meeting • Revise Initial Research Lesson	2.5
November 17, 2011 8:15-9:15	Pre-Lesson Meeting	1.0
November 17, 2011 9:15-10:15	Presentation of Revised Research Lesson	1.0
November 17, 2011 10:30-11:30	Formal Lesson Colloquium	1.0
January 9, 2012 8:15-9:15	Focus Group Discussion	1.0

Data Collection and Analysis Summary:

1. I actively participated in three lesson study meetings for two separate groups of teachers. Each meeting was video recorded and transcribed. The meetings entailed reviewing grade level standards and assessments; choosing specific and measurable learning objectives; developing lessons; reflecting on observed lessons; and revising original lessons. After each meeting was video record, it was transcribed and coded for core ideas and themes. This process entailed interpreting data through coding, systematically searching data to identify and/or categorize specific observable actions or characteristics. These observable actions then became the key themes of my study.
2. A document review of items produced by individual participants, students, and the collective team was conducted. Documents included lesson plans produced

during the process, charts produced during meetings, and student work generated during lessons.

3. Upon completion of the lessons study cycle, each participant produced a written reflection detailing their experience.
4. After individual reflections were completed, each team of teachers participated in a separate focus group discussion. These discussions were video recorded and transcribed. Transcriptions were then analyzed following the same process outlined above.
5. A detailed narrative of each team's experience was produced.
6. Narratives were then shared with participants for feedback and accuracy. Feedback from participants was utilized to make revisions.
7. Core ideas and themes from both team's experiences were compared for similarities and differences. A detailed account of this analysis was produced and reported.

Chapter IV

Data and Analysis – Case Studies

Introduction

This chapter presents the data and findings of my research. It focuses on two lesson study teams from Law Elementary School that met during the fall of 2011. Data collected and presented draw from transcripts of meetings, written reflections completed by each participant, and transcripts of focus group discussions. Lesson study reports produced by both teams were also utilized as supporting data. The validity and reliability of the study is strengthened by the use of several data points and the consideration of multiple perspectives. Member checking was also employed as a means of maintaining accuracy. All data collected was coded into categories and themes using a qualitative data analysis process. The research questions guiding my study were:

- What does the lesson study experience look like at one elementary school in the United States?
- How does lesson study support and influence school based professional learning teams?
- How does and to what extent does the lesson study experience impact individual teacher's perceptions about teaching, learning, and working collaboratively?

The first research question is the larger overarching question of this research study. Although it is not addressed individually, it is in part answered through the narrative accounts of each case. The question is also answered through the examination of the remaining two research questions.

This chapter is divided into three sections. Section one focuses on one of the case studies and examines the data collected from the fourth grade team. The second section is an analysis of the data collected from the first grade team. Section three is a cross-case comparison. Data produced was gathered in a naturalistic, highly interactive manner and was analyzed during and at the conclusion of the data collection period. In doing so, I worked back and forth between data and classifications in an attempt to verify meaning and accuracy. Patterns were identified as recurring regularities in the data and coded into broad categories/core ideas such as "Content Knowledge" and "Instructional Planning/Pedagogy." As patterns emerged, axial coding was used to identify subcategories. Eventually, core ideas were analyzed and utilized for theme construction. The analysis occurred in four stages. The first stage consisted of transcribing and verifying recordings from planning and reflection sessions as well as those from the focus group meetings. In the second stage, transcripts and written reflections were coded using a computer software program, Atlas.ti. The third stage consisted of within group and across group analysis. The within group analysis compared and contrasted the different data sources from within each lesson study team and utilized this information to construct themes. Once this was completed for each group, a cross-group comparison was completed to identify similarities and differences between cases.

Lewis and Hurd (2011) offer a practical sequence for the lesson study cycle in their book, *Lesson Study Step by Step: How Learning Communities Improve Instruction.* Since both groups followed this framework, I present my initial narratives accordingly. Lewis and Hurd describe the lesson study cycle as comprising four main components. The first step or component entails considering and discussing goals for student learning

and long-term development. Secondly, the team identifies pressing issues in student learning and begins examining research and curricula related to the issue. During this time the team collaboratively identifies student learning goals, reviews instructional resources, and develops an instructional plan that includes a research lesson. The third component involves conducting the research lesson. One member of the team teaches the lesson while the others observe and collect data. Lastly, the team shares, discusses, and reflects on the data collected during the lesson. The data is used to illuminate student learning, discuss content, and to examine the instructional design of the both the lesson and the unit. When these four steps are completed, the team meets to revise and improve the lesson which initiates the second iteration of the lesson study cycle (see Figure 1).

At the start of my research in September 2011, all five of the lesson study teams at Law Elementary School gathered together to review the process as well as research regarding lesson study and effective professional development for teachers. Most of the teachers that attended that meeting had participated in the lesson study process the previous year and for a few teachers this was their third year involved in this form of professional development. However, there was one team of teachers at the meeting that was participating in lesson study for the first time and one teacher was new to both the school and the lesson study process.

During this meeting the group reviewed and discussed the lesson study cycle and also examined the alignment of lesson study with research on effective professional learning for teachers. We also watched a video recording of teachers moving through each component of the process. The video was taken from a DVD included with Lewis and Hurd's book, *Lesson Study Step by Step: How Learning Communities Improve*

Instruction. While watching the video teachers were asked to take notes on how the groups work was similar to or different from their experiences with lesson study and/or professional collaboration. Prior to viewing another section teachers were asked to imagine they were in the room observing the lesson. They were directed to collect data on the students' understanding of the content being taught. After watching different clips of the video, the group participated in robust conversations about their observations and reflections. Most of the discussions revolved around the validation of their lesson study work. Teachers frequently identified the similarities of their experiences and those of teachers featured in the video. The excitement that originated from this discourse served as a catalyst for teams to begin their own planning. At that time, teams began reviewing student performance results on district assessments, the Connecticut Mastery Test, and formative classroom assessments, like running records, to identify trends and define the focus for their work. After completing this analysis and establishing a focus and rationale for their lesson study work, teams shared their ideas with the larger group and received feedback and suggestions. From this day forward teams largely worked individually until all teams completed the lesson study cycle. Upon completion, the whole group convened once again to share their experiences and findings.

Fourth Grade Team

The fourth grade team was comprised of four classroom teachers, a special education teacher, a reading specialist, a mathematics specialist, and me, the school principal. The four classroom teachers and the special education teacher were present for all four components of the lesson study cycle. They were the key contributors and were responsible for the bulk of the planning and the instruction of the research lesson. The

reading specialist, the mathematics specialist, and I were not present for every meeting or the entirety of each meeting. Most of the unit planning took place during professional learning times established by the district, but there were times the fourth grade team convened before school, after school, and during their weekly grade level meetings. Although the mathematics specialist was not present for the entirety of each meeting, she was there frequently and took a lead role in the facilitation of the process. She was one of the original staff members to learn about lesson study and her experience with lesson study exceeded that of the other members of the team. For all the other members of the team, with the exception of me, this was the second time they were involved in the lesson study process. Last year, the four fourth grade teachers, the mathematics specialist, and I worked collaboratively to learn the process and conduct a research lesson in mathematics. During that same time period, the special education teacher and the reading specialist were working with other teams, but participated in a similar process.

Student Performance Data, Curricula, and Student Learning Goals. The team began the process by reviewing student performance on the Connecticut Mastery Test. Although the overall performance of the students had increased significantly from grade 3 to 4 (see Figure 2), one area remained flat, students' ability to compose and revise writing. This was also the case for a different cohort of students the previous year and the year prior to that. After reviewing the results of their students from last year and looking at the data of the incoming class, the team agreed that this was an area they needed to understand and explore further. Next, they reviewed the Common Core State Standards related to composing and revising and also read a book recommended by the literacy specialist, *Mechanically Inclined*, by Jeff Anderson (2005). Copies of the book were

purchased for all members of the team though the school's professional development budget. At the onset of the conversation the team's focus was largely on how to get students to edit for conventions such as using correct capitalization. However, after a relative short period of time the team came to the conclusion that what they were really talking about and looking for was how punctuation or the lack thereof impacts meaning. This led to the development and adoption of the following unit goals and objectives:

Goals:

1. Students will understand that, as writers, mechanics and sentence structure are vehicles through which they create meaning for their reader.
2. Revision is an ongoing process where writers often collaborate to monitor for meaning.

Objectives:

1. Students will be able to produce simple, compound, and complex sentences in order to convey meaning.
2. Students will be able to choose specific words, phrases, and punctuation (exclamation points, question marks, periods, quotation marks) to convey meaning.
3. Students will be able to appropriately use commas to convey meaning.

Planning. Once the goals and objectives were agreed upon, the team used a number of resources to develop the following unit plan:

Lesson 1: Punctuation Matters – Punctuation matters just as much as the words you choose.

Lesson 2: Just Capitalize – Writers use capitals appropriately

Lesson 3: Periods – Writers end most thoughts with periods.

Lesson 4: What is a complete thought? – Complete thoughts contain "who/what", "did/is".

Lesson 5: How much is too much? – Writers recognize when there are too many thoughts in one sentence.

Lesson 6: Compound Sentences (commas) – Writers combine ideas in a sentence using specific words (use Anderson 2.1).

Lesson 7: Compound Sentences (commas) – Writers combine ideas in a sentence using specific words (use Anderson 2.6).

Lesson 8: Reading Your Writing – Writers take a break to read their writing over to listen for meaning and fluency

Lesson 9: Sentence Choice – Writers think about what type of sentence to use to convey their thoughts.

Lesson 10: Peer Editing - Writers rely on peer editors to listen for meaning and fluency.

Lesson eight was chosen as the research lesson because the team felt it closely related to the overall goals and objectives of the unit. The specific learning objective for the lesson was: Students will be able to reread an authentic piece of their writing and modify it to improve meaning and fluency. The group also decided to collect data on student-to-student discourse during the lesson. This was something the team considered last year during lesson study and has since been an instructional focus for the team. Although this wasn't officially a school goal, it had been the topic of a number of school wide discussions. These conversations had been initiated during staff "Learning Walks" two years prior. Teachers and administrators observed that when students worked

collaboratively they would frequently work parallel to one another, similar to the way children might play in a sandbox. They would be in close proximity, but largely worked independently of one another and meaningful conversations about the content were almost non-existent. The next two early release days, one in September and one in October, the team developed the research lesson, a timeline for the unit, and a plan for evaluating student performance and collecting student data. On these days, students were release at 1:15 p.m. and teachers worked with their lesson study teams from 1:30 p.m. to 3:30 p.m.

Research Lesson - First Teaching and Post-lesson Discussion. In mid-November one of the classroom teachers on the team taught the first iteration of the research lesson while the other members recorded their observations. Specifically, the team looked for evidence that students were rereading their writing, identifying parts that did not convey their intended meaning, and making appropriate revisions. As I mentioned earlier, they also collected information on student-to-student discourse and whether or not students utilized the conversation prompts provide by the teacher. Additionally, students were given exit slips at the end of the lesson as a method of further evaluating their understanding of the concepts taught.

The lesson followed a gradual release of responsibility model. First, the teacher provided a think aloud, where he modeled rereading a piece he had authored to see if it made sense. He then made his thinking explicit to the students, ultimately changing the punctuation so that the meaning of the piece was modified. At that point in the lesson, responsibility shifted to the students in the form of guided practice. Students reread a section of the piece written by the teacher and then worked in pairs to determine if the

piece made sense or needed to be modified. Following guided practice, students worked independently to reread and modify authentic examples of their own writing. During this time students conferred with their reading partners and discussed their revisions or elicited ideas and support. When this was completed, the class came together as a whole unit to discuss their ideas and findings.

Immediately following the lesson, the lesson study team convened to review and discuss the data collected. Although students were engaged throughout the lesson, there were times when students were focused on activities unrelated to the assignment or learning objective. For example, when students were directed to confer with each other about the modifications they made to their writing, some of the partners simply read their entire pieces and had little or no conversation about the revisions. This in turn led the team to identify and discuss two issues with the lesson. The first was related to the **cohesiveness of the lesson, and the alignment of each activity with the objective of the lesson**. The second pertained to **student-to-student discourse and the successful use of conversation prompts**. After participating in a meaningful exchange of ideas about these items, the team agreed to discuss them in more detail when they revised the lesson.

Revising the Lesson. The day after the research lesson, the team met to make revisions to the original lesson. The conversation began by clarifying what revisions they would focus on. One participant commented, "I think the big things that we need to work on are the manipulative, hands-on type of things. How are we going to introduce them to the sentence starters?"

Another retorted,

> I don't think we can talk about the discussions we want them to have and all that until we clearly know what is it we want them to do…Because I think our objective was not so much about the content, but it was about the actual rereading of your writing. So, I think we got away from that and focused a lot on the content, were they able to use those words, actually apply the commas.

This discourse continued for some time. However, eventually the team agreed to revise two aspects of the lesson. The first involved modifying the teacher modeling portion of the lesson so it was more directly aligned with the lesson's objective and the guided and independent activities that would take place later in the lesson. The team wanted students to understand that as writers, they need to put themselves in the shoes of the reader. So, they attempted to make sure this was the focus of every component of the lesson, as they agreed that this was not the case for the first lesson. The teacher that presented the original lesson commented:

"The modeling focus was more on why I made the changes and how it changed the meaning as opposed to just why I reread in the first place"

Another added:

> But that's what I think we want to get to. When they go back to their own writing and reread, because they need to reread their own writing to be sure they're not going to confuse their reader, but how are you going to make sure your reader is not going to be confused. Oh, you have to read it like they would. Maybe that's the stance we give them.

After discussing this issue in more detail the team worked to make modifications to the original lesson that helped students to put themselves in the shoes of someone that would

be reading their work. They also attempted to make sure this was the focus for all three components of the lesson, the teacher modeling, the guided practice, and the independent student work.

The second modification to the lesson involved providing students with tasks that had many possible solutions. The team believed this would force students to work more collaboratively and would result in greater and more meaningful discussions. Below excerpt from this conversation:

> P2 - That's what we said before. We want to give them examples where they will have to talk about it. They all have different ideas about it and that is what will drive the conversation.
>
> P6 - Yea, you want to have it open ended.
>
> P1 - I put a couple of sentence on my message this morning and one girl came up and put a comma, erased a period, and put comma so. Someone else said, oh you can put and there because…My point is that it only took a couple of minutes. They are capable of having these conversations.

Ultimately, the team revised the lesson to include questions and problems that were more open-ended and allowed for a variety of possible solutions.

Second Teaching and Post-lesson Discussion. The day after the original lesson was revised, it was taught by one of the other 4th grade teachers on the team. The lesson lasted about forty-five minutes and the post-lesson discussion ran about one hour. The protocol for the post-lesson discussion was to have each participant individually spend the first five minutes of the meeting organizing and reflecting on the data they collected. This was followed by a brief reflection by the instructor of the lesson. During this time

the instructor shared things that stood out, things she thought went well, and things that were perceived as problematic.

After she completed her reflections, the other participants shared the data they collected. Then the team reviewed the information collectively and attempted to identify important trends. It became clear to the group that improving the alignment of each component provided better support and scaffolding for students. It was also evident that student-to-student discourse was more meaningful than during the original lesson. Additionally, meaningful discourse was observed by a larger number of students and was more prevalent when conversation stems were utilized. Toward the conclusion of the meeting participants shared takeaways or generalization they made. One participant commented, "For me it would be the student discourse piece and ways to ensure they (students) are having those discussions…"

Another added:

> I think scaffolding any type of instruction whether it is content or a collaborative goal. I think some of the changes we made from Tuesday dealt with providing more support and having done more scaffolding beforehand…With the collaborative goal, with the content goal, with any of those things, see where we see them a month from now, two months from now. What are we going to do now to help them get to a specific place down the road? Not tomorrow or the next day. What can we do today and in the weeks ahead to get them where we want them to be in January?

These comments provide insight into how teachers might modify their instruction in the future. They also illustrate the learning that occurred as a result of their participation in

the process. Although this conversation concluded the lesson study cycle, participants indicated that this was the beginning of an important, ongoing conversation.

Research Question II: How does lesson study support and influence school based professional learning teams? This section pulls data collected from the 4th grade team and utilizes all three data sources: transcripts from team meetings; written reflections by participants, and transcripts of focus groups. After coding and categorizing the data into core ideas for this team, the following themes emerged:

Table 4

Themes
1. Lesson study provides the opportunity to develop a common understanding the content and establish common goals for students.
2. Lesson study provides a concrete routine that supports collaboration, sharing, and teacher discourse.
3. Lesson study provides an opportunity for collaborative reflection on instruction through reflection on learning.

Theme 1: Lesson study provides the opportunity to develop a common understanding of the content and establish common goals for students. During the initial planning phase of the process and also during the revision of the original lesson, the fourth grade team spent a significant amount of time discussing and clarifying the content and goals for students. As the team participated in this process, their overall understating the content was significantly enhanced. One of the participants commented in her written reflection,

> I don't think any of us realized what an undertaking it was going to be, as punctuation quickly became a huge watermelon topic (as we call it in Writing

Workshop). We needed some time and guidance to pick out specific 'seeds' to teach that would make a difference and guide our students learning.

Another remarked, "It was eye opening when our team realized that this was an area that spiraled through the Common Core from first grade to third grade."

Originally, the team was of the mindset that students should utilize correct grammar and punctuation when writing because it is simply something that is expected of fourth graders. However, as they deepened their understanding by collaboratively discussing a number of readings on the topic, they agreed that it was more about the meaning conveyed by grammar and punctuation. This significantly shifted the focus of their planning and goals for students. One teacher wrote, "We went from 'grammar for the sake of grammar' to grammar so that you can efficiently convey meaning. It was a pretty profound realization for us as a team."

Below is a short excerpt of the conversation the team had as they began to make sense of the content and establish common goals for students:

P1 - I think we really need to define our goal.

P2 - Teach kids to monitor and edit and revise independently. We said teach kids to monitor, revise and edit independently. I thought that's what we were throwing out there.

P3 - Originally we were just talking about writing. Now we are talking about overall understanding of punctuation. Really our overarching goal here is that punctuation affects understanding.

P1- Right. Readers convey meaning through the use of punctuation.

After further dialogue, the team agreed on the following goal for the unit: Students will understand that, as writers, mechanics and sentence structure are vehicles through which they create meaning for their reader. They also agreed on three specific, measurable learning objectives for students: (a) Students will be able to produce simple, compound, and complex sentences in order to convey meaning. (b) Students will be able to choose specific words, phrases, and ending punctuation (exclamation points, question marks, periods, quotation marks) to convey meaning. (c) Students will be able to appropriately use commas to convey meaning.

After considerable work, the team was largely on the same page conceptually and was ultimately successful in establishing common goals and objectives. However, this work was challenging to individual participants as well as the collective team. Establishing and writing common goals and objectives was one component of the process that required a great deal of support from the group's facilitators. This was perhaps due to the lack of experience writing measurable learning objects and/or because of the challenges of the content. One participant, in particular, really struggled to grasp the conceptual underpinnings of the content. This may, in part, be related to the fact that she was new to the team and had not participated in prior conversations about the subject matter. She discussed this in her written reflection,

> While I felt comfortable as a team member, I did not feel confident in my knowledge about the content…The idea of teaching students to write for an intended audience having a particular meaning in mind was new and difficult for me.

It is clear that participation in this process extended and clarified the collective team's understanding of the content. However, the data also indicates possible modifications to participants' beliefs about the importance of content knowledge when teaching. After completing the initial planning phase of the process, one participant commented, "It can't just be about planning and presenting a lesson. We need to come to a solid understanding of the content first." This statement is consistent with the research on effective teacher development that supports the need to incorporate subject matter knowledge in the learning process (Odden, 2011; Darling-Hammond et al., 2009). Although elementary school teachers have the tendency to avoid less familiar content, this research indicates that lesson study may provide an effective method for managing and potentially overcoming these challenges.

Theme 2: Lesson study provides a concrete routine that supports collaboration, sharing, and teacher discourse. As teachers worked their way through the lesson study model, they shared and discussed their ideas and beliefs about teaching and learning. There were times teachers challenged one another's ideas regarding instruction, content, and/or student learning and this often led to lively conversations. One participant wrote in his reflection,

> The collegial work environment pushed thinking. The openness and thoughtfulness of the process was an integral part of the process…During the process, the team members developed ideas by synthesizing their own ideas with those already entertained by the group. I thought the entire process was respectful, intellectually challenging and, of course, geared toward delivering instruction and modifying it based on observation.

This comment speaks to the thoughtful discourse and collegiality demonstrated by the team. During meetings teachers frequently voiced personal theories of instruction, even when doing so meant disagreeing with another member of the team. For the most part, these interactions were viewed as intellectual conversations that were valued by the team. During the team's focus group discussion one member shared why these discussions were beneficial to him,

> Teaching is really, really, difficult, especially when you are presented with programs that are so intense and though provoking like the Calkins' Units. When you're reading a lesson that is twenty pages long and you have ten pages of assessment notes after that it can be daunting. It can be hard to think through. It can be hard to understand if you're sitting alone and going through these things. You know, you have things flying through your head. It becomes a lot easier to manage those if you're able to talk them through with your colleagues. This is a really huge part of this process. It helps you understand a lot more about student learning and managing these intense programs that we are working on.

Similar statements made by other members of the team, collectively illustrated the value placed on sharing ideas and working collaboratively with one another.

Below is an excerpt from conversations that took place during a team meeting. This example is intended to illustrate the collegiality of the team and the level of discourse that transpired. It occurred during at the initial planning meeting as the team attempted to clarify the specific learning objective they wanted for students.

> P2 - Do we want to say that we want them to convey a specific meaning?
>
> P3 - To convey the specific meaning of the text they're reading and writing.

P2 - To create thinking within the reader is what we really want them to do.

P1- Well, they're trying to create specific meaning through their writing. That's what we are really trying to get them to do. For example, they may be trying to convey that there is a lot of frustration within their character…

P2 - Yep, yep, yep. Like that running record example.

P1 – So, do we want to say students will be able to appropriately use commas to convey specific meaning?

P3 – Ya.

P2 - I don't know about specific meaning, maybe specific meaning. I don't know. On the other hand I think when we ask kids to buzz about books, we aren't asking them to necessarily have one answer or one thought. Maybe the writer wrote something to have the reader to think about a whole variety of things.

This short excerpt exemplifies the willingness of participants to share their ideas, ask questions, and even voice uncertainties. This level of collegiality and trust allowed participants to examine their underlying beliefs about the content, instruction, and the expectations they had for students. At times their beliefs were challenged by other team members or the data they collected. These events provided individuals the opportunity to modify or change their initial thinking or understanding. It was clear that the participants had come to understand that disagreement is a healthy aspect of these sessions rather than something that should be avoided. In a recent article by Valerie von Frank (2012), she makes a case that conflict creates better teams and that opposing views in a group can be a positive force for learning and finding better solutions. I believe this was the case for this team.

Although the overall collegiality and openness of the team was largely viewed as positive by participants, there were times when conversations were unbalanced and/or dominated by a few members of the team. One participant wrote,

> As a team we work very well. But…I have some assertive teammates to compete with for airtime. I honestly had to work a lot harder at asserting myself and voicing certain opinions during the cycle. In the end, I came away with more confidence in myself as a member of a collaborative team.

One of the facilitators of the process also shared some challenges in her reflections,

> The dynamics of the Team and my role as both Team Member and Facilitator has been challenging. I have learned that while the discussions have been good, a decision needs to be made; and without a facilitator, getting to that decision has sometimes been cumbersome. When to step in and when to let the conversation go has been a balancing act. And once the decision is made, it takes the Team to revise or reverse that decision, not any one individual. At one point the lesson plan/direction was changed by the lesson's instructor without the Team's input. Various Team members were disgruntled and put out; myself included. Should I say something or let it go? I chose to let it go and I hope that the success of the revised lesson that reflected the groups' effort solidifies the idea that the group is mightier than any one individual. It (the fourth grade team) has evolved into an effective Professional Learning Community.

As is the case with most collaborative teams, there were times when working together was messy. However, in the end, these incidents were mainly viewed as bumps in the road, not roadblocks. In some cases, they even resulted in furthering the learning of

the team as well as participants' understanding the collaborative process. Collectively this team was more insightful and productive than they would have been individually. Using the descriptors below, my analysis indicates that this team was functioning at the highest level or at the "Sustaining Stage" of working collaboratively.

Table 5: Continuum of Teachers Working Together

Element of a PLC	**Pre-Initiation Stage**	**Initiation Stage**	**Developing Stage**	**Sustaining Stage**
Collaborative Culture: Teachers Working Together	Teachers work in isolation. There is little awareness of what and how colleagues are teaching.	Teachers recognize a common curriculum that they are responsible for teaching, but there is little exchange of ideas regarding instructional materials, teaching strategies, or methods of assessment.	Teachers function in work groups that meet periodically to complete certain tasks such as reviewing intended outcomes and coordinating calendars.	Teachers function as a team. They work collaboratively to identify collective goals, develop strategies to achieve those goals, gather relevant data, and learn from one another. Unlike a work group, they are characterized by common goals and interdependent efforts to achieve those goals.

(DuFour et al., 2004, p. 251)

Theme 3: Lesson study provides an opportunity for collaborative reflection on instruction through reflection on learning.

A notable component of the process was the observation of students working and the collection and analysis of performance data. Data was collected throughout the research lessons in an attempt to garnish a deep understanding of students' knowledge about the content as well as their ability to have meaningful conversations with their

peers. This practice enabled participants to use both qualitative and quantitative data to reflect on student performance and subsequently make instructional decisions.

During post-lesson discussions participants shared their individual observations and the data they collected. For example, one participant shared his observations of the discourse between students,

> I think they had a good discussion. They used the starters and I liked the discussion quite a bit, but one student in particular didn't listen to the comments and suggestions made. He just kept going back to the card and saying, I'm not sure what you're saying? What makes you say that? He wasn't internalizing her opinion which is part of the whole discussion piece is that you internalize what other people say.

The group then discussed the number score they would give the students based on a rubric they designed to evaluate student-to-student discourse.

After each participant reported their data in a similar fashion, the team collaboratively reflected upon and analyzed their findings. The excerpt below was taken from the team's discussion to revise the initial research lesson. It demonstrates how participants utilized student performance information gathered during the first research to make instructional decisions moving forward. During the conversation, the participants frequently noted student difficulties they observed during the lesson. Some offered suggestions for instructional modifications that might result in improving students' ability to meet the established learning objectives. Below is a short excerpt from that conversation:

P1 - So, if we back that up a little and we just go in where they have to read it and they have the discussion about oh, when I read it I hear it this way, and when I read it I hear it this way. So, then why would you make the changes you would make? That might focus their discussions a little bit more and give a chance for more discussion about what we are actually asking them to do.

P2 - No, I'm not entirely sure what you are saying. What would that look like, I guess is my question?

P1 - I think the format would look very similar to your format, but I think the focus for the modeling would change. We'll be very specific when modeling…modeling the actual steps you were taking to read it to yourself without the punctuation and then having them try to do that with their own pieces because that's the piece they don't do.

P3 - Right. They just dove in and said, I need a period here or this needs a capital letter. Maybe they already thought about it when you read the second paragraph so they were thinking these are some of the changes I need to make, but they weren't actually reading it to their partner…

These opportunities to collect and use authentic data to make instructional decisions developed and furthered teachers' understandings of student assessment and enhanced the participants' observational skills. Additionally, the process provided opportunities for teachers to collaboratively make sense of the data and utilize it to inform their planning and instructional decisions. One participant discussed this in her written reflection,

> Understanding how students learn, acquiring strategies to assure that will happen, and then knowing if they understand, all became equally as important…As we collected data I was able to concentrate on the process and the students' learning, thinking about what worked and what needed to be modified or changed to improve the lesson to involve more students or to stimulate more student discussion.

The importance of this work was also discussed during the focus group discussion. For example, when discussing benefits of the lesson study experience, one participant commented, "Sometimes we rush through units because of the curriculum, but I have come to realize how important it is to base our decisions on not what has been covered, but what the students have learned."

Although schools have started to collect more and more data, there appears to be an implementation gap between the collection of data and the use to evaluate teaching (Reeves & Flach, 2011). Solely collecting and storing student performance data will do little to change instruction or improve learning. In order for meaningful changes to occur that data must be understood and utilized by those people responsible for delivering day-to-day instruction. Providing opportunities of this nature is one way for teachers and schools to utilize authentic data more effectively.

Research Question III: How does and to what extent does the lesson study experience impact individual teacher's perceptions of teaching, learning, and working collaboratively? Because this section solely examines the perspectives of the participants, it only employs data collected from the following two data sources: written

reflections by participants and transcripts of focus groups. After coding and categorizing the data into core ideas, the following themes emerged:

Table 6

Themes
1. Teacher collaboration is an important aspect of improving teaching and learning.
2. Lesson study provides opportunities for reflection that influence how teachers instruct, assess and think about students.

Theme 1: Teacher collaboration is an important aspect of improving teaching and learning. During the focus group discussion participants frequently discussed their increased commitment to and the importance of collaboration. For example, one teacher shared,

> It has strengthened my belief that teachers need to be working together…We have had the opportunity to deeply talk about what you notice about the kids in your class and looking at the data about what kids have learned and where they are going. That piece has strengthened my belief that we all need that and that is a huge part of what we are doing during lesson study.

Another added,

> It has become pretty clear to me that we need more time to get together with colleagues to talk about instructional strategies that allow students to gain a greater understanding. I like this literal slash figurative idea of opening doors because this is a job, although we work together, we are in isolation most of the day…It's not so much about the lesson, but what you take away from the lesson in order to achieve our larger, overarching goals. That is achieved from a constant, collaborative process.

These comments led to a deeper conversation about increasing opportunities for teacher collaboration. Many members of the team voiced how the structure of the school day and their duties limited the frequency and opportunities for working collaboratively. Collectively, the team advocated for additional time to collaborate with colleagues. One participant shared,

> I think we need to have time when we can forget about the daily work we do in the classroom and have time to explore and discuss educational innovations and/or review new instructional resources. So, we can have discussions about the bigger issues in education.

This notion is supported by Laura Servage (2007), an educational researcher from the University of Alberta. While conducting research on effective professional learning communities she found, "teachers need to have conversations about the meaning behind what they do. The opportunity to explore and sometimes debate philosophies behind our actions generates the creativity and momentum that is critical to sustaining school improvement efforts" (p. 14).

Theme 2: Lesson study provides opportunities for reflection that influence how teachers instruct, assess and think about students. In participants' written reflections and during our focus group discussion, teachers frequently spoke of opportunities to reflect on their practice and student learning. One participant stated,

> You really study a lesson in a unit and think about it and how students learn. I think we have a chance to look at issues in a deeper way. We teach lessons all the time, but to really think about it at a deeper level is what it (lesson study) is all about.

Another shared,

> It focuses us on being very aware of what we think happens and then really paying attention to what is actually happening. We may think kids are getting something, but this process really forces us to look at if what we are doing all the time is really effective.

Participants often connected these reflective opportunities to changes they've made to their practice. One teacher concluded in her written reflection,

> As a teacher, I truly believe the reflective process is an extremely important one, used to identify student strengths and weaknesses and adjust instruction and instructional techniques as is necessary. For me, this work has become highly intrinsic.

Another wrote,

> Reflecting on our use of the prompts and stems for students made me realize that students need more practice modeling in how to converse in order say what they mean through a higher level discussion. I've come to understand, through the lesson study process, students need to have an intensity of discourse in order to comprehend and be able to apply their knowledge. As a teacher, this thought process has become something that is always in the back of my mind in every content area taught.

Similar ideas were also expressed during the focus group discussion. One participant stated, "I think that the whole process makes you think about different modalities when you are planning a lesson. To address and meet the needs of all students." Another added,

> I have come to realize how important it is to base our decisions on not what is covered, but what students have learned. As a result I have become more aware of how to differentiate, how and what questions to ask and how to better assess the content.

These examples illustrate how prevalent and important reflection was during this team's lesson study cycle. They also provide insight into the impact reflective practices can have on teachers, schools, and students. This is not surprising since reflection is an essential component of many adult learning theories. For example, according to Mezirow's transformational learning theory, we transform our frames of reference through critical reflection on the assumptions that are the basis for our beliefs, habits of mind, or points of view (Mezirow, 1997). It is through this reflective practice that one can uncover when old paradigms no longer work or make sense. This understanding is in turn the linchpin for making modifications or changes to one's behavior. I believe the data in this case illustrates how opportunities for reflection served as a linchpin for learning and changes made by the 4th grade team.

First Grade Team

The first grade team was comprised of four classroom teachers, a special education teacher, a reading specialist, a mathematics specialist, and me, the school principal. The four classroom teachers and the special education teacher were present for all four components of the lesson study cycle. Collectively, they comprised the heart and soul of the team and were responsible for most of the planning and the instruction of the lessons. The reading specialist, the mathematics specialist, and I were not present for every meeting or the entirety of each meeting as our role on professional development days was

to help with content, recourses, and the facilitation of the lesson study process for the five teams participating. Most of planning took place during professional learning times established by the district, but the first grade team also convened before and after school and during their weekly grade level meetings. Although during the process team members most frequently functioned as equal participants, the reading specialist also served as a "knowledge other" of the content and the mathematics specialist and I assisted facilitating the process.

All the members of the first grade team participated in lesson study last year and two of the teachers on the first grade team were instrumental in bringing lesson study to our school. Two years prior, these two teachers along with a few other teachers from the district attended a week long lesson study conference at a local university. They learned about lesson study from a number of experts in the field, including Dr. Makoto Yoshida, the Director of The Center for Lesson Study at William Patterson University. After learning about the history, philosophy, and process of lesson study, the group embarked on their first experience, implementing their research lesson with a group of students attending a nearby summer school. This event served as the catalyst for implementation of lesson study at Law Elementary School.

Student Performance Data, Curricula, and Student Learning Goals. After analyzing and reviewing student performance data from the prior year and reflecting on the reading behaviors of high performing students and those struggling to reach grade level benchmarks, the team identified a relationship between students that lacked reading fluency and struggled with reading comprehension. Taking a closer look at students' performance on the Developmental Reading Assessment 2, revealed that struggling

readers were often unable to efficiently and consistently utilize reading strategies to solve unknown words. They concluded that this frequently compromised students' reading fluency and consequentially their comprehension of the text. As a result, the team agreed that they would focus on providing instruction to help students solve unfamiliar words more efficiently. It was believed that this work would serve as the cornerstone for improving both fluency and comprehension.

The team began by reviewing and discussing the Common Core State Standards that were relevant to their goal. They found that the standard for first grade was to have students read with sufficient accuracy and fluency to support comprehension. This was broken down into three discrete areas: (a) Read on-level text with purpose and understanding. (b) Read on-level text orally with accuracy, appropriate rate, and expression on successive readings. (c) Use context to confirm or self-correct word recognition and understanding, rereading as necessary. Based on these standards the team decided on two specific student learning objectives for their unit: (1) Students will be able to use all they know about letters, sounds, patterns, and snap words (high frequency words) to help them read. (2) Students will be able to check and fix their words when they notice something is not quite right while reading. In other words, their goal was to have students self-assess their reading for syntax, phonics, and comprehension and make corrections when things didn't make sense or sound right.

Planning. The lesson study team referenced a number of resources to assist in developing their instructional unit. They reviewed Lucy Calkins' *Curricular Plan for Reading Workshop: Grade 1, The Fountas & Pinnell Prompting Guide 1: A Tool for Literacy Teachers, Phonics Lessons: Grade 1- letters, words, and how they work* by

Fountas & Pinnell and accessed information from the Teacher College Reading and Writing Project website. After comparing and contrasting lessons from various resources the team developed a twelve lesson unit that integrated the explicit instruction of reading strategies outlined by Lucy Calkins (2011) with phonics lessons provided by Fountas & Pinnell (2003).

Below is an outline of the Unit Plan:

Week One

Readers use what they know about other words to help figure out a new word.

a. Phonics Lesson I: Hearing and Changing Ending Sounds

b. Phonics Lesson II: Hearing and Changing First and Last Sounds

2. Readers use what they know about letters and patterns from word study (phonics) to help read books.

3. Readers need to look all the way across words to help read.

Week Two

4. Readers read snap word in a snap.

5. Readers use words they know to help read all the way through a word.

a. Phonics Lesson III: Recognizing Common Consonant Clusters

6. Readers check their own reading to know if it's right.

Week Three

7. Readers re-read to make sure what they are reading is right.

a. Phonics Lesson IV: Recognizing Common Consonant Diagraphs

8. Readers use what they have learned about parts of words to help check their words.

Eight of the lessons were designed to teach students reading strategies and four were part of Fountas and Pinnell's systematic phonics program for first grade. Each strategy lesson was taught as a mini-lesson at the onset of reading workshop. However, the phonics lessons were taught outside of the reading workshop time and structure.

Research Lesson - First Teaching and Post-lesson Discussion. Once the learning objectives and overview of the unit plan were finalized, the team focused on thoughtfully developing the research lesson. The seventh lesson in the unit was chosen because of its close alignment to the overall objectives of the unit. The lesson focused on having readers check and fix their words when they notice something is not quite right. In addition to a content objective the team also integrated opportunities for student-to-student discourse and collaboration. Upon completion, the lesson was taught by one team member while the remaining members observed and collected data.

Immediately prior to the lesson the team met to review the sequence of activities and learning objectives; they also reviewed and modified the data collection plan; and established protocols for observing the lesson. Those observing were responsible for taking detailed notes on selected students. The notes included information on the use of reading strategies, specifically rereading when something didn't make sense or sound right. However, the notes also included information on student-to-student discourse and student thinking. Observers were not to interfere with the instruction of the lesson or communicate with students. They were simply observers. This was done in an attempt to keep the instruction and environment as authentic as possible.

Following the lesson, the team members participated in post-lesson discussion where they shared the data they collected and discussed and attempted to make sense of

their findings. At the commencement of the post-discussion the participants were allotted five minutes to organize, summarize, and contemplate their individual notes. Then the teacher that instructed the lesson was then given five minutes to share her reflections and observations. Following her reflections and insight, the team delved into the data they collected during the lesson, and attempted to organize and make sense of it. In doing so, the data revealed that about two-thirds of the students in the class were monitoring their reading consistently. Those students frequently went back and reread when they got stuck or when something didn't make sense. However, the data also indicated that rereading often did not help students to figure out unknown words.

The team also found that although opportunities for student discourse were provided, the conversations students were having were often limited and one sided. During partner reading, students would provide assists to their partners in the form of providing unknown words, but students did not help one another with reading strategies and for the most part, did not have meaningful conversations about the books they were reading.

Revising the Lesson. Utilizing the findings from the lesson colloquium the team modified the lesson in number of ways. Initially, the team discussed modifying the explicit modeling and instruction at the beginning of the lesson. This was done to improve the cohesiveness and alignment between the teacher model and the guided and independent practice. It was assumed doing so would help students to better understand both the task and lesson objective. In addition to improving the alignment of activities, the team also made modifications to the questions and directions they provided students

prior to having them "turn and talk." This change was made in hopes it would facilitate greater discourse amongst students. Below is a short expert of that discussion:

> P2 - I think we are too leading when we say why doesn't it make sense?
>
> P4 - All you're doing is directing them to the word. All they are going to say is look doesn't make sense or it can't be look.
>
> P3 - But what we talked about earlier was adding the why.
>
> P2 - What did you notice about what I just said, but instead of saying I said, blank. Um, can I say that? Don't say any of that. Just say, turn and talk to your partner. What did you notice about what I read? Leave it at that?
>
> P4 - Right, because you're not going to tell them what the error was…When you said, I said looked red tulips, can I say that? Um, does that make sense? All you're really asking for when you say, does it make sense, is a yes or no answer…I think you kind of want them to notice what was wrong and say why it was wrong. And then I think they'll fix it naturally…

After agreeing on modifications to the lesson the team also discussed evaluating student performance and ultimately decided to modify their data collection plan. This was done to improve the consistency in which data was collected and to collect student performance data that would better indicate whether or not students successfully achieved the objective of the lesson. Below is an excerpt from the conversation the team had about how and what they should assess:

> P3 - When I heard some kids were not attending to theirs and some of them were. That was good information. It's nice to know those same things were going on. Even when you said tried something else, it was good to know that even when

some kids weren't getting them right, they stopped and tried. That was so good to know.

P4 - Think about why we are collecting this data. Does it matter what they tried or that they tried?

P3 - That they tried. I think.

P4 - Then maybe we just have to tally or hold it in your head and decided did they do it sometimes, never, or always.

Ultimately, this conversation caused participants to further develop common expectations and outcomes for students. However, it also helped the team to cultivate and utilize efficient methods for assessing student performance.

Second Teaching and Post-lesson Discussion. Three school days after the first research lesson was taught, the youngest team member and the newest teacher to the first grade team, taught the revised lesson to her students. As was the case for the first lesson, the remaining team members severed as observers and collected data about student performance and thinking that was eventually shared at the post-lesson meeting. Participants' observations and the data collected suggested that modifications to teacher modeling and improving the alignment of learning activities resulted in greater student success and an enhanced students' understanding that reading is truly about comprehension and not merely word calling. When something didn't make sense or sound right students frequently stopped and reread. Once again, this strategy did not always help students to decipher or decode the unknown word, but it was evidence that students were self-monitoring for meaning. A further analysis of these incidents led the

team to conclude that rereading did not help students to solve unknown words when the words were not part of their oral vocabulary or background schema.

The team members were excited to see that their instructional decisions had an impact on the students' ability to independently use reading strategies. However, they also acknowledged the need to further explore instructional options that would support student collaboration and discourse. During the post-lesson discussion, one participant spoke about the benefit of having common goals for students and clarified the overall objective they had for students:

> It's a good thing to know, as a team of first grade teachers who are helping students learn how to read, when to prompt for these strategies and when not to. When is it appropriate and when is it not appropriate. I mean the whole goal is to get the kids to do something to help themselves when they are reading. That is the whole goal. That they don't just keep going when it doesn't make sense and that they have a toolkit of different things to do.

Later during the post-lesson meeting the team discussed their concerns regarding the lack of student-to-student discourse during the guided practice potion of the lesson and also during the partner reading component. One team member reflected,

> I guess the thing with the turn and talk, I still noticed one kid would say one thing and the other kid would say another thing. The kids I was listening to were not having those conversations and none of them said I reread it when I was listening to them...I just think that is something we could work on.

Another teacher suggested, "I think you have to give them something. Everything that we have seen, you have to give them something like a conversation starter, a stem." This was

the beginning of a longer conversation about what could be done to help improve student-to-student discourse and how the team could make the collaboration between students more meaningful and productive.

Research Question II: How does lesson study support and influence school based professional learning teams? As was true for the previous case study, this section pulls data collected from all three data sources: transcripts from team meetings; written reflections by participants, and transcripts of focus groups. After coding and categorizing the data into core ideas for the first grade team, the following theme emerged:

Table 7

Theme
1. Lesson study provides ongoing opportunities for collaboration and professional learning.

Theme 1: Lesson study provides ongoing opportunities for collaboration and professional learning. After analyzing the data collected, the pervasiveness and impact of teacher collaboration became apparent. For example, one participant wrote in her reflection, "During the lesson study process, our team was able to spend time up-front planning and developing this unit, which encompassed both phonics (word study) and reading strategies. This allowed us to get a deeper understanding of the content."

Interactions between team members were collegial and friendly. For the most part, the group followed the ideas suggested in Calkins' text and frequently looked to the reading specialist for clarifications about content. One member described collaboration as being the greatest benefit of lesson studied. She wrote, "After working through this lesson study process as part of the first grade team, I feel that the time to confer with

colleagues was paramount as each member of the team participated and critically thought about teaching and learning." Another wrote,

> We spent a great deal of time planning and developing our unit which encompassed the phonics from Fountas and Pinnell and the reading strategies of Lucy Calkins. We spent grade level meetings and professional development days reading Calkins' book which enhanced our knowledge of the scope and sequence and content of Calkins' model of reading workshop.

Similar sediments were also expressed during the focus group meeting. For example, during a conversation about how lesson study was beneficial, one participant stated,

> Working together more. Because when you think about it, we see each other in the morning, we close our doors and then see each other at 3:15 and at lunch. Just the fact that we have been given, with lesson study, the opportunity to actually work with one another to share ideas and go into each other's rooms. Then we discuss things and share our interpretations…It's been really nice to have those conversations.

Throughout the data I collected, the integrated and important relationship between working collaboratively and learning professional was evident. During the focus group discussion one participant noted, " I like the part that it is ongoing…You're always doing something together, like constant learning. It's our professional development and it is ongoing and collaborative." Another contributed,

> Ongoing research of what we are working on, which helps us a lot. It is also a way for us to continually improve our teaching…In terms of comparing it to those

one day seminars. I think this is far more relevant to what we do. The collaborative nature makes us active learners who continually think about what we do.

The vignettes above clearly illustrate that working collaboratively benefited the collective team as well as the individual members. Participants were able to gain a deeper understanding of both content and pedagogy. However, simultaneously they began to appreciate the advantage of planning and learning together. The participants worked collaboratively to identify collective goals and develop strategies to achieve those goals. They collected and analyzed relevant student information, and they learned from one another. According to Rick DuFour and his colleagues (2004), these are signs of a high functioning, collaborative team (see Table 5).

Although the first grade team clearly exhibited many attributes of effective collaboration, participation in meetings was frequently imbalanced. This was not mentioned by any of the participants in either their written reflections or during the focus group meeting. However, when reviewing the transcripts of the meetings, the discrepancy was quite evident. This may have to do with the fact that two of the participants were new to the team and have not yet developed the level of comfort or trust needed to talk openly. However, it could have been that they felt as though they should defer to the teachers with more experience and seniority.

Research Question III: How does and to what extent does the lesson study experience impact individual teacher's perceptions of teaching, learning, and working collaboratively? This section solely examines the perspectives of the participants. In doing so, it only employs data collected from the following two data

sources: written reflections by participants and transcripts of focus groups. After coding and categorizing the data into core ideas, the following themes emerged:

Table 8

Themes
1. Participation in lesson study can result in changes to teachers' practices and beliefs.
2. Lesson study supports the development of teacher efficacy.

Theme 1: Participation in lesson study can result in changes to teachers' practices and beliefs. During the focus group discussion and in participants written reflections they often spoke of the changes they've made to their instruction and occasionally shared modifications to their underlying assumptions or beliefs about teaching and learning. One prominent instructional change identified in all of the written reflections and during the focus group was the increase in direct instruction of reading strategies, specifically the modifications the team made to content of their mini-lessons. One teacher wrote,

> With the adoption of the lesson study process and the use of Lucy Calkins' materials, we have based our mini-lessons primarily on reading strategies, and not nearly so much on procedural issues, as had been done in the past.

Another participant wrote a similar comment, "I found that we were focusing more on the reading strategies in our mini-lessons instead of mini-lessons on procedures as we did in the past." This was reiterated by a different participant during the focus group meeting when she shared, "Another big thing that we changed this year is the mini-lessons during reading workshop. So many of them last year were procedural and now nearly every mini-lesson is basically about reading."

Teachers also discussed the need for students to spend more time reading independently. Although there was some apprehension about this modification, the collective support of the team and the backing of research, pushed teachers to take a chance. One participant shared her thoughts about this during the focus group discussion,

> I initially questioned the whole premise that children needed to read more. But, after reviewing the Calkins' materials and some research that indicated first graders should be spending more time reading independently than we have been doing, I said, let's give it a shot. At first, I didn't think kids could do it, but they can. It is just amazing…It is amazing the number of students we have reading above grade level.

A number of participants also discussed modifying and/or increasing their use of visual aids. For example, one participant wrote, "As a result, I have increased my use of the chalkboard and posters as interactive instructional tools. This has proved effective for visual learners. These tools also allow students the opportunity to refer to them as needed." Another participant concluded, "The use of the chalkboard and charts have carried over into other lessons. It helps the students see the whole flow of the lesson and they can use the charts as a tool to help them."

Although these instructional strategies and tools were utilized in the past, the modifications made by the team signified a noteworthy shift in how, why, and how often they are utilized. These findings are consistent with professional development research that suggests professional development is more likely to influence teaching practices if it is collaborative, intense, ongoing, and job-embedded (Darling-Hammond et al, 2009).

Theme 2: Lesson study supports the development of teacher efficacy. Teachers found that many of the instructional modifications they made improved student performance. These experiences resulted in furthering participants beliefs that their instruction and instructional choices have a direct impact on student learning. One teacher wrote,

> I am noticing that children are staying on task and reading more and enjoying what they are reading. They are excited about books. From the lesson study data, it is clear that the average reader is using the strategies that they have been taught in our mini-lessons. I have also noticed children are moving more quickly through DRA2 levels than in years before.

Another observed,

> All of our students are spending more time reading independently and most of them are using the strategies we taught. Each day more and more of them stop themselves and reread to make sure what they've read is correct. With our continued instruction and support, soon, they'll all be self-monitoring on their own.

The connections between what teachers believe and do and how students perform were also noted during the focus group meeting. One participant commented, "Our expectations increased for students and so did their performance." Another commented, "It is about how I can help these kids better and what instruction I can provide these kids so they meet the expectations."

By collecting, analyzing, and discussing student performance data, teachers had the opportunity to explicitly examine the impact of their instructional choices on student

performance. This process provided teachers with concrete examples of how their actions and instructional decisions can impact student outcomes. As a result of making these connections apparent, participants' beliefs of teacher efficacy were reinforced. Teacher efficacy is an important component of school change and is integral to the development of a school culture that is committed to continuous improvement.

Cross-Case Comparison

When I compared both cases, initially, similarities seemed to outweigh differences. However, a more in depth analysis revealed notable variances between cases. Similarly, both teams came together regularly to work on improving teaching and learning. They both worked to build shared knowledge and developed common goals for students. Together they analyzed Common Core Standards, district curricula, and student achievement data. They both focused on the integration of content and pedagogy, and were able to find and agree on common solutions to important questions about teaching and learning. Both teams also made an effort to improve student discourse. This was not surprising since the school as a whole had been working to increase and improve student centered instruction. Although student-to-student discourse was a focus in both cases, it was clear that the 4th grade team had worked on this initiative prior to this lesson study cycle. Whereas the first grade team was at the initial stages of attempting to facilitate these conversations. In the end, most of those involved in the process spoke of changes or modifications to their beliefs and/or practices as a result of their participation.

Both teams also faced similar challenges with the cohesiveness of their lessons. In both cases, the sequence of activities in the original lessons did not move students toward the intended learning objective(s), and the groups worked to correct these issues when

revising their lessons. In both cases, modifications and improvements to the original lessons alleviated many of these concerns and resulted in a greater number of students meeting the intended objective(s). The fact that this was an issue in both cases, speaks to how complicated it can be to provide highly effective instruction and the impact that well-planned instruction can have on student performance.

Interestingly, within one of the parallels there also existed notable differences. In both cases working collaboratively was an integral part of the process. Using the continuum of teacher collaboration developed by DuFour and his colleagues (2004), I believe both teams could be categorized as being in the "Sustaining Stage" (see Table 5). Teachers in this stage learn from each other and work collaboratively to establish common learning goals, implement instructional strategies to achieve these goals, and gather relevant data to assess student learning. However, I also found that while there were similarities in the way these teams collaborated, there were also distinct differences. Perhaps most prominent was the frequency and type of teacher discourse that occurred. The fourth grade team frequently debated issues and participants openly, and comfortably disagreed with each other. The team was often seen discussing and honoring differences of opinions and had developed a respectful means of managing conflict. Although these types of conversations were not entirely absent from the first grade team, they were very infrequent. For the most part, conversations were congenial and rigorous debates were rarely an aspect of their collaborative work. Using the continuum below, it became clear that both teams had dealt with conflict very differently.

Table 9: Professional Learning Community Continuum

Element of a PLC	**Pre-Initiation Stage**	**Initiation Stage**	**Developing Stage**	**Sustaining Stage**
Responding to Conflict	People react to conflict with classic flight or fight responses. Most staff members withdraw from interactions in order to avoid they find disagreeable. Others are perpetually at war with acrimonious, unproductive arguments that never seem to get resolve.	School and district leaders take steps to resolve conflict as quickly as possible. Addressing conflict is viewed as an administrative responsibility. The primary objective of administrators in addressing disputes is to restore peace.	Staff members have created norms or protocols to help them identify and address the underlying issues caused by conflict. Members are encouraged to explore their positions and the fundamental assumptions that have led them to their positions.	Staff member view conflict as a source of creative energy and an opportunity to build shared knowledge. They create specific strategies for exploring and one another's thinking and they make a conscious effort to understand and be understood. They seek ways to test competing assumptions through action research and are willing to re-think their positions when research, data, and information contradict their suppositions.

(DuFour, DuFour, Eaker, & Many, 2005)

While the first grade team largely avoided it, the fourth grade team embraced it. In fact, I would say they were at opposite ends of the continuum, the first grade team being at the "Pre-Initiation Stage" and the fourth grade team being at the "Sustaining Sage."

Although both teams discussed the importance of collaboration during the focus group meetings, this was not the case when comparing written reflections. Every single participant on the fourth grade team explicitly stated something about the importance of working collaboratively. However, only one person from the first grade team explicitly wrote about the importance and benefit of working collaboratively. Yet, they did include descriptions and outcomes of their collaborative efforts. I do not believe this is related to the level of discourse that transpired, but it did bring light to a noticeable difference in the

written reflections. As a team, the fourth grade participants largely wrote about concepts and constructs of their learning. Whereas the first grade team provided more concrete examples, recounting the specifics of their experiences and what they learned.

Similarities between both cases provide some insight into the level of consistency and possible outcomes that can be expected from participation in lesson study. Whereas the differences help illuminate the nuances of lesson study. Working collaboratively is new for many teachers and schools and initially it can be challenging and/or uncomfortable. As teams are formed and move into this arena, it is likely they will be in very different places. However, based on the experience of the two teams in this research study, one can argue that the lesson study process may have the potential to support teams that are in different places regarding their collaborative work. Nevertheless, it should also be noted that teams in this study also benefited from the guidance and knowledgeable of facilitators, who had training and experience in how to support and develop collaborative teams.

Chapter V

Interpretation and Discussion of Results

This study examined two groups of teachers engaged in the lesson study process. Its intent was to describe their experiences in detail. It also aimed to evaluate how lesson study influences school based professional learning teams and teachers' perceptions and/or practices. In this concluding chapter I will provide an interpretation of my findings as well as recommendations to those considering engaging in the lesson study process and/or conducting further research.

There is little disagreement amongst educational researchers that if schools are to change and improve, they must develop into professional learning communities. In the book titled, *On Common Ground*: *The Power of Professional Learning Communities*, a cadre of prominent educational researchers, writers, and thinkers make a case for and fully endorse the use of professional learning communities to change instructional practices and improve student performance (Barth et al., 2005). In the book's introduction, Mike Smoker (2005) states, "If there is anything the research community agrees on it is this: The right kind of continuous, structured teacher collaboration improves the quality of teaching and pays big, often immediate, dividends in student learning and teacher morale in virtually any setting" (p. xii). However, there does seem to be disagreement regarding how this is best achieved. Although professional learning communities have been successfully developed in some schools throughout the United States, they remain the exception rather than the rule. How can the research be so convincing, yet so many schools and school districts continue to make use of professional learning models that have yielded little or no change to instruction or learning? Perhaps it

has something to with the fact that, in most cases, the change entails a significant modification from how schools have operated for decades. These efforts are additionally hampered by the reality that many school leaders do not have the training or expertise to facilitate this work.

DuFour, Eaker, and DuFour (2005) proclaim that one of the most significant barriers to implementing successful professional learning communities is substituting a decision for action. They explain that many school districts suffer from the delusion that a decision made from someone in a leadership position will actually result in having teachers act in a new way. One example of this is illustrated in how curriculum guides have been traditionally passed down to teachers. Although it was has been assumed that this would cause teachers to modify their instruction and the content being taught, studies have shown that there is a huge departure between the written and delivered curriculum (Marzano, 2003). This is true for developing teacher collaboration as well. Providing teachers time and space to collaborate is simply not enough.

This research study provides insight into how complicated and difficult this work can be. However, it also demonstrates how lesson study can be used as a mechanism to assist in the development of school based learning communities. The similarities and consistencies between both cases, illustrate the potential lesson study may have to support the development of collaborative teacher teams. Lesson study has enabled the teachers in this study to participate in continuous, structured collaboration. In both cases, teachers met regularly as a team. They identified and established common student expectations and goals, and then created lessons to support students in meeting the desired objectives. As they implemented these lessons, they also observed and assessed

student learning; reflected on learning outcomes and instructional decisions; and used this information to make modifications to their instruction.

In addition, both cases encompassed many of the attributes researchers have identified as essential components of effective professional development for teachers. Thompson and Goe's research (2009) supports teacher learning that is embedded within the reality of day-to-day teaching and is sustained over an extended period of time, allowing for repeated cycles of learning, practice, reflection, and adjustment. In a meta-analysis of research on effective professional development researchers found that effective professional development is (1) intensive ongoing and connected to practice (2) focused on student learning and addresses the teaching of specific curriculum content (3) aligned with school improvement priorities and goals (4) structured in a way that supports building relationships among teachers (Darling-Hammond et al., 2009, pp. 9-11). Based on the data generated and analyzed during this research study, one can conclude that the lesson study process exemplifies the type of professional learning outlined in the research on effective professional development for teachers. It is collaborative, integrates teachers' knowledge of content with pedagogy, requires active participation, and is rigorous and ongoing.

Transformational learning theory, perhaps the most noteworthy and fully developed learning theory of our time, also supports the findings outlined in this study. According to Mezirow (2009), the father of transformational learning theory, the process of critically reflecting on the assumptions underlying our and other's beliefs is what enables adults to make changes in how they perceive the world and carry out their daily work. Transformational learning theory is based on the conviction that all people need to

understand their experiences. It is when old paradigms no longer make sense that adults have the opportunity to construct new meaning.

Based on the findings of this research study, I believe this is the basic philosophy underlying the lesson study process. Participants began by identifying a problem of practice or an old paradigm that no longer worked well or was incomplete. This in turn led to a deeper examination of the problem and reflective conversations about content, student expectations, and instruction. For example, the 4th grade team found many of their students lacked the understanding of and ability to apply many of the grammatical rules and mechanics of writing. They would frequently omit or misuse punctuation. The team wondered why this was so and what they could do to support students.

The fact that the team identified and acknowledged something was amiss provided the opportunity to make new meaning and that is exactly what transpired. The next step in the lesson study process as well as the process of transformational learning is critical reflection. The collective team and the individual participants accessed resources and participated in thoughtful conversations in attempt to come to a logical understanding of the issue. They reflected upon and discussed their prior experiences teaching grammar, ultimately making a significant shift in how the team perceived grammar and how they would go forward with their instruction. One teacher discussed this transformation in his written reflection, "We went from 'grammar for the sake of grammar' to grammar so that you can efficiently convey meaning. It was a pretty profound realization for our team." Mezirow (2009) explains that transformative learning may be understood as an epistemology of how adults learn to reason for themselves and that is exactly what this

team did. They did not base their decisions on the practices or values of others, but rather they acted on their own experiences and reflections.

The learning and change that occurred in this study was dependent on the social context of transformational learning. As earlier discussed, critical reflection is a core proposition of Mezirow's transformational theory. Brookfield (2009) defines critical reflection "as the deliberate attempt to uncover, and then investigate, the paradigmatic, prescriptive, and causal assumptions that inform how we practice" (p. 125). Although this process suggests the growth and development of the individual, Brookfield (2009) views critical reflection as a social learning process. He explains people become more aware of their own assumptions when they use peers as critically reflective mirrors to provide insight into to how our practices look to others. In the absence of this process, we are in danger of falling into a self-confirming cycle where we stagnate because we become susceptible to accepting the longstanding perceptions of our experiences. Servage (2008) also argues that even the most discerning individuals benefit from the insight of others.

Based on this research, lesson study may be an approach that has the potential to produce transformative leaning in the sense that it can alter existing frames of reference. Lesson study provides the structure for learning; the learning and change that transpires is a result of the interaction between participants within that structure. This research not only highlights the benefits of critical reflection as a social process, but also provides insight into how this collaborative process may facilitate and support the critical reflection of individual participants.

Participants seemed to benefit when members of the team made their thinking and reasoning visible. These opportunities exposed participants to different perspectives and provided modeling of the reflective process. Patricia Cranton (2009) contends the first step in developing critical reflection is to expose people to different perspectives and Brookfield (2009) believes modeling is an essential component of teaching critical reflection. The participants in this study had come to understanding that they needed to explain and rationalize their ideas before they would be considered by the team. One participant wrote about this in her reflections, "It became common place for me, and to some extent the rest of my team, to, when discussing instruction and student objectives, not to accept the statements 'the students won't understand that' or 'the students already know that'…Now, you must be able to support a statement like that with evidence based on students work and your own understanding…" This statement illustrates how teammates pushed and perhaps supported one another as they worked to be more thoughtful and critical in their thinking and decision making.

Conditions for Success

As I mentioned earlier, prior to utilizing lesson study, Law Elementary School attempted to develop professional learning teams by providing common times for teachers to meet each week. This time was provided so teams of teachers could discuss new instructional strategies, analyze student work, and discuss problematic issues. However, when facilitators were not present, meetings were often unfocused and a significant amount of time was used to discuss trivial, non-instructional issues like planning field-trips.

It became clear that teachers needed a structure that would continuously press them to improve teaching and academic performance. Teachers were the ones delivering the daily instruction and they needed more involvement and freedom to make instructional decisions. However, when power was simply turned over to these teachers, they floundered and weren't sure what to do. It seemed as though teachers needed more support before they could take this work on independently. This led to the implementation of learning walks.

Learning Walks For the two years prior to initiating lesson study, every staff member participated in at least two learning walks each year. The purpose of the learning walks was to increase awareness of school wide practices related to a specific area of focus, and then to facilitate conversations about the selected area of focus. Areas of focus often related to school initiatives such as the implementation of reading and writing workshop, but also included broad school wide expectations such as rigor and levels of student engagement. Participants agreed upon criteria which would demonstrate evidence of practice, gathered specific evidence related to the selected area, shared evidence, and finally debriefed in an attempt to reach collaborative conclusions. Facilitation was done by the principal and was intended to be transparent, meaning that all participants understood the steps that were followed, and questions or misconceptions were clarified before they had a chance to impact the process.

After teams decided on a specific focus, they visited classrooms in the school to collect data that was used to develop a collective profile. Learning walks helped to calibrate the staff's vision of effective instruction. They also helped to open classroom doors and break down barriers. Teachers began to talk more openly about their practices

and this supported the development of trust amongst colleagues. Unfortunately, they resulted in little action or modification to practices. Although these efforts didn't have the outcomes hoped for, I believe they provided the conditions for successful implementation of lessons study. They allowed teachers the opportunity to observe one another and begin having conversations about instruction and learning. Teachers started to establish common expectations for students and developed common views of effective instruction. I also believe these activities signified a transfer of power and an overarching philosophy of distributed leadership.

Collaboration

Throughout this research study, collaboration between teachers was observed and cited as one of the most notable and positive attributes of the lesson study process. Many of the themes that emerged from the analysis of meeting transcripts and teachers' reflections point to the value and power of teacher collaboration. Out of the eight themes that emerged from the data, five were in some way connected to teacher collaboration. Below are the five themes:

1. Lesson study provides an opportunity to develop a common understanding of student learning goals and the content being taught.
2. Lesson study provides a concrete routine that supports collaboration, sharing, and teacher discourse.
3. Lesson study provides an opportunity for collaborative reflection on instruction through reflection on learning.
4. Teacher collaboration is an effective and necessary element of improving teaching and learning.

5. Lesson study provides ongoing opportunities for collaboration and professional learning.

The content of these themes and the fact that they comprise over sixty percent of all that were generated, demonstrate the importance of teacher collaboration to the lesson study process as well as its participants. During the focus group sessions and in participants' written reflections there were many comments about the importance of collaboration. For example on participant from the fourth grade team wrote,

> It has strengthened my belief that teachers need to be working together…We have the opportunity to deeply talk about what you notice about kids in your class and looking at the data about what kids have learned and where they are going. That piece has strengthened my belief that we all need that and that is a huge part of what we are doing during lesson study.

Similar comments were also made by members of the first grade team. For example one wrote, "After working through this lesson study process as part of the first grade team, I feel that the time to confer with colleagues is paramount as each member of the team participated and critically thought about teaching and learning."

During the fourth grade team's meetings, participants repeatedly voiced personal theories of instruction even when doing so meant disagreeing with another member of the team. On nearly all of these occasions, this was done in a collegial and professional manner. All of the participants felt that this type of discourse was beneficial and questioning one another was not taken personally. The collective team had figured out how to utilize conflict as a tool for pushing one another's thinking forward. This was a

major breakthrough that I believe resulted in furthering the individual and collective learning that transpired. One participant shared,

> The collegial work environment pushed my thinking. The openness and thoughtfulness of the process was an integral part of the process…During the process, the team members developed ideas by synthesizing their own ideas with those already entertained by the group. I thought the entire process was respectful, intellectually challenging and, of course, geared toward delivering instruction and modifying it based on observation.

Lesson study became a vehicle for teachers to learn from one another's experiences, explore and discuss new instructional strategies, and to further develop a collaborative culture. The increased knowledge of individual participants and that of the collective team, contributed the learning and growth of the organization. Every participant involved in this research study spoke of the benefits of working collaborative and the knowledge they gained from their participation.

A school culture where teachers continually collaborate around improving teaching and learning is beneficial to both teachers and students and is at the heart of developing professional learning communities in schools. However, based on my experience as an educator and involvement in this research, it is clear that moving to a collaborative culture can be difficult and brings with it a number of challenges. Based on an analysis of meeting transcripts and teachers' reflections it became evident that the lesson study model has the potential to act as a support mechanism for teachers as they attempt to move away from the isolationist culture traditionally found in schools.

Additionally, the data suggests lesson study may have led these teams to collaborate in ways they have not done previously.

Historically, schools have been structured so that teachers work in silos and as a result the nation's teachers collectively exhibit strong individualistic ethos (Darling-Hammond et al. 2009). These cultural norms are not easy to break. For some educators it remains easier to teach in isolation, and typically the structure of schools support this. However, this research exemplifies the potential and promise of structured teacher collaboration. If educators are serious about improving schools and learning, they must take heed of the notion that professional collaboration can serve as a powerful mechanism for learning and change.

Change

Meeting regularly to plan, teach, and reflect on a research lesson resulted in a deep examination of content, instructional strategies, and lesson design. Participants spent hours examining content, curriculum, research, and instructional resources. This process furthered participants understanding and knowledge in a number of areas. In both cases participants discussed the impact the process had on improving or extending their knowledge of the content being taught, the curricular goals for students, and the assessment of students. Both cases resulted in a deeper understanding of lesson design, student-to-student discourse, and teacher questioning techniques. In the end, both groups made inroads toward providing active, student-centered instruction, and incorporating additional opportunities for higher level thinking.

Partaking in lesson study has led to modifications in participants' perceptions about teaching and learning; an increased understanding of the content being taught; and

ultimately changes to participant behavior. In other words, participants made a number of alterations to their teaching practices as a result of modifications made to their underlying assumptions and beliefs. For example, one participant from the fourth grade team concluded, "I have come to realize how important it is to base our decisions on not what is covered, but what the students have learned. As a result, I have become more aware of how to differentiate, how and what questions to ask and how to better assess content." A member of the first grade team shared,

> I initially questioned the whole premise that children need to read more. But, after reviewing the Calkins' materials and some research that indicated first graders should be spending more time reading independently than we have been doing, I said, let's give it a shot. At first, I didn't think kids could do it, but they can. It is just amazing…It is amazing the number of students we have reading above grade level.

These are representative examples of the changes that occurred in participants beliefs and teaching practices. However, modifications to participants' content knowledge were also prevalent throughout the process.

As teachers worked their way through the lesson study model, they shared and discussed their ideas and beliefs about teaching and learning. Many of these discussions resulted in a reassessment and/or further examination of practices commonly used. Some of these conversations led teachers to question the purpose and/or intent of previously utilized instructional strategies. At times, participants' assumptions and beliefs about teaching, learning, and student capacity were modified. According to Mezirow's Transformational Learning Theory these changes must occur before meaningful,

sustained changes in behavior can be made (Mezirow, 2009). He contends that we transform our frames of reference through critical reflection on the assumptions that are the basis for our beliefs, habits of mind, or points of view (Mezirow, 1997). To a large extent, it was this reflective process that allowed teachers in this research study to successfully understanding and make modifications to their instruction.

Leadership Considerations

In addition to providing information on how lesson study impacts collaborative learning teams, this study also provides insight into roles of facilitators and school leaders. The detailed accounts of each case provide insight into the type of environment and leadership that allowed for the successful implementation of lesson study at Law Elementary School. It was evident throughout the study that teachers largely felt comfortable being observed by their colleagues. They also seemed comfortable having open conversations and did not get defensive when their ideas where questioned or challenged. Teams demonstrated and spoke of their commitment to continuous improvement and their willingness to embrace mistakes and the ideas of others. In part, this was possible because lesson study was not viewed as being evaluative, but rather a way for educators to learn, grow, and improve. However, it also provides insight into the level of trust that existed and the leadership philosophy that prevailed. Teachers trusted that they could talk openly without being judged by their peers or the administration. The administration trusted teachers would conduct themselves in a collegial manner and would overcome the challenges of working collaboratively.

The successful implementation of lesson study is not solely based on challenging the assumptions, beliefs, and actions of teachers, but also the assumptions, beliefs, and

actions of school leaders. Successful implementation is dependent on the willingness and desire of the school and district administration to support shared leadership models where teachers are empowered and encouraged to make instructional decisions that were traditionally relegated to a few, top level, administrators. In most cases, this transformation will require an examination of the assumptions that have driven decisions about leadership and school change. For example, it would appear that it has been assumed by some school and district administrators that teachers should not or are incapable of making these decisions.

In order for this change to occur, there must initially be an acknowledgement by leaders that top-down directives have had little impact on classroom practice. It is likely that Mezirow would consider this an old paradigm that no longer works and hence an opportunity for learning. As the administrator of Law Elementary School, I had made many of the decisions about instructional changes. However, I had come to understand that the top-down decisions I made in the past only resulted in surface level changes to teachers' instruction. To a large extent, teachers did not fully understanding the conceptual underpinnings guiding these changes and teachers' belief systems principally remained unchanged. I wondered what I could do to help teachers understand these concepts. Pondering my previous experiences and what I knew and read about teacher professional development, leadership, and adult learning theory, I recognized the need to empower teachers and provide them with opportunities to create their own meaning. Teachers needed time to analyze and discuss their underlying assumptions, beliefs, and practices. I concluded this was the only way teachers would make substantive changes, and in order for this to occur I needed to change. I had come to understand that it wasn't

about imparting my knowledge or idea, but about supporting teachers as adult learners so that they could construct their own meaning.

Successful and sustained school improvement efforts are reliant on moving away from top-down practices of the past and require a restructuring of power. Teachers must be given the authority to innovate and their ideas must be valued and nurtured by school administration. However, this is not as simple as turning over the reins. It involves utilizing a model, such as lesson study, that ensures teachers' decisions are based on a thoughtful review of curricula, research, and student performance. It also requires a commitment and belief by administration that teacher collaboration and shared leadership are essential to achieving meaningful and sustained improvements.

Although the popularized view of lesson study in the United States seems to be that lesson study is completely teacher-led and teacher-run, this study illustrates the importance and role of knowledgeable others and process facilitators. Knowledgeable others and process facilitators were involved throughout the entire process. Facilitators regularly met to discuss challenges, review resources and discuss the best ways to support teachers. As participants were largely novices to lesson study, facilitation was necessary to help participants learn and understand the critical components. Additionally, facilitators worked to prepare teachers to take-on more responsibility for facilitating the process in the future. At times, this work was like walking a tight rope, it was important for facilitators to help participants understand the process, but also function as equals with regard to conversations about instruction and content. This challenge was exemplified in the written reflection of one facilitator,

> The dynamics of the Team and my role as both Team Member and Facilitator has been challenging. I have learned that while the discussions have been good, a decision needs to be made; and without a facilitator, getting to that decision has sometimes been cumbersome. When to step in and when to let the conversation go has been a balancing act.

It is clear that within the lessons study structure and process there is an important and critical role for school administrators as well as other internal and external facilitators. As this study confirms, these positions and roles can be essential to supporting and facilitating collaboration, instructional planning, and/or the expansion of content knowledge. It appears as though this form of professional development may lie along a continuum, from facilitator-led to fully teacher-led. Although different teams will require varying levels of support, this research provides some evidence that a gradual release of responsibility model may be beneficial to novice teachers.

Teacher Efficacy

This study indicated that participation in lesson may help to develop teacher's beliefs about the efficacy of their work and the impact of their instruction. The lesson study process provided opportunities for teachers to explicitly make connections between instructional choices and student outcomes. For example, one participant from the first grade team commented, "From the lesson study data, it is clear that the average reader is using the strategies that they have been taught in our mini-lessons. I have also noticed children are moving more quickly through the DRA2 levels than in years before."

Similar comments that were indications of teacher efficacy were made by participants throughout the process. When discussing students' poor performance, one

teacher from the fourth grade team commented, “It is broken, so we have to fix it.” This statement was an indication that he believed the current instruction was inadequate and that collaboratively the team had the wherewithal to improve their current practice and in turn student learning. During the first grade focus group meeting, one participant commented, “It is about how I can help these kids better and what instruction I can provide these kids so they meet the expectations.” It was clear that teachers had come to believe that their decisions and their instruction were directly related to student performance, and these comments were consistent with the shift I observed in discussions held by both groups. They moved from focusing on why students didn’t reach the expected outcomes to what teachers could do to ensure they did. This monumental shift seems paramount to the development a school culture that is committed to continuous improvement and the success of every student.

Challenges

Although both teams and all of the participants involved in this research benefited in a number of ways, they also faced challenges during the process. In some instances these challenges were largely overcome, but in other circumstances additional time and practice may be necessary. One example, prevalent in both cases, was the challenge designing a sequence of learning experiences that built on one another in a way that supported and furthered progress toward a specific learning objective. Both teams worked to improve this alignment when revising their initial research lessons. Although modifications resulted in improvements to instruction and student learning, this was an issue that consumed at great deal of time for both teams and required facilitator support to reconcile.

These discussions illuminated the importance of initially establishing clear and measurable learning objectives for students. When learning objectives were unclear or lacked specificity, it was impossible to develop cohesive instruction or measure student outcomes. Developing specific, measurable learning objectives for each lesson was new and difficult for participants. Initially, the learning objectives proposed by each team were vague and difficult or impossible to measure. In some cases they were descriptions of what activities students would do as opposed to statements of what students will know and be able to do. However, with support and time both teams improved in their ability to write clear, measurable goals. As they continued through the process, both teams developed an understanding and appreciation for the relationship between clear, measurable objectives and effective instruction. With that said, I also believe this likely to be an area that will require future support and practice before it develops into a habit of mind.

In addition to instructional planning challenges there were a few more issues that emerged. While teams and individuals grew and benefited enormously from working together, there were times when participants were challenged by this work. On a number of occasions conversations and meetings became dominated by a few participants. Although this seemed to be less prominent as participants became more comfortable with the process and each other, it still occurred from time to time. The use of meeting norms also helped to make participants more conscious of this issue (see Appendix D).

Minor challenges with scheduling were described in few participants' written reflections and discussed during one of the focus group meetings. These issues were not detrimental to participants' work, outcomes, or overall attitude about lesson study, but

nevertheless brought light to issues that could potentially be rectified or prevented in the future. For example, one participant spoke of the challenges of staying on a precise lesson schedule. Since his team's research lesson fell within a series of lessons, it was crucial that the previous lessons were taught prior to the scheduled date of the research lesson. He felt that this left very little room for error or addressing problems that might arise.

Recommendations

Based on this research, lesson study provides the structure that is necessary for facilitating professional learning in schools. However, others implementing lesson study for the first time should be cognizant of factors that may limit its success or prevent the practice from being purposeful and powerful. Below are recommendations I would make to those considering engaging in the lesson study process:

1. Initially, the learning curve can be very steep. Participants new to the process can get overwhelmed by the combination of working collaboratively, learning new content and instructional strategies, and also learning the intricacies of the lesson study process. Having an inside or outside facilitator that is knowledgeable about lessons study and its implementation can help prevent and manage these issues.
2. Based on this research, participants may need assistance in writing clear, measurable learning objectives. Robert Marzano's book (2009), *Designing & Teaching Learning Goals & Objectives* may be a helpful resource.
3. Be careful when designing instruction to make certain all of the activities are connected in a way that supports and scaffolds student learning in a manner that allows attainment of the lesson objectives.

4. Facilitating teacher collaboration is challenging work. Initially, helping teachers to explicitly recognize small achievements is important. This may entail things they have learned or the gains students have made. It is also important to help teachers understand the attributes of effective collaboration and the beneficial role conflict can play.
5. Do your best to take scheduling and coverage issues out of the equation. These are typically issues that can be avoided, but if they are left unmanaged they can be an additional source of stress for participants.

One can conclude from this particular case study that there is measurable value to teachers and their students to participate in such a rigorous, thought provoking process such as lesson study. Whether efforts of this nature can be sustained overtime has yet to be determined. However, the passion for learning and working collaboratively exhibited by the participants in both of these cases, provides hope that it may attract the attention of other educators and/or district policy makers. This research also makes one contemplate the possibility of utilizing "learning walks" as a means of launching lesson study. Although this research sheds light onto the potential benefits of utilizing lesson study, and provides an example what lesson study can look like in the United States, there is still much to be learned. Longitudinal studies and larger groups of teachers are necessary in order to determine how lesson study supports sustained teacher changes and how participation in lesson study impacts the long-term performance of students.

Appendix A

Lesley University – Cambridge, Massachusetts
Informed Consent to Participate in Research
Information to Consider Before Taking Part in this Research Study

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Researchers at Lesley University study many topics. To do this, we need the help of people who agree to take part in a research study. This form tells you about this research study.

We are asking you to take part in a research study that is called: How Lesson Study supports Teacher Teams.

The person who is in charge of this research study is Anthony Buono. He is under the guidance of Dr. Terrence Keeney in the School of Education, PhD in Educational Studies: Adult Learning at Lesley University Cambridge, Massachusetts.

The research will be done at Mary T. Murphy School in Branford, Connecticut.

Purpose of the study

The purpose of this research is to learn how the Lesson Study process supports professional learning teams. Specifically, this study will be to gain insight into how teams function, grow, and learn as they participate in lesson study.

Study Procedures

If you take part in this study, you will be asked to

1. have all of your Lesson Study meetings video recorded so that the videos can be coded and analyzed for themes.

2. participate in interviews where participants share their insight and ideas about the Lesson Study experience.

3. allow all documents produced during the Lesson Study process to be reviewed and analyzed.

This research will take place at Mary T. Murphy School from September 2011 – January 2012. All data collected, including video recordings will solely and exclusively be used for research. Only those directly involved in the research will have access to the videos and they will not be used for any other purpose without your consent.

Risks or Discomfort

This research is considered to be minimal risk. That means that the risks associated with this study are the same as what you face every day. There are no known additional risks to those who take part in this study.

Confidentiality

The identities and names of participants will remain confidential during all aspects of data analysis and reporting. Some historical and demographic data may be utilized for the final report and during presentations of the research. However, I will be identified as the researcher, participant, and principal of the school, making identification of participants possible. Although this may compromise the anonymity of participants, the identification or potential identification of participants will in no way negatively impact those involved in the research.

Voluntary Participation / Withdrawal

You should only take part in this study if you want to volunteer. You should not feel that there is any pressure to take part in the study, to please the investigator or the research staff. You are free to participate in this research or withdraw at any time. There will be no penalty or loss of benefits you are entitled to receive if you stop taking part in this study. Your decision to participate or not to participate will not affect your job status.

Questions, concerns, or complaints

If you have any questions, concerns or complaints about this study, call Anthony G. Buono at (203) 915-7513.

If you have questions about your rights as a participant in this study, general questions, or have complaints, concerns or issues you want to discuss with someone outside the research, contact **Dr. Terrence Keeney at tkeeney@lesley.edu.**

Lesley University also maintains an Institutional Review Board (IRB) to ensure the protection of participants in research. If you have any questions or concerns about this research, please contact Dr. Gene Diaz, Co-Chair, IRB, gdiaz@lesley.edu.

Consent to Take Part in this Research Study

It is up to you to decide whether you want to take part in this study. If you want to take part, please sign the form, if the following statements are true.

I freely give my consent to take part in this study. I understand that by signing this form I am agreeing to take part in research. I have received a copy of this form to take with me.

_____ _____

Signature of Person Taking Part in Study Date

_____

Printed Name of Person Taking Part in Study

Appendix B

Grade One Lesson Study Report

Final revision: 12-7-11

Title of Lesson: Readers re-read to make sure that what they are reading is right.

Rationale: Based on student reading performance last year, students were lacking in reading fluency which affected their comprehension. Students were unable to efficiently utilize reading strategies to solve unknown words to increase fluency and comprehension.

Common Core Content Standard(s):

Previous **Grade Level: __K___**	**Targeted** **Grade Level: ___1___**	**Next** **Grade Level: __2___**
RF4. Read emergent-reader texts with purpose and understanding.	RF4. Read with sufficient accuracy and fluency to support comprehension. a. Read on-level text with purpose and understanding. b. Read on-level text orally with accuracy, appropriate rate, and expression on successive readings. c. Use context to confirm or self-correct word recognition and understanding, rereading as necessary.	RF4. Read with sufficient accuracy and fluency to support comprehension. a. Read on-level text with purpose and understanding. b. Read on-level text orally with accuracy, appropriate rate, and expression on successive readings. c. Use context to confirm or self-correct word recognition and understanding, rereading as necessary.

Objective(s) *:*

- Students will be able to use all they know about letters, sounds, patterns, and snap words to help them read.
- Students will be able to check and fix their words when they notice something is not quite right while reading.

Instructional Plan (Unit Plan):

Week One

1. Readers use what they know about other words to help figure out a new word.
    i. PA10: Hearing and changing ending sounds.
    ii. PA11: Hearing and changing first and last sounds.
2. Readers use what they know about letters and patterns from word study to help read books.
3. Readers need to look all the way across words to help read.

Week Two

4. Readers read snap words "in a snap".
5. Readers use words they know to help read all the way through a word.
    i. LS7-11: Recognizing common consonant clusters.
6. Readers check their own reading to know if it's right.

Week Three

7. Readers re-read to make sure that what they are reading is right (Research Lesson)
    i. LS17-18: Recognizing common consonant digraphs.
8. Readers use what they have learned about parts of words to help check their words.

Instruction of the Lesson

Lesson Objective(s):

- Students will be able to notice when something is not right and re-read text when something does not make sense.
- Students will be able to **self-assess** their reading for syntax, phonics, and comprehension.

Team Learning Goal:

- Is the Lucy Calkin's model (sequence and scope of instruction) effective in students' obtaining and applying the use of reading strategies (self-monitoring and self-evaluating)?

Considerations in Planning the Unit and Lesson

Based on student performance in previous years, the lesson study team decided on focusing their research on one of Lucy Calkins' Reading Workshop Units. This research lesson focuses on a student monitoring his/her own reading. The goal of the entire Lucy Calkins' unit is to increase a reader's fluency and comprehension .

The lesson study research team examined the following resources in developing this lesson:

- A Curricular Plan for The Reading Workshop: Grade 1, Lucy Calkins. The research team utilized the Lucy Calkins' reading workshop guide to model the scope and sequence of this unit's lessons. This is the first time our team has studied and utilized this model of reading workshop. As stated previously, historically our first grade students have fallen short in reading

fluency and comprehension. We decided to focus our attention on *Unit Two: Tackling Trouble, "When Readers Come to Hard Words and Tricky Parts of Books, We Try Harder and Harder (Assessment-Based Small-Group Work)."*

- The Fountas & Pinnell Prompting Guide 1: A Tool for Literacy Teachers. In discussing how we would teach, model, prompt, and reinforce the principles of this lesson, the research team utilized this guide to develop specific prompts in guiding the students. The team looked at the section "Monitoring and Correcting", specifically, "Self-Monitoring". We focused our attention on the prompts that guide students to stop reading when what they are reading doesn't make sense. This coincides with the strategies of the research lesson.
- Phonics Lessons: Grade 1, Fountas & Pinnell. The Lucy Calkins' reading workshop guide suggests a word study curriculum piece to coincide with the workshop minilessons. The team used her suggestions in addition to the students' current phonics needs as to what phonics lessons would be taught throughout the unit. Theoretically the students would be able to transfer their use of word knowledge to increase their reading ability. The phonics lessons are derived from this Fountas and Pinnell compilation.
- Teacher College Reading and Writing Project (TCRWP),website. The research team initially developed a reading behavior checklist to monitor their students' reading performance and actions. We decided it was too difficult to gather reliable data in one discrete lesson using this method. We retained the checklist for future use, but decided on using a class checklist of self-monitoring/rereading for use during the research lesson.

Process of the Lesson:

Student Activities, Teacher's Questions and Anticipated Student Reactions	**Teacher Support and Things to Remember**	**Points of Evaluation**
1. _*Hook*__ (_5_ min.) Teacher tells story of riding a bike uphill. The bike gets wobbly and you need to get off-downhill--when you ride without even pedaling--and on level ground. Ask, "Do any of you ever feel like some books are uphill books?" "Exhausting, no-fun books that make your reading all wobbly?" Explain that "flat-road" books are just-right books. "Bumps in the road" are when you come to tricky parts in books….	Show the poster of a bicycle rider travelling over a bump in the road.	Team observations: The students were on task. For example, they were nodding their heads and making comments. Note: For the second lesson, the teacher displayed the "hook" poster on the easel with the strategy written in large print on the chart paper as a reference for the students.
2. _*Posing a problem/objective*____ (_10_ min.) **What do you do when you come to a bump in the road? Today I want to teach you that when readers come to a bump in the road, they <u>re-read</u> to make sure that what they are reading is right.** Let's listen to part of a story we have heard before. Teacher will read a page of a familiar text (e.g., <u>A Chair for My</u>	**Model and Think Aloud** Teacher will say: I said "<u>pet</u>", Can I say that? "Hmmm, does that make sense?" "Does it sound right?" "What *would* make sense here?" "Hmmmm, 'put' makes sense here. "Let me read that again and try that. Put does	

Mother). Teacher will change one of the words so a sentence doesn't make sense. Teacher will think out loud as she works through the "bump" that doesn't sound right. **Teacher will explicitly tell the students, "I will be making mistakes as I read. I want you to be listening for parts that do not make sense. The first example I am going to think aloud how I think through this process. Listen:" On the 1st page of the text, the teacher will read the whole page and on the last sentence they will read "And every time, I pet half of my money into the jar" instead of "And every time, I put half of my money into the jar." Teacher explicitly explains why PET doesn't make sense here. You wouldn't PET money. You would PUT money in a jar. Refer to the chart about "Does it sound right, look right, and make sense?"	make sense and it sounds right." **Guided Practice** Teacher will say: "What did you notice about what just happened?" Turn and talk to your partner to discuss. One set of partners is chosen to share out their thoughts. Teacher will ask them why doesn't "looked" make sense here and "liked" does make sense here?	Note: Teacher referred to pink poster, "does it look right, sound right, make sense. Anticipated responses for turn and talk: Students might say: "The teacher noticed that that didn't sound right and didn't make sense. She re-read the sentence again so it would make sense. "Liked" makes sense and "looked" didn't. If the response makes sense, then affirm that that word choice would work. If it doesn't make sense then say, "Does that sound right?
**Teacher: "On this second example, you will be discussing with your partner		

what doesn't make sense. Let's listen:" "She was saying she looked red tulips and I was saying I liked yellow ones." Teacher makes a puzzled face or a Hmmm. Then the teacher models rereading the sentence correctly, emphasizing the word she corrected (liked).		
3. _*Lesson Activities*___ 35 minutes Independent Reading (20 min.) Mini mini-lesson/ check in (5 mins) Buddy Reading(10 mins) ***Students will stop and notice at point of error or after reading a sentence that something didn't make sense or sound right.*** ***Students will prompt their partners to use the rereading strategy to get unstuck.***	Today when you are reading during independent reading time and you find a "bump in the road" ask yourself does that word make sense? Go back and reread the sentence. When readers notice something is not right, they don't just keep reading. We stop, check it, and try something else. **Possible Prompts by Teacher while observing**	Classroom teacher will circulate during independent reading and listen for or observe use of this strategy. Teacher will teach for, prompt for or reinforce the monitoring strategy during mini conferences (stop, check it, and try something else.) The teacher will choose two students to share how they successfully used the strategy of rereading when the stuck.

	students You said ____. That doesn't sound right. That doesn't make sense. Listen to this (Model two choices). Which one sounds better? You can think what would sound right and what makes sense. You said ____. Does that sound right? Does that make sense? Would ____ (model correct structure) sound right? Try that again and think what would sound right. Try ____ (insert correct structure). Would that sound right? What would make sense? **<u>REINFORCE:</u>** You made it sound right. (after problem solving) That's how it would sound. You stopped, and you noticed a tricky part/bump. You checked it, and you tried something else.	Note: Teacher referred back to posters during students' share.

	<u>Partner prompts:</u> (mini mini-lesson before buddy reading) Teacher picks two students to share out their strategy of rereading using examples form their books. Teacher reminds partners to help each other when they get stuck but not read the words for them. Refer to the charts. "What would this look like?" "What is something you can say to help your buddy?" STOP, CHECK IT, LET'S FIX IT and TRY IT AGAIN WITH YOUR NEW WORD,REREAD IT	Classroom teacher will circulate during buddy reading and listen for or observe use of this strategy. Students will prompt their partners for rereading when they are stuck.
2. _*Student Presentation and Discussion*___ (5 min.) 3. Teacher will choose a set of buddy readers who will demonstrate using the rereading strategy when they got stuck on a tricky part (bump on a road).	I noticed when you got stuck you stopped and went back to reread. Were you able to solve the tricky part? Did rereading help you figure it out?	

Evaluation of the Lesson:

- Was there evidence that students monitor their own reading?
- Did students stop reading when something didn't look right, sound right, or make sense?
- Did students go back and reread either one word or a phrase?
- Were students able to listen to their partner's reading and help them?

The research team believes that, based on the lesson observation, students were for the most part monitoring their individual reading. We noticed that readers were going back and rereading when they got stuck, at least at the word level. Some students were rereading phrases and sentences and trying decoding strategies to figure out unknown words. Rereading did not help, however, when the unknown word was not in the student's vocabulary or background knowledge.

We based this analysis on the data collected from the checklist of self-monitoring behaviors. We noticed that this checklist was not an effective tool at gathering pertinent data for self-monitoring. For example, the checklist did not account properly for some of the higher level readers who did not need to stop and reread. We modified this checklist from the first lesson to the second lesson to gather more specific data, but we believe this tool should still be revised. The best tool would be a series of individual running records to better analyze a reader's behavior. However for a whole class research lesson, this tactic was impractical.

Finally, the research team observed that when students were reading with partners, they did not help enforce the rereading strategy to each other. For the most part, when a reader encountered an unknown word, the partner either would not notice the reader was stuck or made an error. Or, if the partner did offer help, it came in the form of "telling" his/her partner the unknown word. As a result of this observation, the research team has focused subsequent mini-lessons on effective partner conversations, partner roles and responsibilities.

Appendix C

Rereading Your Writing:
A Lesson Study Research Project

Grade Four

Mary T. Murphy School

Branford, CT

Rationale:

Grade 3 2011 CMT Scores: Composing and Revising 36% Editing 61%

Grade 4 2011 CMT Scores: Composing and Revising 46% Editing 67%

In looking at the results from our classes from last year, and in looking at the data from our incoming class, we're in agreement that this is a continuing area in need of improvement. We see areas for improvement in reading with fluency and expression to understand text. Children are not reading their writing over, nor are they making changes to their writing after a first draft, unless specifically given that instruction. Students need strategies to guide them through the process of rereading their writing.

Common Core Content Standard(s):

Grade Level: __3__	**Grade Level: __4__**	**Grade Level: __5__**
Writing Standard: 4. With guidance and support from adults, produce writing in which the development and organization are appropriate to task and purpose. (Grade-specific expectations for writing types are defined in standards 1-3 above.) 5. With guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, and editing. (Editing for conventions should demonstrate command of Language standards 1-3 up to and including grade 2.)	**Writing Standard:** 4. With guidance and support from adults, produce writing in which the development and organization are appropriate to task and purpose. (Grade-specific expectations for writing types are defined in standards 1-3 above.) 5. With guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, and editing. (Editing for conventions should demonstrate command of Language standards 1-3 up to and including grade 3.)	**Writing Standard:** 4. With guidance and support from adults, produce writing in which the development and organization are appropriate to task and purpose. (Grade-specific expectations for writing types are defined in standards 1-3 above.) 5. With guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, and editing. (Editing for conventions should demonstrate command of Language standards 1-3 up to and including grade 4.).
Language Standard: 1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking. a. Explain the function of nouns, pronouns, verbs, adjectives, and adverbs in general and their functions in particular sentences. b. Form and use regular	**Language Standard:** 1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking. a. Use relative pronouns (*who, whose, whom, which, that*) and relative adverbs (*where, when, why*). b. Form and use the progressive (e.g., *I was*	**Language Standard:** 1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking. a. Explain the function of conjunctions, prepositions, and interjections in general and their function in particular sentences. b. Form and use the perfect

and irregular plural nouns. c. Use abstract nouns (e.g., *childhood*). d. Form and use regular and irregular verbs. e. Form and use the simple (e.g., *I walked; I walk; I will walk)* verb tenses. f. Ensure subject-verb and pronoun-antecedent agreement.* g. Form and use comparative and superlative adjectives and adverbs, and choose between them depending on what is to be modified. h. Use coordinating and subordinating conjunctions. i. Produce simple, compound, and complex sentences. 2. Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing. a. Capitalize appropriate words in titles. b. Use commas in addresses. c. Use commas and quotation marks in dialogue. d. Form and use possessives. e. Use conventional spelling for high-frequency and other studies words and for adding suffixes to base words (e.g., *sitting, smiled, cries, happiness*.) f. Use spelling patterns and generalizations (e.g., *word families, position-based spellings, syllable patterns, ending rules, meaningful word parts)* in writing works. g. Consult reference materials, including beginning dictionaries, as needed to check and correct spellings. 3. Use knowledge of language and its conventions when	*walking; I am walking; I will be walking*) verb tenses. c. Use modal auxiliaries (e.g., *can, may must*) to convey various conditions. d. Order adjectives within sentences according to conventional patterns (e.g., *a small red bag* rather than *a red small bag*). e. Form and use prepositional phrases. f. Produce complete sentences, recognizing and correcting inappropriate fragments and run-ons.* g. Correctly use frequently confused words (e.g., *to, too, two; there, their*).* 2. Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing. a. Use the correct capitalization. b. Use commas and quotation marks to mark direct speech and quotations from a text. c. Use a comma before a coordinating conjunction in a compound sentence. d. Spell grade-appropriate words correctly, consulting references as needed. 3. Use knowledge of language and its conventions when writing, speaking, reading, or listening. a. Choose words and phrases to convey ideas precisely.* b. Choose punctuation for effect.* c. Differentiate between contexts that call for formal English (e.g., presenting ideas) and situations where informal discourse is	(e.g., *I had walked; I have walked; I will have walked)* verb tenses. c. Use verb tense to convey various times, sequences, states, and conditions. d. Recognize and correct inappropriate shifts in verb tense.* e. Use correlative conjunctions (e.g., *either/or, neither/nor).* 2. Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing. a. Use punctuation to separate items in a series.* b. Use a comma to separate an introductory element from the rest of the sentence. c. Use a comma to set off the words *yes* and *no* (e.g., *Yes, thank you*), to set off a tag question from the rest of the sentence (e.g., *It's true, isn't it?*), and to indicate direct address (e.g., *Is that you, Steve?*). d. Use underlining, quotation marks, or italics to indicate titles of works. e. Spell grade-appropriate words correctly, consulting references as needed. 3. Use knowledge of language and its conventions when writing, speaking, reading, or listening. a. Expand, combine, and reduce sentences for meaning, reader/listener interests, and style. b. Compare and contrast the varieties of English (e.g., *dialects, registers*) used in stories, dramas, or poems.

writing, speaking, reading, or listening. a. Choose words and phrases for effect.* b. Recognize and observe differences between conventions of spoken and written standard English.	appropriate (e.g., small-group discussion).	
Foundational Reading Skills Standard: 4. Read with sufficient accuracy and fluency to support comprehension. a. Read on-level text with purpose and understanding.	**Foundational Reading Skills Standard:** 4. Read with sufficient accuracy and fluency to support comprehension. **a.** Read on-level text with purpose and understanding.	**Foundational Reading Skills Standard:** 5. Read with sufficient accuracy and fluency to support comprehension. a. Read on-level text with purpose and understanding.

Overarching Unit Goal:

Students will understand that, as writers, mechanics and sentence structure are the vehicles through which they create meaning for their reader. Revision is an ongoing process where writers often collaborate to monitor for meaning.

Unit Objective(s):

Students will be able to produce simple, compound, and complex sentences in order to convey meaning.
Students will be able to choose specific words, phrases, and punctuation (exclamation points, question marks, periods, and quotation marks) to convey meaning.
Students will be able to appropriately use commas to convey meaning.
Students will be able to reread their writing to check for fluency and to make sure it says what they want it to say.
Students will be able to collaboratively discuss their ideas.

Assessment of Unit Goals and Objectives

Informal assessments/observations of students' writing
Performance Task
Observations of student discussion
Use of "thinking prompts" in discussions (Appendix)
Exit Slips (Appendix)

Considerations:

Mechanically Inclined by Jeff Anderson

Lucy Calkins' Writing Units

Trade Daily Oral Language

After the End by Barry Lane

Mastering the Mechanics by Hoyt and Therriault

Reflecting back, we came to the conclusion that most of the instruction given to students took place in the following ways: short lessons during Writer's Workshop, Daily Oral Language practice, during test preparation, or conferring with particular students during Writers' or Readers' Workshops. We consulted the above resources to determine what type of instruction we would give, how it would be formatted, and what the structure of the lessons would be.

We found Jeff Anderson's book, Mechanically Inclined, to be extremely useful. He suggested that instruction take place within the literacy block (Readers' and Writers' Workshops). Instruction should be put in the context of literature or students' writing, as he believes that making the instruction authentic for the students allows for mastery and understanding by the students.

Instructional Plan (Unit Plan):

How Does Punctuation Affect Meaning?

Lesson 1	Punctuation Matters Punctuation matters just as much as the words you choose. Demonstrate how punctuation, specifically periods, capitals, and commas, can change the meaning of a sentence or a story if a reader reads it incorrectly OR it is written incorrectly.
Lesson 2	Just Capitalize! Writers use capitals appropriately. Writers use capitals for beginnings of sentences and proper nouns.
Lesson 3	Periods Writers end most thoughts with a period. A period shows that the thought is complete and the writer has moved on to a new thought.
Lesson 4	What is a Complete Thought? Complete thoughts contain a "who/what" and "did/is". Sentences all have a subject and a verb. Students identify subject and verb from more complex sentences.
Lesson 5	How Much Is Too Much? Writers recognize when there are too many thoughts in one sentence. Students identify ideas in a sentence and break them apart into more than one sentence.
Lesson 6	Compound Sentences (commas) Writers combine ideas in a sentence using specific words. Students are introduced to conjunctions *but, or, and, so.*
Lesson 7	Compound Sentences(commas) Writers combine ideas in a sentence using specific words. Students use conjunctions in specific sentences to clarify meaning.

Lesson 8	<u>Reading Your Writing – RESEARCH LESSON</u> Writers take a break to read their writing over to listen for meaning and fluency. Writers make changes to punctuation (specifically capitals, punctuation marks, and sentence structure) to clarify meaning.
Lesson 9	<u>Sentence Choice</u> Writers think about what type of sentence to use to convey their thoughts.
Lesson 10	<u>Peer Editing</u> Writers rely on peer editors to listen for meaning and fluency. Students work together on listening to a piece and making changes based on meaning and fluency.

<u>Student Activities, Teacher's Questions and Anticipated Student Reactions</u>	**<u>Teacher Support and Things to Remember</u>**	**<u>Points of Evaluation</u>**
<u>Stating objective: 2 min.</u> **"Writers always reread their writing to check for fluency and to make sure it says what they want it to say."**	Post teaching point on Smartboard.	
<u>Think Aloud: 10 minutes</u> Show a piece from own notebook. "I've pulled a piece from my own notebook about a time I was in a Spelling Bee in 4th grade. I was so nervous to stand in front of all those people! This is from the beginning of my story. As I read, I'll be following some "Good Writer Guidelines" to make some changes to my writing." Show only first sentence of written piece. ***My hands were sweating my mind was clear.*** *The microphone rang out with the first word I took a deep breath I remembered practicing that word yesterday I knew I couldn't get it wrong.* Talk through different choices. Model choices made, following steps of poster. Change punctuation. Reread <u>Guided Practice: 10 – 15 minutes</u> Follow the "Good Writers Guidelines" to reread the rest of my paragraph. Make what changes you think need to be made. Then, in pairs, use the thinking prompts and hold a	Refer to "Good Writer Guidelines" • Identify the meaning. • Read exactly what is written. • Try and make changes. • Reread with the changes. • Ask, "Is it clear?" • Ask, "Does it make my meaning clear?" Specific changes to make: • Separate sentences (separate ideas – hand-mind) • Add *and* (connected ideas, both about feelings) • Add *but* (ideas are opposite – nervous but	Are students able to read piece exactly as it is written to see if it makes sense? -Use of sentence stems during discussions -Quality of discussion(focused discussion)

discussion about the changes they made and why they made them. Model use of thinking prompts Bring group together to go over punctuation changes they made in sentences. Ask students to share sentence, reading it as they have made changes. Record changes on board. Model changes students made, asking them to read the sentences with the punctuation changes.	ready) Model thinking prompts: • What makes you think that? • I was thinking something different. I was thinking . . . Look for pair of students with differing opinions on same sentence to begin discussion.	Are students able to put in periods for piece to make sense? Are they rereading after punctuation to see if it makes sense? Are students able to discuss *why* punctuation changes make more sense?
Independent Practice: 20 min. In your Writer's Notebook, find a piece to practice. Follow our guidelines. Make your changes with a colored pencil. We'll be asking you to choose one change to discuss with your partner. (Monitor students' changes, looking for periods, capitals, commas, BOAS) Put a ☺ next to a change you made. Find your Writing Partner and discuss your change and why you made it. Use the Thinking Prompts in your discussion.	Monitor students' independent practice for changes to periods, capitals, commas, BOAS, and meaning. Ask, what are you working on now? Looking for a specific convention – refer to editor's poster.	Do students read piece out loud or to themselves exactly as it is written? Are students able to monitor and use resources in room to adjust punctuation? Are students able to read piece exactly as it is written to see if it makes sense? • Use of sentence stems during discussions • Quality of discussion(focused discussion) Are students able to put in periods for piece to make sense? Are they rereading after punctuation to see if it makes sense? Are students able to discuss/justify *why* punctuation changes make piece have more sense?

Whole Class Discussion (10 min) Gather students together "How does the strategy of rereading help you to improve the message of your writing?"	Keep students on task and facilitate discussion. Post "question" on the board.	Participation of students during discussion. Monitor for "big ideas" students came away with after lesson.
Exit Slips (5 min.) Students will fill out exit slips based on work and ending discussion.	Exit Slip: Explain the change you made in your writing. Why is it important that writers reread their writing?	

Modifications

Modifications were made for several students in the classroom who would not be able to complete these tasks independently. They had individual "Good Writer Guidelines" in front of them. They also had a list of the different changes writers could make in front of them. An aide worked with them in a small group to help them develop their conversation.

Evaluation

The second lesson proved to be more effective than the first when considering the data collected around the thinking prompts. In the final lesson, the modeling of the thinking prompts helped many (but not all) of the conversations go past sharing an answer, round-robin style. Some groups had success in a deeper conversation.

When looking at the exit slips, we found that, while most students were able to identify a change to make in their writing, some of them still struggled to explain their thinking about why they made those changes. Even after practice and a whole class discussion around the changes and the purpose

behind making changes to our writing, the students still did not show ownership of that idea.

Appendices

Exit Slip

Name:_____ Date:_____

Explain the change you made in your writing.

Why is it important that writers reread their writing?

Thinking Prompts

"That's not what I was thinking. I was thinking . . ."

"What made you think that?"

Performance Task

My hands were sweating my mind was clear. The microphone rang out with the first word I took a deep breath I remembered practicing that word yesterday I knew I couldn't get it wrong.

Appendix D

Professional Learning Team Norms

- The learning of the group benefits from the timely presence and participation of every member.
- Everyone commits to the discussion and prepares for the dialogue and prepares for the dialogue.
- All conversation is considered confidential.
- Everyone invests in listening. We participate as equals, respect each other's views, and share the airtime.
- Divergent thinking and "stretching" of one's viewpoint is encouraged.
- Stay focused and on task.

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