Lesson Study: Professional Development for Empowering Teachers and Improving Classroom Practice

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LESSON STUDY: PROFESSIONAL DEVELOPMENT FOR EMPOWERING
TEACHERS AND IMPROVING CLASSROOM PRACTICE

BY

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A Dissertation submitted to the
Department of Educational Leadership and Policy Studies
in partial fulfillment of the
requirements for the degree of
Doctor of Philosophy

Degree Awarded
Spring Semester, 2008
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ACKNOWLEDGMENTS

There are many people whose support and guidance enabled me to reach this milestone, and I would be remiss in not acknowledging and thanking them in this record of my accomplishment. Without the love, support, and sacrifices of my family, I would never have embarked on such an arduous and patently selfish undertaking. My husband, Kent, was in many ways the driving force to complete this degree in a timely manner. My sons, Drew and Reed, sacrificed in ways they may not have realized at the time, but I can never repay them the loss of time together. My hope is that my example will serve to encourage them to complete their education before they reach my stage in life! I would also like to thank my sister, Beth Hensley, for reminding me repeatedly of how proud our parents would be.

I would like to thank Ellen Granger for broaching the idea to pursue a doctorate and persistently revisiting it over the years until I finally relented. In addition to encouraging me professionally, she provided many of the resources I needed to complete this project. I look forward to working with her as this project is developed to its next stage.

I am grateful to my faculty mentors, including Dr. Linda Schrader, Dr. Peter Easton, Dr. Sherry Southerland, Dr. Laura Lang, and the many other professors who helped shape my research skills and educational philosophy. From their example and counsel, I know I have developed deeper understandings of teaching and learning, of evaluation and learning, and of reflection and learning.

To all my colleagues and friends in the Office of Science Teaching Activities, I owe a large debt for enduring numerous conversations on lesson study and professional development in general. I would especially like to thank Jean Hancock for all of her help at the elementary school and for reading my manuscript along the way.

Last but not least, I would like to thank the many teachers who agreed to participate in this study. Granting some of their valuable time to me was greatly
appreciated. Their receptiveness to lesson study was encouraging and their faith in my project was reassuring. I look forward to providing any resource they need to develop their evaluation and lesson study skills in the coming years.
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ABSTRACT

Teacher professional development is, by all admissions, absolutely central to improving educational quality in our schools. A promising approach that has been successful in its home country is Japanese lesson study. It is a teacher-led, learning community form of professional development that is embedded within the regular role of teachers. This study used a multiple case study approach to investigate to what extent and how Japanese lesson study conducted in one elementary school enabled teachers to direct their own professional growth in the areas that they identified as in need of improvement. Other goals were to identify the context-dependent supports and barriers to lesson study and to provide insight into the personal and professional benefits that lesson study provided the teachers as a major source of professional development. The cases were two groups of four elementary teachers as they engaged in lesson study and their subsequent evaluation of the process. The evaluation took the form of an empowerment evaluation approach to help insure that lesson study could become embedded into the school’s professional development plan. Data consisting of narratives from interviews, teacher reflective journals, and researcher reflective memos were analyzed using constant comparative methods. Other data were documents such as the school improvement plan, teachers’ professional development plans, the empowerment evaluation results, researcher field notes and observations, audio tapes of planning meetings and discussion sessions, and videotapes of the study lessons. A facilitator served as a “knowledgeable other” in the process, helped develop the procedure for analyzing teacher benefits achieved as a result of engaging in the lesson study process, and facilitated an empowerment evaluation of lesson study.

In seeking answers to the research questions, themes that emerged especially during the interviews included the positive perceptions of lesson study as a collaborative, teacher-led process for improving practice; the insight that the factors that enable or inhibit lesson study may be intrinsic to individual teachers; and the understanding that
lesson study can instill a sense of empowerment and professionalism to those who engage in the endeavor. Although these themes are consistent with the research on lesson study in Japan and elsewhere in the United States, they also extend the research on empowerment theory and empowerment evaluation. The benefits uncovered by this study were related to teachers improving their practice and gaining a sense of professionalism about their growth as educators. The study also revealed that not only was the extent of lesson study experience an important consideration when attempting to determine the specific lesson study benefits, but the teachers’ level of teaching experience seemed to be an important influence. As the teachers collaborated in lesson study, the data suggested that they developed a greater sense of self-determination to seek ways to improve their individual practice, as well as teaching and learning throughout the school, using lesson study. There also is evidence that each of the principles of empowerment evaluation was important to some degree in lesson study and that the process provided a tool for directing their own improvement, which also is the goal of empowerment evaluation. In addition to the commonly cited contextual barriers and enabling factors that could impact a teacher’s from participation in the process, this study revealed a number of others were intrinsic to both individuals and the process itself.

In the end, this study supported some of the conclusions from empowerment research that empowerment is different for different people, in different places and at different times. The interactions between lesson study teachers, other teachers, and the school community that were observed during the lesson study project confirm that individual, organization, and community cannot be separated but are best examined as a whole. This study also confirmed that lesson study provided many of the experiences that the literature on high-quality professional development has identified. It also can provide the organizational context for engendering empowerment through a collaborative process similar to empowerment evaluation. From this study it is apparent that teachers who are collaboratively involved in a supportive setting such as lesson study can become empowered to determine the activities which will best lead to improvement in teaching.
CHAPTER ONE

Introduction

Based on a widely-held belief that improving teacher quality will improve student achievement, most current school reform efforts aimed at improving student achievement include high quality forms of professional development as a primary program component (Darling-Hammond, 1998; Desimone, Porter, Garet, Yoon, & Birman, 2002; National Research Council, 2001; Suppovitz & Turner, 2000; Wenglinsky, 2000, 2002). Reviews of the literature on those features that characterize such high quality teacher professional development indicate that there are at least six common traits shared by all of them (Desimone, et al., 2002; Loucks-Horsley, Love, Stiles, Mundry & Hewson, 2003; Maldonado, 2002; Wenglinsky, 2000, 2002). These factors are an orientation to current reform efforts, a relatively long duration, a collaborative or collective effort among participants, a high level of teacher engagement or teacher direction, a focus on content and inquiry based learning, some form of follow up or learning community opportunities, and coherence with teachers’ other professional development experiences. In general, high quality professional development can be recognized by its standards-based reform orientation using innovative methods such as action research and learning communities, instead of traditional expert-led workshops that are disconnected from real classrooms. Learner-centered professional development that improves teaching skills often is led by teachers rather than outside experts brought in by schools and districts to teach one-size-fits-all methods (Birman, Desimone, Porter, & Garet, 2000). High-quality teacher professional development opportunities are, by all admissions, absolutely central to improving educational quality in our schools.

These opportunities should both impart the best practices of the teaching profession and empower teachers to decide which of those practices are appropriate for their professional growth and school context. There do not appear to be enough
opportunities for teachers to engage in the type of continuous teacher-led experiences that will lead to the educational quality desired (Desimone et al., 2002; Garet, Porter, Desimone, Birman, & Yoon, 2001; Porter, Garet, Desimone, & Birman, 2003). A promising approach that has been successful in its home country is Japanese lesson study. It is a teacher-led, learning community form of professional development that is embedded within the regular role of teachers. It was introduced to the United States a decade ago (Lewis & Tsuchida, 1998) after decades as the predominant means of teacher improvement in Japan. Most of the current research on the lesson study practice in the United States has focused on the challenges of implementing the practice and the fidelity of that implementation to the ideal Japanese form (Chokshi & Fernandez, 2004, 2005; Takahashi & Yoshida, 2004). The problem is that research on specifically how lesson study might help teachers improve their practice and student achievement in the U.S. context is limited or nonexistent (Lewis, Perry, & Murata, 2006; Rock & Wilson, 2005). That is not to say that researchers have ignored this avenue of investigation. Rather, with lesson study’s status as a relatively new form of professional development in this country, initial research efforts naturally have focused on describing the process as it was introduced, practiced, adapted, and maintained in schools across the country (Chokshi & Fernandez, 2004, 2005; Takahashi & Yoshida, 2004). As a form of professional development that evolved and has thrived in the Japanese educational system for decades, it may prove to be incompatible with the U.S. educational context, either in its Japanese or an adapted form. Until the time that such a conclusion may be reached, research such as the study presented here will continue to explore the process and impact on teaching and learning in this country.

The primary purpose of this study was to explore to what degree and in what manner lesson study empowered and enabled participating teachers to begin directing their own professional growth in the areas that they had identified as in need of improvement. I was interested in exploring the impact of lesson study on the teachers’ conscious acquisition of the confidence, knowledge, and authority required to begin making their own decisions about improving classroom teaching practices and student learning. Certain aspects of the lesson study experience may be more meaningful and empowering for their professional development and teaching practice than participating
in traditional workshops or expert-led programs commonly offered to them. Other goals were to “identify the context-dependent supports and barriers to lesson study in order to share this information in a timely fashion with emerging lesson study sites” (Perry & Lewis, 2003, p. 1), and to provide insight into the personal and professional benefits that lesson study provided these teachers as a major source of professional development. Conducting an exploratory study focused on gauging the impact of lesson study on teachers who were striving to improve their teaching expands the lesson study research community’s knowledge and understanding about this form of professional development in the United States. It also adds to the body of research on empowerment theory, empowerment evaluation, and teacher empowerment.

Lesson study involves the collaborative efforts of teachers in systematically planning and observing the teaching of a single lesson within a unit for evidence that the teaching practices used are appropriate for helping students learn (Lewis, 2002). The teachers begin by setting long-term learning goals for their students based on achievement gaps or student characteristics identified for improvement. The lesson is planned collaboratively, taught in a classroom by one of the teachers while the other teachers observe the students, and discussed in a group meeting soon after the lesson is taught. The discussion leads to revisions in the lesson, which is then followed by a second teaching with observation. The observations focus on collecting evidence that the instructional strategies used in the lesson promote the desired student learning. It is based upon logic that the best place to begin to improve teaching is in a classroom context where student learning occupies the heart of the process (Lewis, 2002; Stigler & Hiebert, 1999). Lesson study provides a unique opportunity for teachers to examine student work to make ground-level decisions regarding the diagnosis and treatment of learning gaps in their school context. It is embedded within the job of teaching and is conducted within a collegial learning community environment.

The National Staff Development Council (NSDC) Standards for Staff Development underscore the need for teacher learning communities that are job-embedded. The NSDC Standards provide guidance on the context, process, and content when assessing professional development (NSDC, 2001). The context standards call for the resources and leadership to guide learning communities towards school and district

3
goals. The process standards maintain that staff development efforts should be collaborative, research-based endeavors designed to evaluate improvement strategies using multiple sources of information and student data. The content standards state that professional development should promote high and equitable standards for learning, improve content knowledge and research-based strategies, and meaningful family involvement in children’s education. Collectively, these standards advocate the development of learning communities that are engaged in evaluating relevant data to collaboratively design strategies that promote learning for all students (NSDC, 2001).

Learning communities are teacher-led endeavors that have the potential to empower teachers in a variety of ways that can lead to improved student learning (Marks & Louis, 1999; Murphy & Lick, 2005). Such learning communities provide teachers with the opportunity to determine the course of their own professional growth and improve their practice in a collegial, supportive environment (Desimone et al., 2002). They encourage teachers to focus on their own practice in the context of their own classrooms, while sharing lessons learned in a collaborative setting. Participating in a learning community is essentially an empowerment process that has the potential to be a positive influence on practice (Marks & Louis, 1997, 1999).

Empowerment is defined as “an intentional, ongoing process, centered in the local community, involving mutual respect, critical reflection, caring and group participation, through which people lacking an equal share of valued resources gain greater access to and control over those resources” (Cornell Empowerment Group, as cited in Rappaport, 1995, p. 802). Empowerment theory forms one of the foundational concepts of empowerment evaluation, which is about self-determination along with decision-making and program improvement (Fetterman, 1996). “Empowerment evaluation is the use of evaluation concepts, techniques, and findings to foster improvement and self-determination” (Fetterman, 1994, p. 1). In fact, Fetterman (1996) promotes his approach as appropriate for any setting in which a group seeks to build the organization’s internal capacity to determine where and how improvement is needed. Fetterman and Wandersman (2005) thoughtfully assembled a collection of empowerment evaluation cases and assessed the underlying principles that guide them. Fetterman described ten principles in detail and asserted that when engaging in empowerment evaluation, “the
quality increases as the number of principles are applied because they are synergistic. Ideally, each of the principles should be in force at some level” (Fetterman, 2005a, p. 9). Empowerment evaluation and its principles provided the context and lens for exploring the empowerment of teachers in seeking professional improvement.

Research Questions

The context for the study was a group of teachers in an elementary school trying to improve teaching and learning in science. The first two research questions will explore the influence of lesson study on the efforts of the teachers to improve practice and the third question will examine how the specific components of lesson study work. The fourth question will investigate the contextual factors that educators believe impact lesson study practice.

1. To what degree does lesson study effectively empower teachers—that is, enable them to develop self-determination to improve their classroom teaching practice?
2. What other personal and professional benefits do teachers participating in lesson study experience as a result of the process?
3. How does lesson study produce these effects and what aspects of the process seem to have the greatest positive impact?
4. What are the enabling or inhibiting factors that may impact these teachers’ practice and perceptions of lesson study?

Conceptual Lens

The rationale for this study developed during my reviews of the literature on high-quality professional development, from my exposure to empowerment evaluation at conferences and in my own education, and in my professional experiences with lesson study. Over time, my conceptions of these three fields began to coalesce into a single idea: lesson study may represent a form of high-quality professional development suitable for empowering teachers to determine for themselves how to improve their teaching. Although a cursory reading of the NSDC standards indicates that most of them, if not all, are met by lesson study, several standards specifically address the collaborative and potentially empowering aspects of lesson study. First, a lesson study group meets the
context standards, because it “organizes adults into learning communities whose goals are aligned with those of the school and district” (NSDC, 2001, para. 1). Second, the process standards of evaluation and collaboration are met by providing “multiple sources of information to guide improvement” and “the knowledge and skills to collaborate,” (NSDC, 2001, para. 2) respectively. Finally, lesson study “deepens educators’ content knowledge” and “provides them with research-based instructional strategies to assist students in meeting rigorous standards” as recommended by the content standards (NSDC, 2001, para. 3).

Not only are there striking similarities between the processes of lesson study and Fetterman’s (1994) three-step approach to empowerment evaluation (See Table 1), but lesson study appears to share many of the principles and ideals of empowerment evaluation. Fetterman (1994) explains that there are five facets included in a needs hierarchy of empowerment evaluation: training, facilitation, advocacy, illumination, and liberation. At some point in the lesson study cycle, each of these facets plays a role in the process of improving practice through collaboration. In addition, lesson study appears to embody the ten principles that permeate empowerment evaluation: improvement, community ownership, inclusion, democratic participation, social justice, community

<table>
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Table 1: Comparing the Empowerment Evaluation Approach and the Lesson Study
knowledge, evidence-based strategies, capacity building, organizational learning, and accountability (Fetterman & Wandersman, 2005).

The conception of this study evolved after reading about a California lesson study group’s desire, at the end of their first year, “to ‘go deeper,’ to identify weakly implemented aspects of lesson study and improve the process by which teachers learned about lesson study” (Perry & Lewis, 2003, p. 4). Lesson study allowed these teachers to determine the course of their own professional growth through its collaborative, student-centered approach. This avenue of inquiry is in line with Lewis’ call to engage in more research on “iterative cycles of improvement” in the field of lesson study research (Lewis, Perry & Murata, 2006, p. 3) in order to avoid evaluating “an immature innovation without first doing all we can to improve it” (p. 6).

Theoretical Framework

It is the learning community nature of lesson study and its constructivist orientation that informs this study. The principles of constructivism, especially social construction, purport that knowledge is constructed by the individual learner through a social process of sharing and interacting in a specific social or cultural context (Guba & Lincoln, 1989). It is a process of analyzing the multiple realities or perceptions of each learner and incorporating the new knowledge, or resolving discrepancies between new and existing knowledge, to arrive at a socially constructed consensus of the “truth.” In addition, individuals will process these social interactions through a reflective process to create an understanding of their experiences.

The lesson study group provided the social setting for teachers to construct knowledge about how students learn in their specific educational context and subsequently to improve or adapt their own practice as it related to their students’ understanding. It was this latter process that pointed to the connection with empowerment theory and the main purpose of this study, which was to examine the influence of lesson study on the empowerment of teachers pursuing their own professional growth. This approach is along the lines of that used by Foster-Fishman, Salem, Chibnall, Legler, & Courtney (1998) in their research at a large, state-level human services agency. With the rationale that a constructivist approach would enable them “to
capture the nuanced changes in people and settings that influence empowerment experiences” (p. 512) they examined the multiple forms and contexts of empowerment as experienced over time by both leaders and employees of the agency.

This study also extended the work of Rock and Wilson (2005) by examining, in addition to the professional confidence instilled through lesson study, the sense of empowerment that teachers gained from the process. If lesson study exhibits many of the principles of empowerment evaluation (Fetterman, 2005a), then it may achieve the goals of an empowerment evaluation, those of improvement and self-determination, among teachers who wish to assess their professional development needs and the success of their efforts.

Limitations of the Study

Given this theoretical framework and the qualitative, exploratory nature of this study, there are limitations to the nature of the conclusions that can be drawn from the data. Gauging the benefits of lesson study for empowering teachers is an ambitious but important goal. However, the qualitative nature of the study limited the possibility of extrapolating or generalizing the findings beyond the specific cases presented here. The study attempted to assess benefits primarily through thick description of process and through determination—by teacher interviews and reflective journals—of the benefits that the participants themselves attribute, either implicitly or explicitly, to the process. In fact, the exploratory nature of the study served to reveal merely the potential of lesson study to foster self-determination in the two groups of teachers. It opens the discussion to further avenues of research to more accurately, perhaps quantitatively, determine the effects of lesson study on teacher empowerment. More methodological limitations will be discussed in Chapter 3.

Overview of the Study

Chapter 2 provides the review of literature, beginning with a section describing lesson study research from the United States. An explication of the issues and assumptions related to research on empowerment theory is followed by the specific case of teacher empowerment. A full description of empowerment evaluation as developed by
Fetterman, including the principles and several case examples, rounds out the reviews related to empowerment. The research base that outlines the characteristics of high-quality professional development concludes the chapter.

Chapter 3 outlines the methods that are used to collect and analyze existing and new data from multiple sources to address the research questions. The data sources were selected for their relevance in understanding whether lesson study provided the necessary experiences described in the empowerment theory research to achieve empowered outcomes, and the perceptions regarding the role of the school context in facilitating these experiences (Zimmerman, 1995). Methods to increase trustworthiness also are described.

Chapter 4 provides a full contextual description of the research setting, including study participants, and the ongoing efforts to engage in lesson study at the school. Teachers at the school were introduced to lesson study in the fall of 2005 and a lesson study group comprised of seven teachers participated in two cycles of lesson study during the academic year. A pilot project was conducted to investigate how lesson study fostered the principles of empowerment evaluation and to uncover the contextual elements influencing the teachers’ practice of lesson study at Creek Side. It was used to inform the research questions and data collection and analysis methods described in Chapter 3. Data from a lesson study cycle conducted in the spring of 2007 and the subsequent evaluation of the teachers’ efforts were the focus of this research project.

The findings from the research are presented in Chapter 5. Excerpts from teacher interviews, researcher field notes, document reviews, and empowerment evaluation data are provided to validate conclusions about lesson study and empowerment evaluation.

The conclusions are illustrated in Chapter 6 by situating the findings in the literature. The goal was to provide a number of valuable contributions both to the lesson study research community and the empowerment literature. First, this study added to the existing evidence that lesson study is a form of high-quality professional development and had a positive impact on teachers striving to improve their practice. Second, it also revealed the extent to which much the lesson study process embodies the principles of empowerment evaluation described by Fetterman. Third, it helped to reveal some of the contextual elements that need to be in place for lesson study to become embedded in this educational setting, while preserving the collaborative, learner-centered structure of
lesson study. With this information, I hoped to develop a flexible, yet logical method of linking the empowerment evaluation approach with the lesson study process to allow teachers who adopt lesson study to adapt and improve the process so that it meets the teaching and learning needs of their specific educational setting, while preserving the collaborative, learner-centered structure of lesson study.
CHAPTER TWO

Review of the Literature

This literature review analyzes the various phenomena that may be at work through lesson study. Although the goals of lesson study do not explicitly include empowerment, a review of the research on empowerment theory suggested that this line of inquiry was a fruitful one. Thus, a look at the current state of lesson study research in the United States is followed by a critical review of the current understanding of empowerment theory, as well as the research on the empowerment of teachers. Since improving teaching practice is an explicit goal of lesson study, linking this goal to empowerment demands an examination of the empowerment evaluation approach as described by Fetterman and others. To situate lesson study as a form of professional development generally accepted as high quality, a review of the research on professional development is provided. This chapter begins with a description of lesson study and research on it in the United States, followed by research related to empowerment—empowerment theory, teacher empowerment, and empowerment evaluation—and concludes with a review of the literature on the qualities and examples of high quality professional development.

Figure 1 provides a visual diagram for framing the literature review of the study. Learning communities and action research are among the forms of professional development that researchers recognize as being high-quality (Loucks-Horsley, et al., 2003; Murphy & Lick, 2005; Porter et al., 2003). The NSDC advocates high quality experiences such as learning communities, of which lesson study is an excellent example. As a teacher-led, collaborative activity, lesson study allows teachers to share in a learning community committed to promoting student learning. The goal of lesson study is to allow teachers to determine how best to improve their own teaching practice. It “yields new ideas about teaching and learning based upon a better understanding of student
Figure 1: Framework of the Literature Review. The relationship between lesson study, empowerment evaluation, and research and standards on professional development
thinking” (Yoshida, 2005, p. 5). The empowerment of teachers to determine the course of their own improvement implies the potential connection to the process of empowerment evaluation, which has its roots in the traditions of action research. A leading proponent of lesson study often describes it as a collaborative form of action research (Lewis, 2002), an established form of ongoing, content-rich professional development, but research on this connection is limited.

**Lesson Study**

One of the earliest introductions of lesson study to the United States occurred through a publication by Lewis & Tsuchida (1998) that provided a narrative of their work investigating how Japanese elementary-school teachers improve their practice in “A lesson is like a swiftly flowing river: Research lessons and the improvement of Japanese education.” Shortly after that, findings from the Third International Mathematics and Science Study (TIMSS) formed the basis for a videotape study of classroom practices in *The Teaching Gap* by James Stigler and James Hiebert (1999). Stigler and Hiebert (1999) articulated that the achievement of Japanese students on the TIMSS provided a strong incentive to closely examine the effectiveness of lesson study at improving student achievement through improved teaching. Since its introduction to the U.S. educational community by Lewis & Tschuda (1998), and more broadly by Stigler and Hiebert (1999), lesson study has gained scattered, widespread attention for its potential as a systemic reform tool, most often for mathematics teaching. The leading researchers and proponents in this country for adapting lesson study to the context of U.S. schools are Akihiko Takahashi of DePaul University, Makoto Yoshida of William Paterson University in Wayne, NJ; Catherine Lewis from Mills College in Oakland, CA; Tad Watanabe of Kennesaw State University in Georgia; and Clea Fernandez and the Lesson Study Research Group (LSRG) at Columbia University’s Teachers College. As of 2005, researchers at the LSRG were beginning to examine emerging evidence of increased standardized test scores at Paterson, New Jersey, Public School No. 2 (Fernandez, personal communication, 2005).

The lesson study process, or cycle as it is often called, is a teacher-led, student-centered effort to improve practice and, ultimately student learning. In Japan teachers,
usually within the same grade level, engage in a collaborative process to identify a problem or gap in student achievement and set a goal for addressing the problem through their teaching (Fernandez & Chokshi, 2002). The teachers then select a unit and lesson, usually one that they currently use that is either difficult to learn or to teach, and plan as a group how that “study lesson” will be taught. In addition to planning the content, other considerations in the study lesson plan are “organizing the lesson and allocating time to different parts, anticipating students’ responses to the lesson and the specific problems they are asked to work on, and deciding how student performance will be evaluated during the lesson” (Fernandez, Chokshi, Cannon, & Yoshida, 2001, p 2). One member of the lesson study group then teaches the lesson while the other members observe the lesson as it unfolds, taking detailed notes on student learning and other planned points of evaluation while substitute teachers are placed in the classes of the observing teachers. The focus of this “public teaching” is not to critique the teacher’s performance, but to examine the effects of the lesson on student learning and understanding (Stigler & Hiebert, 1999).

Soon after this first teaching of the lesson, preferably the same day, the teachers and a person who is known as a “knowledgeable other” with expertise in the content area and/or the lesson study process convene to share their findings and discuss possible revisions to the lesson to improve learning. Within two or three days, after accepted revisions are incorporated into the lesson, it is taught again in another classroom, often by another member of the lesson study group. Once again this teaching is followed by a group discussion about the results. This discussion, like the first one, serves not as a criticism of the teacher’s technique, but as an appraisal of the whole group’s efforts to create a lesson that addresses the goal established at the beginning of the cycle (Lewis, 2002).

An additional phase of the cycle often included is sharing the results of the study with a larger audience, such as at a faculty meeting or a regional or national conference, and often through a written report or public presentation. One of the goals of lesson study is, after all, to share practically-derived knowledge to improve teaching and learning in a collaborative environment (Takahashi, 2005). Through this cycle, it is
anticipated that teacher isolation will be reduced, teachers’ sense of professionalism will increase, and practice will improve.

Lesson study provides the framework the teachers use to evaluate their practice. It is a long term process intended to foster life-long learning and system-wide improvement in education (Lewis, 2002). Through lesson study, improvements in teachers’ practices will accumulate incrementally, much as program improvements through empowerment evaluation accrue gradually as participants engage in the steps of empowerment evaluation (Fetterman, 2001).

The current focus on lesson study as a means to improve mathematics achievement implies that it is exclusively a form of mathematics professional development. However, in Japan, lesson study is used by elementary- and middle-school teachers across the curriculum as part of their everyday work. Lesson study involves the collaborative effort of teachers setting learning goals for their students and systematically examining a single lesson within a unit for evidence that the teaching practices used are appropriate for helping the students achieve those goals. It is based upon the simple premise that the most effective place to begin improving teaching is in a classroom context where student learning occupies the heart of the process (Stigler & Hiebert, 1999). There appears to be ample support for the assumption that lesson study is a high quality endeavor as defined by researchers in the field of professional development (Desimone et al., 2002; Loucks-Horsley et al., 2003).

Around the country, pockets of lesson study practitioners exist in schools and districts in states as diverse as California, North Carolina, and New Jersey. One of the first schools to try lesson study in this country was School No. 2, in Paterson, New Jersey, beginning in 1997. The school was in a district that had been taken over by the state due to persistently low achievement test scores (Fernandez, Cannon, & Chokshi, 2003). The student population at the school, which was located in an urban New Jersey setting, was highly diverse and economically disadvantaged; ninety-eight percent of its mostly Latino, Bengali, and African American students were on free lunch (Fernandez, 2002). The school turned to LSRG at Teachers College for strategies to improve student achievement.
In collaboration with the LSRG and the Greenwich Japanese School in Connecticut, the Paterson School principal led an initial group of fourteen first- through eighth-grade teachers in a multi-year effort to improve the achievement of their students (Fernandez, 2002). The teachers formed a mathematics study group and entered into a partnership with the Greenwich Japanese School. Japanese teachers who teach Japanese nationals living in the area served as lesson study mentors for the Paterson teachers, modeling lesson study in their own school and providing feedback on the American teachers’ efforts (Lewis, 2002). By the winter of 2000, Paterson was conducting its first public lesson study, inviting researchers and other teachers from the district to observe the process. As of February, 2007, Paterson No. 2 was still practicing lesson study and offering annual open houses, with one recently scheduled for February 27, 2007 in four elementary classrooms.

In a district in California, a mathematics lesson study group of 28 teachers that began in 2000 had grown to 78 teachers by 2003 (Perry & Lewis, 2003). Over the course of the study, the teachers made several adaptations to the process to effectively eliminate their previous “weakly implemented aspects of lesson study and improve the process by which teachers learned about lesson study” (p. 4). The first adaptation was to reduce the amount of time spent planning the lesson (a “perfect” lesson is not the goal of lesson study) and increase the time spent on collecting and discussing the evidence about student learning. This change brought their practice more in line with the Japanese standard. The group also increased their focus on student learning when anticipating student responses during instruction, from inconsequential behavioral responses, to specific examples of how students “develop an understanding of particular mathematical terrain” (p. 12). The third adaptation, when collaboration skills did not naturally evolve during the first year, involved generating “activities and tools to help participants develop group norms…of effective working groups” (p. 14).

These adaptations and improvements were developed through teacher reflection accompanied by district-wide meetings “to evaluate progress and make necessary adjustments” (p. 21). This type of formative evaluation is similar to the methods of this study to empower teachers to evaluate the lesson study process as it is implemented in their unique context and adapt it to their local needs—essentially, to conduct an
empowerment evaluation on lesson study as it is practiced in the school’s particular context. Lewis, Perry, and Murata (2006) called this the “local proof route” (p. 6) to educational improvement.

The description of a lesson study initiative at an elementary school in North Carolina used a constructivist theoretical framework to support the “idea that teachers should be engaged in activities that necessitate interacting verbally and require that they communicate often with both novices and experts in their field of study” (Rock & Wilson, 2005, p. 79). The researchers revealed that the teachers considered the year-long, collaborative endeavor to be beneficial in improving their practice and increasing their professional confidence. “During the lesson study experience, professional collaboration occurs as teachers of various levels of experience work together to study their practice through the implementation of a research lesson” (p. 79). However, as a result of the isolation often experienced in the classroom and a lack of experience in peer coaching and critiquing, most of these teachers were uncomfortable providing feedback to their peers without the assistance of a lesson study guide or facilitator. It was very important for the teachers to define the group norms by which they would conduct their lesson discussions so as not offend a colleague, a finding not unlike Perry & Lewis’ (2003) discovery of the need for group norms. In addition to peer feedback, the facilitator also provided the teachers with professional literature directly related to the instructional strategies and lesson study goals. Providing the literature for the teachers saved time for them and increased their interaction with current understanding about effective teaching and student learning.

Rock and Wilson (2005) discussed their belief that “the lesson study process embodies the core features of professional development experiences identified by Garet, et al. (2001) that have significant positive effects on increased teacher knowledge and skills and changes to instructional practice” (p. 89). They concluded there was a need for districts to discontinue funding disjointed forms of professional development that provided little feedback or opportunities for collaboration in favor of long-term activities such as lesson study that research was beginning to show promoted improved teaching.

Increasing content knowledge, acquiring new skills and instructional strategies, and increasing collaboration among teachers are just a few benefits that districts should
expect from their professional development investment. Increasing teacher involvement in their own professional growth is an area within educational research with a rich literature and that also is addressed within the larger body of research on empowerment theory.

Empowerment

Empowerment Theory

The research on teacher empowerment is informed by investigations on empowerment theory, school workplace redesign, school-based decision-making, and organizational learning. Empowerment is defined as “an intentional, ongoing process, centered in the local community, involving mutual respect, critical reflection, caring and group participation, through which people lacking an equal share of valued resources gain greater access to and control over those resources” (Cornell Empowerment Group, as cited in Rappaport, 1995, p. 802). Empowerment can occur at the individual level of analysis as well as at organizational and community levels.

Early research tended to focus on individual empowerment, encompassing the intrapersonal characteristics of individuals who have become empowered, and on psychological empowerment, which also included the actions those individuals take to become empowered (Rappaport, 1984; Zimmerman, 1990; Zimmerman, Israel, Schulz, & Checkoway, 1992). Individual empowerment was influenced by many environmental and intrinsic factors, making an absolute or global definition of the quality difficult to determine. In general, individuals who were more highly involved in organizational and community activities were more likely to experience the benefits of empowerment (Zimmerman et al., 1992). An individual’s level of involvement was further influenced by the environment or context, such that there exists “inhibiting and facilitating factors that may influence individuals’ choice regarding their level of involvement” (Zimmerman, 1990, p. 171). This interrelationship between individual, organization, and community has contributed to the difficulty in defining empowerment. However, at the most basic level, psychological empowerment was characterized by participation, a sense of efficacy, and efforts to achieve control (Zimmerman, 1990).
Conceptions of psychological empowerment continued to be refined throughout the 1990’s by Zimmerman and others to incorporate the contextual factors of the organization and community that act to shape an individual’s sense of empowerment. Zimmerman (1995, Zimmerman et al., 1992) delineated three facets of psychological empowerment: the intrapersonal, interactional, and behavioral components. The intrapersonal component was related to one’s sense of ability and efficacy in influencing outcomes in social and political systems in which one participated. The interactional component referred to the ability to interact with elements or resources within the sociopolitical environment to successfully participate in those systems. The behavioral component related to the actions one chose to take through participation in community organizations. Individuals who had a sense of self-efficacy, believed they had the capability to gain control, and were aware of the choices that existed within their sociopolitical environment could then act to achieve the empowered outcomes they had available to them. The empowered outcomes may have been identified as worthy goals by the individual at the outset, or the opportunity to achieve them may have arisen within the organizational or community setting (Zimmerman, 1995).

As research on empowerment progressed, a proposal to look beyond the individual level of analysis was encouraged to avoid misrepresenting empowerment as a single measure or trait, “while failing to consider environmental influences; organizational factors; or social, cultural, and political contexts” (Zimmerman, 1990, p. 173). The difficulty in elucidating a more precise definition of empowerment due to the myriad factors that influenced it created a dilemma in trying to formulate a robust theory of empowerment. Eventually, however, empowerment was acknowledged to consist of multilevel constructs (Schulz, Israel, Zimmerman, & Checkoway, 1995) that “may not be fully captured by any one specific operationalization because they take on different forms in different populations, contexts, and times” (Zimmerman, 1995, p. 587). These three assumptions, that psychological empowerment may be different for different people, in different contexts, and at different times reflect the reality that the interactions between different individuals, organizations, and communities cannot be separated, but are best examined as a whole. Such assumptions were later corroborated by the case study work of Foster-Fishman and her associates (Foster-Fishman et al., 1998) at a state-level human
services provider. Using a constructivist inquiry approach, they analyzed interview and observational data and found that “empowerment emerged as a dynamic, highly individualistic, contextually-layered process” (p. 507).

Participation in decision making and possessing a sense of community also contributed to achieving a sense of empowerment. This raised an awareness of the distinction between empowered outcomes, such as the development of decision-making skills as might occur at the individual level, versus empowering processes, such as shared leadership opportunities at the organizational level (Perkins & Zimmerman, 1995). These empowering processes and outcomes could occur at individual, organizational, and community levels and an empowering process at one level could induce an empowered outcome at another level. For example, shared leadership within an organization could engender the development of decision-making skills in individuals who participate in an organization that encourages such shared leadership. However, this did not always apply in the reverse; an individual’s attempts to gain decision-making skills could create a more restrictive environment than existed before these efforts (Perkins & Zimmerman, 1995). Further, individuals who did not perceive the capacity to achieve empowerment would not be likely to achieve it in any empowering setting. In the end, while it was possible to discriminate between psychological empowerment and organizational or community empowerment, these three domains are unavoidably by each other (Zimmerman, 1995).

As mentioned above, “empowerment at the individual level is linked with organizational and community empowerment” and resulted in empowered outcomes at each of these levels (Schulz et al., 1995, p. 310). To further complicate this interrelationship, organizational empowerment itself was marked by a distinction between empowered and empowering organizations. An empowered organization was defined one that had influence within the community to bring about desired outcomes through the use of community and organizational resources. Empowering organizations provided an environment that was conducive for individuals to achieve psychological empowerment through the development of decision-making skills (Schulz et al., 1995). This multilevel conception of empowerment associated an individual’s perception of self-efficacy with participation in voluntary, social organizations to help change the community. Community empowerment involved the participation of individuals and
organizations within the community taking collective action to create change in some aspect of the sociopolitical system to improve both their own lives and the lives of citizens who do not or cannot participate. This activity created linkages between community organizations and governmental agencies to improve the quality of life (Zimmerman, 1995).

Researchers also observed the factors within the community and organization that impacted psychological empowerment (Schulz et al., 1995; Zimmerman, 1995). More recent findings on empowerment went beyond the individual level of analysis to examine the specific assumptions mentioned above, that empowerment manifests itself differently in different people, in different contexts, and across time. Foster-Fishman (Foster-Fishman & Keys, 1997; Foster-Fishman et al., 1998) explored cases of empowerment from an organizational culture framework to examine the role of culture in promoting empowerment. Their case study reported that certain individual and organizational preconditions reflecting positive facets of power/control and trust/inclusion were needed for individual empowerment. For empowerment to occur, “organizations must have the ability to change and expand their power structure, and individuals must desire such control” (Foster-Fishman & Keys, 1997, p. 349). They also found that when employees were trusted with meaningful organizational and decision-making opportunities, the employees were likely to develop a positive sense of community and thus support the leadership and the success of the organization. These preconditions influenced the person-environment interaction in various ways to either encourage or inhibit personal empowerment. Further, they found that in large organizations, individuals were more immediately affected by the preconditions existing in the local site subculture than those of the larger organizational system.

Peterson and Speer (2000) later investigated the relationship between psychological empowerment and four perceived characteristics of empowering organizations: leadership, role structure, social support, and shared beliefs. They found that members of different community-based organizations could be differentiated by the organizations’ perceived characteristics and the dimensions of psychological empowerment possessed by its members. This finding pointed to the implication for
empowerment theory that the “unique characteristics of voluntary settings may be important for the actual development of empowerment” (p. 52).

A later study by Speer, Jackson, and Peterson (2001) subsequently linked participation in empowering organizations to several dimensions of psychological empowerment. They identified empowering organizations as those that provide for the “development of active leadership, numerous opportunities for members to take on a variety of participatory roles, social support among group members, and a shared set of beliefs that provides a rationale for the group’s actions” (p. 729) Their study extended the work of Zimmerman (1990) by examining the interactional dimension of empowerment, successful participation in the sociopolitical environment, to replicate results linking this participation to the intrapersonal facet, the sense of ability and efficacy. In a health education context, their study supported the strong relationship between participation and the intrapersonal facets of psychological empowerment. Additionally, they found that the interactional dimension was significantly associated with participation. They also advocated examining the quality of the participatory experience, or the degree of social cohesion gained through participation. Because social cohesion, or a sense of community, is gained through participation in empowering organizations, they concluded that “a focus on participation within organizational and community contexts allows not only for opportunities to enhance empowerment but to support a sense of community or the connections between individuals so that a collective sense of trust, investment, and action can be developed” (p. 729).

Peterson and Zimmerman (2004) built upon this research on the organizational characteristics necessary for empowerment and defined the construct of organizational empowerment as “organizational efforts that generate PE [psychological empowerment] among members and organizational effectiveness needed for goal achievement” (p. 130). They presented a “nomological network” or a set of “conceptual frameworks suggesting attributes that define the construct and guide its measurement” (p. 129) comprised of the components of organizational empowerment: interorganizational, intraorganizational, and extraorganizational processes and outcomes. Further research is needed, they conceded, to link this nomological network to the community and individual levels of analysis.
Teacher Empowerment

For the specific case of individual empowerment within school settings I turned first to the works of Smylie (1994; Smylie, Lazarus, & Brownlee-Conyers, 1996) and his examinations of school-based decision making, then to Marks and Louis (1997, 1999) and their studies of site-based management in schools across sixteen states. Although Smylie’s work did not address the construct of empowerment directly, his theoretical framework drew upon motivated behavior leading to self-determination and autonomy, which are empowered outcomes. Smylie (1994) reviewed the research on “teacher work redesign” (p. 129), including career ladders, participative decision-making, and school-based management, and their influence on improving classroom practice. Teacher work redesign was intended to improve practice by changing the demographics of the workforce through various incentives intended to attract more qualified individuals into teaching, and increasing the teaching skills and the pedagogical and content knowledge of the existing workforce. Smylie found that work redesign most often did little more than increase teachers’ work load and responsibility, and decrease their personal autonomy. However, teacher empowerment did occur for the teachers who directly engaged in curriculum level decision-making or served as teacher leaders, but not for teachers who did not directly participate in these activities (Smylie et al., 1996).

Marks and Louis’ works (1997, 1999) drew on Smylie’s findings on work redesign to investigate teacher empowerment as it related to teaching practice and organizational learning. They raised concerns about the wisdom of investing in questionable strategies such as shared decision making instead of directly targeting students to improve achievement, and about reinforcing teacher autonomy and isolation instead of promoting collaboration to improve practice. They studied 900 teachers at 24 schools that were undergoing some type of restructuring focused on site-based management. They found that when teacher participation was focused on instruction-related decision-making over bureaucratic or policy decisions, which is often a proxy for gaining more control over teachers (Smylie, 1994), the result was that student learning was influenced indirectly by creating within the teachers a “professional community and collective responsibility for student learning” (Marks & Louis, 1997, p. 248). They suggested that schools create professional communities that are focused on decisions
regarding curriculum and instruction policies, because empowerment “works to academic advantage of students only when it supports teachers in changing their instruction so that it becomes more involving and demanding for students” (p. 266).

Subsequent studies investigating the role of the school in fostering teacher empowerment found that teacher empowerment and a school’s capacity for organizational learning, defined as “the ongoing social processing of knowledge to produce a shared and guiding vision for high-quality work among teachers” (Marks & Louis, 1999, p. 715), were related in that teacher empowerment could occur only in schools where the organizational capacity was adequate. On the other hand, organizational learning depended on the level of teachers’ willingness to participate in policy decision-making in the core areas of teaching and learning. In sum, most findings indicated that the empowerment of teachers in those school dimensions that are directly related to the core functions of schools (curriculum planning, staffing decisions, etc.) had a positive influence on practice (Marks & Louis, 1997, 1999; Smylie, 1994; Smylie et al., 1996). The idea that reform oriented professional development programs to create learning communities in which teachers contributed to school decisions about teaching and learning were central to teacher empowerment seemed to be supported by the literature (Marks & Louis, 1997, 1999; Smylie, 1994; Smylie et al., 1996). The subsequent step from program decision-making to program evaluation is, thus, a small one and one this study hopes to take.

**Empowerment Evaluation**

David Fetterman of Stanford University is credited with developing the empowerment approach to program evaluation in the early 1990s. Empowerment evaluation fosters “self-determination…capabilities…such as the ability to identify and express needs, establish goals or expectations and a plan of action to achieve them, identify resources, make rational choices from various alternative courses of action, take appropriate steps to pursue objectives, [and] evaluate short- and long-term results” (Fetterman, 1996, p.8). However, empowerment evaluation is less about specific methods or activities, though some methods are more empowering than others, and more about principles and values (Fetterman, 2005a).
The three broad steps in Fetterman’s approach to empowerment evaluation are defining the mission, taking stock, and planning for the future. Members of an organization, most often with the assistance of a facilitator, represent the values of the group by collaboratively developing a mission statement in a paragraph or two. The mission statement does not have to be accepted by everyone, just accepted by consensus; it provides a starting point for the second step. The diverse viewpoints that emerge are often surprising to the group, but through the process members become invested in the mission as a result of the democratic process in which it was generated. The facilitator serves to keep the process moving and insure that all voices are heard. Without one, novices to the approach may become mired in trying to create a mission statement that is unanimously accepted by everyone in the group (Fetterman, 2001).

The second step is to take stock of the organization or program in two phases. The first is to create a list of key activities associated with the program and which are critical to its purpose. Each member contributes until at least ten or twenty activities are included. To narrow the list, each participant contributes to prioritizing these activities by voting for up to five activities that they believe to be the most important for the program in achieving its goals. Those ten or so activities that are considered by most people to be of a high priority are selected to receive the scrutiny of the evaluation process. The remaining activities, many of which may be of the highest priority for some members, are reserved for future evaluations. Empowerment evaluation is designed to become part of the organization’s repertoire of program improvement tools. Taking stock is completed in the second phase by rating the prioritized activities according to how well individuals believe the organization is conducting or accomplishing them. Each member again participates to generate an average rating, on a scale of 1 (low) to 10 (high), for each activity. Ratings are to be supported with evidence or documentation. The average rating for each activity provides an indication of how much attention to improvement the group feels this activity warrants. The role of the facilitator in this step is, again, to keep the process moving in a positive direction and also to prevent this step from disintegrating into a grievance session (Fetterman, 2001).

The third step in empowerment evaluation involves planning for the future by setting goals for the improvement of program activities, determining the strategies for
achieving them, and elucidating the evidence needed to judge success. The evaluator in this step provides coaching, critical insight, and feedback on the goal-setting and data collection phases. The goals need to be realistic and attainable with the existing program resources and capacity. Throughout the process he or she insures that all participants’ ideas are heard (Fetterman, 2001).

Fetterman (1995) noted that empowerment evaluation was “modeled after action anthropology and community psychology and grounded in the instructive tradition of action research” (p. 179). He founded the approach on his work investigating how researchers in the social sciences assisted people, especially those without a voice in the policy process, to make their concerns known to decision-makers. He found that collaboration, participation, and empowerment were common strategies and these concepts helped shape his empowerment approach. Fetterman’s own background in ethnographic research, community psychology, and action anthropology, as well as his understanding of the limitations in the established collaborative and participatory approaches to evaluation, were strong influences in the development of the processes of empowerment evaluation (Fetterman, 1994, 1996). He introduced his concepts for the approach in his presidential address at the annual meeting of the American Evaluation Association (AEA) in 1993 (Fetterman, 1994). Since then he has written or edited several articles and books on the steps to empowerment evaluation, providing case examples of the approach as it was used in a variety of settings: experiential educational programs, accelerated schools, and community health (Fetterman, 2001; Fetterman & Bowman, 2002; Fetterman, Kaftarian & Wandersman, 1996; Fetterman & Wandersman, 2005).

Fetterman (2001) described five facets of empowerment evaluation that he considered to be “developmental stages, or building blocks” (p. 34) along a needs hierarchy of empowerment evaluation. At the foundation of the hierarchy is training and facilitation wherein facilitators provide groups with the skills and strategies to assess themselves. After these facets are developed, the facilitator can help members of the organization use empowerment evaluation findings for program advocacy. Following advocacy is illumination, where new insights or revelations about program structure or participant roles emerge in the process of assessing the program itself. The liberation
facet emerges after illumination, when the most powerful conceptions of self-determination are developed by organization members and program constraints are minimized or eliminated.

The publication of *Empowerment Evaluation Principles in Practice* (2005), edited by Fetterman and Wandersman, provided “a significant leap forward in defining and operationalizing empowerment evaluation” (Millett, 2005. p. v). It is a collection of case studies contributed by leading empowerment evaluators highlighting the application of the principles in different contexts. The case study chapters are interspersed with chapters on the facilitation of empowerment evaluation, the organizational conditions that may inhibit or facilitate it, how it contributes to organizational learning, and insights from a critical friend critiquing and clarifying the approach.

Briefly, the ten principles are improvement, community ownership, inclusion, democratic participation, social justice, community knowledge, evidence-based strategies, capacity building, organizational learning, and accountability. Improvement represents the “fundamental assumption that the vast majority of programs desire to achieve positive results” (Wandersman, Snell-Johns, Lentz, Fetterman, Keener, Livet, Imm, & Flaspohler, 2005, p. 29). Community ownership reflects the belief that the community has the right to make decisions about the direction of the evaluation and the actions that will lead to program improvement and ultimately affect their lives. Facilitators have influence as coaches or consultants on the process, but not in decision making. The inclusion principle speaks to empowerment evaluation’s commitment to community ownership by advocating for more inclusive rather than exclusive participation in the process. Once the greatest degree of inclusiveness has been achieved, democratic participation ensures fair collaboration and maximizes stakeholder buy-in and use of findings. Although many programs do not consider social justice to be a direct goal in their mission, “almost any program that is designed to help people and communities at any level (individuals, families, neighborhoods) and domain (e.g., education, health, economic), ultimately contributes to the larger goal of social justice” (p. 34).

Although scientific knowledge is valid and useful in empowerment evaluation, the approach “embraces local community knowledge and posits that people typically
know their own problems and are in a good position to generate their own solutions” (Wandersman et al., 2005, p. 34). A complement to local knowledge, evidenced-based strategies value the work of expert scholars and practitioners who have empirical evidence that will help save time and resources by building on and adapting known best practices for the current context. Capacity building refers to both evaluation skills and program outcomes. Through organizational learning stakeholders increase their ability to plan and implement program activities and monitor their success, thereby increasing their evaluation skills. Organizational learning also aids the improvement process.

Accountability reminds us that, although “empowerment evaluation is committed to learning from processes and implementation, its practitioners also need to know if the intervention worked” (p. 38). See Table 2 for the principles and their underlying values. Fetterman did not stipulate that these principles be followed in any specific order although he and his colleagues did outline what they believed to be a logical sequence that followed from their experiences with the process (Fetterman, 2005a). Since these principles were collaboratively generated from extensive practice with the approach, and empowerment evaluation is about self-determination, this flexibility is defensible.

Among the main evaluation projects that helped conceptualize empowerment evaluation principles and practice were a community family support center established in response to the problems associated with teen pregnancy and a collaborative association of family service agencies spearheaded by the Boys and Girls Clubs (Keener, Snell-Johns, Livet, & Wandersman, 2005). These cases confirmed what empowerment evaluators already knew about being a good facilitator, namely that strategies must be consistent, relationships among the stakeholders must be cultivated, and mistakes must be acknowledged and corrected. In addition, these cases provided important lessons about building evaluation capacity, the primary task of empowerment evaluators, and balancing program improvement and accountability. In fact, when all of the principles were present in the evaluation and were equally emphasized, “accountability becomes meaningful” and “a sense of internal accountability” is fostered (Fetterman, 2005b, p. 212).

Case examples in education are revealing in light of the purpose of this study. Levin (1996) described empowerment evaluation techniques that were used by the Accelerated Schools Project, a Stanford University project serving at-risk students in
### Table 2: The Empowerment Evaluation Principles and Operational Definitions.

<table>
<thead>
<tr>
<th>Principle</th>
<th>Underlying Value from Wandersman et al. (2005)</th>
</tr>
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<tbody>
<tr>
<td>Improvement</td>
<td>“the fundamental assumption that the vast majority of programs desire to achieve positive results” (p. 29)</td>
</tr>
<tr>
<td>Community Ownership</td>
<td>“the community has the right to made decisions about actions that affect their lives” (p. 31)</td>
</tr>
<tr>
<td>Inclusion</td>
<td>“the evaluation of a program or organization benefits from having stakeholders and staff from a variety of levels involved in planning and decision making” (p. 32)</td>
</tr>
<tr>
<td>Democratic Participation</td>
<td>“the importance of deliberation and authentic collaboration as a critical process for maximizing use of the skills and knowledge that exist within the community”, “fairness and due process” (p. 33)</td>
</tr>
<tr>
<td>Social Justice</td>
<td>“a fair and equitable allocation of resources, opportunities, obligations, and bargaining power”, “to make a difference with an eye toward the larger social good” (p. 33-34)</td>
</tr>
<tr>
<td>Community Knowledge</td>
<td>“people typically know their own problems and are in a good position to generate their own solutions” (p. 34)</td>
</tr>
<tr>
<td>Evidence-based Strategies</td>
<td>“Just as empowerment evaluation respects the work of the community and its knowledge base, it also respects the knowledge of scholars and practitioners who have provided empirical information about what works in particular areas” (p. 35)</td>
</tr>
<tr>
<td>Capacity-building</td>
<td>“when stakeholders learn the basic steps and skills involved in conducting program evaluation, they are in a better position to shape and improve their lives and the lives of those who participate in their programs” (p. 35)</td>
</tr>
<tr>
<td>Organizational Learning</td>
<td>“uses tools and practices that are specifically designed to meet programs ‘where they are at’ and to facilitate motivation and skills that support the development of an organizational learning culture” (p. 37)</td>
</tr>
<tr>
<td>Accountability</td>
<td>“the likelihood of achieving results is greatly enhanced when stakeholders collect process evaluation information and hold staff accountable for their activities and plans” (p. 37)</td>
</tr>
</tbody>
</table>
elementary schools to “accelerate the growth and development of all students to bring them into the mainstream by the end of elementary school” (p. 50). Stanford University researchers developed pilot schools that replaced remediation services with the acceleration of the academic and social development of at-risk children. The project grew out of research that suggested that instead of advancing these children, remediation tended to slow down their progress in school (Levin, 1986, 1988; as cited in Levin, 1996). Levin’s Accelerated Schools Project provided a major influence for refining the empowerment approach (Fetterman, 1996).

Levin (1996) explained that using “a particular governance structure and an inquiry approach to decision-making, the school addresses its major problem areas in a way that will create powerful learning throughout the school” (p. 51). The empowerment process was well-suited to the unique self-governance and decision-making processes of the accelerated schools, where “all staff members, parent representatives, and student representatives are expected to participate in decisions” (p. 57). The decision-making structure involved the school community in identifying which school issues to investigate, the questions to be answered, and the methods to be used. The whole school designed a “dream school” (p. 57) as their vision, or mission, for the future of the school. Comparing the “dream school” to the identified issues, the school prioritized just a few areas for more intensive scrutiny. Self-selected groups chose to work on different priority issues and met regularly to formulate action plans for addressing the issue. These plans were pilot tested, revised, and submitted to a larger committee for approval. In addition, they had to meet requirements for assessment and evaluation of success (Levin, 1996).

In addition to promoting the empowerment approach as appropriate for any setting in which a group seeks to build the organization’s internal capacity to determine where and how their program needs improvement, Fetterman has defended his method against criticisms that it is not rigorous, reliable, or well-defined (Fetterman, 1996). The same year that Fetterman’s 1993 AEA presidential address was published, Stufflebeam (1994) published an article in the same journal trouncing empowerment evaluation on numerous counts, from the omission of the determination of worth in the definition of the approach, to criticizing Fetterman’s five facets as beyond the realm of an evaluator’s
duties. He charged that empowerment evaluation would take work away from practicing evaluators and that it completely ignored the newly-established Program Evaluation Standards (Joint Committee, 1994). Stufflebeam had little positive to say about the approach. He called for salvaging the field of evaluation through the strict adherence to purely objective evaluation approaches, to make
determinations of merit and worth, invoke and justify appropriate and (where they exist) established standards of merit and worth, obtain and validate findings from multiple sources, set forth and justify conclusions about the evaluand’s merit and/or worth, report findings honestly and fairly to all right-to-know audiences, and subject the evaluation process and findings to independent assessments against the standards of the evaluation field (p. 326).

He even reprinted the Program Evaluation Standards at the end of the article for emphasis.

Fetterman’s response (1995) carefully identified five myths revealed in Stufflebeam’s criticism and provided a thoughtful argument dispelling each one. The myths, briefly, were that empowerment evaluation 1) is conducted by a single evaluator and has only one goal, 2) is merely a public relations exercise, 3) can assist autocrats in achieving biased ends, 4) is mutually exclusive of external evaluation, and 5) violates the Standards (Fetterman, 1995). In rebuttal, Fetterman explained that empowerment evaluation is a group effort designed to build capacity for self-evaluation and internal accountability. This group endeavor ensures that checks and balances are in place. In fact, evaluation capacity, community ownership, and democratic participation contribute to more critical findings, with the goal of program improvement driving the self-criticism. Although building internal evaluation capacity is the primary task of empowerment evaluators, the process is certainly not opposed to concurrent or subsequent external evaluation to provide additional oversight and insight. At the end of the article, Fetterman demonstrated how empowerment evaluation upheld the Standards (Joint Committee, 1994) by applying each of the four areas (Utility, Feasibility, Propriety, and Accuracy) to the approach.
Three years later, Patton’s (1997) central charge against *Empowerment Evaluation: Knowledge and Tools for Self-Assessment and Accountability*, edited by Fetterman, Kaftarian & Wandersman (1996) was that Fetterman failed to consistently distinguish between participatory and collaborative evaluation processes that may lead to some feelings of empowerment among those involved versus empowerment evaluation as a distinct political process aimed explicitly at and therefore to be judged by its effectiveness in altering power relationships (p. 152).

In order for an evaluation to meet the definition of empowerment evaluation, he maintained all five facets must be included in the evaluation. Otherwise, the evaluation is most likely participatory, utilization-focused, or collaborative in nature, as attributes such as facilitation and illumination are common to all of these approaches.

Patton insisted that Fetterman’s evaluation approach was contained within a participatory continuum from limited participation to full control. In short, he felt that Fetterman’s description of the approach lacked clarity and contained many ambiguities that made it difficult to distinguish it from other approaches of a participatory nature (Patton, 1997). He also questioned the wisdom of evaluators serving as advocates for specific programs, rather than advocating the use of evaluation results about specific programs. He questioned the ability of the evaluator to maintain a high level of credibility, which influences the level of utilization, when an advocacy role such as the one Fetterman proposed is adopted. Despite these concerns, Patton conceded that empowerment evaluation was still in its early stage of development, and, as it seemed to be “an idea in tune with the politics of our times” (p. 162) would benefit from a full course of polishing and clarification.

Scriven (1997) also reviewed the Fetterman, Kaftarian, and Wandersman (1996) volume and, while critical on many points, he spent a great deal of time analyzing what he felt was Fetterman’s inability to provide a single, consistent definition of empowerment evaluation. He provided evidence that the definition of empowerment evaluation was different in several publications on the approach. However, his main concern was that the approach failed to “focus clearly and precisely on who should be empowered” and “that lack of clarity tells us that we cannot casually welcome this
approach to evaluation as an obvious improvement” (p. 169). His concern here was that program clients or consumers would ultimately lose as a result of empowerment evaluation conducted wholly by staff. He questioned whether the increasing success of the approach is “mainly due to the fact that staff members, a much more numerous group than managers, are enthusiastic about an approach to evaluation that is focused on their needs and abilities” (p. 169). A concern that allowing internal staff to evaluate their own program will do nothing to eliminate bias in evaluation was also addressed. Despite these critical assessments of empowerment evaluation, Scriven conceded that the emphasis on training staff in evaluation techniques was ultimately a positive outcome (Scriven, 1997).

Fetterman (1997) responded to both Patton and Scriven in a single publication that same year. At the outset he acknowledged that empowerment evaluation was not a solution for all evaluation needs. He welcomed the opportunity to engage in the scholarly debate to improve and refine the approach and the field of evaluation. Addressing Patton’s review first, he pointed out that evaluation approaches are never in an “absolute or pure form” but “approximate an ideal type. Empowerment evaluation, like all other forms of evaluation, exists along a continuum” (p. 255). It overlaps with other forms of participatory evaluation, and in fact uses collaboration and participation in its attempt to foster self-determination and build evaluation capacity among the participants. Regarding advocacy, Fetterman claimed that the questions selected, criteria established, and stakeholders represented in all evaluations to some extent represent an advocacy position: “evaluators are inevitably on somebody’s side and not on somebody else’s side” (p. 257). In empowerment evaluation the evaluator “may shift into a new role as a program or group advocate…to help program staff and participants use evaluation findings to advocate for their program if the findings merit such advocacy” (p. 257, emphasis in original).

Fetterman provided a concise rebuttal of each of Scriven’s criticisms. He disagreed that the definition of empowerment evaluation has changed significantly, and claimed that a more careful review would show the consistency of his definition throughout his writing. He acknowledged a consolidation of definitions, but no significant change in the focus or language he had used. His definition, then, provided a
clear indication that empowerment occurred for those who participated in the evaluation process, whether it was staff, managers, consumers, or all of them.

Referring to Scriven’s concern for consumers, Fetterman maintained that they are not the only focal point for evaluation, and that “there is nothing wrong with beginning to develop a critical mass of program staff members when attempting to build and cultivate an evaluative community of learners” (p. 259). He tackled the issue of bias by questioning the single purpose, in Scriven’s view, of evaluation as a means of providing unbiased external accountability, which can only be achieved through evaluation conducted from a distance. Fetterman convincingly stated that people represent one of the most significant links to valid and reliable findings. I believe the best data are secured through close observation of people and interaction with them, not through distancing oneself from them. Moreover, a complex web of interactions and considerations is lost by distancing oneself. The richness of people’s lives and what they bring to a program on all levels is captured by talking with them and spending time immersed in their daily lives (pp. 261-262).

This discussion opened up the opportunity to expand the field’s recognized purposes of evaluation to include not only accountability, but program development and knowledge about the program (from Chelimsky & Shadish, 1997; as cited in Fetterman, 1997). Fetterman concluded on a conciliatory note by acknowledging Scriven’s appreciation of the effects of empowerment evaluation on increasing evaluation skills among program staff.

The concerns of Stufflebeam, Patton, and Scriven notwithstanding, many researchers have since found Fetterman’s empowerment evaluation techniques to be quite beneficial in achieving program improvement goals and fostering a sense of self-determination among program stakeholders. In his 2001 book Foundations of Empowerment Evaluation, Fetterman provided four case study examples of empowerment evaluation. In one, children’s hospital staff and the parents of patients used the approach to make the hospital setting more family centered. A reading improvement program operated by university students as a service project used the
approach with administrators and funders to refine the program mission and to improve the delivery of reading tutoring to elementary school students. The account of an Upward Bound program using empowerment evaluation to resolve differences in program administration and program ideals provided a stunning example of the power of the approach to remind all participants of the values and purposes that informed the creation of the program in the first place. Staff of a summer reading program for middle school students used empowerment evaluation to reconsider the design and implementation of the program, with the result that the program was redesigned for increased student performance and program cost effectiveness (Fetterman, 2001).

These program improvement decisions are the same kinds of decisions teachers make in their classrooms everyday. Acquiring the skills, motivation, and confidence to effectively make and implement these decisions should be the objective of teacher professional development, especially in forms that are directed by teachers.

**Professional Development**

Reviews of the literature on the features that characterize high quality professional development indicate that there are at least six common traits shared by most high quality professional development activities (Darling-Hammond, 1996; Desimone, et al., 2002; Loucks-Horsley et al., 2003; Maldonado, 2002; Wenglinsky, 2000). These are a high level of teacher engagement or teacher direction, a relatively long duration, a collaborative or collective effort among participants, an orientation to current reform efforts, a focus on content and inquiry based learning, some form of follow up or learning community opportunities, and coherence with teachers’ other professional development experiences.

Much of the evidence comes from an extensive study conducted by collaborators at the American Institute for Research and the University of Wisconsin-Madison. During a three-year study of teachers who had participated in Eisenhower Professional Development programs, the researchers first identified from the research base three structural features and three core features that characterized the context and processes, respectively, of a professional development experience (Birman et al., 2000). The structural features were defined as “characteristics of the structure or design of
professional development activities” and included the duration of the activity, the degree
of collective activity of teachers from the same school, and whether the activity was
reform-oriented or traditional (Garet et al., 2001, p. 919). The core features, those that
described the “dimensions of the substance or core of the professional development
experience” (p. 919), included the opportunities for teachers to engage in active learning,
the coherence of the activity with teachers’ other professional opportunities for learning,
and whether the activity focused on the subject matter.

The study involved multiple data collection methods: a nationally representative
probability sampling of over 1000 teachers surveyed regarding the effects of different
features of professional development on teachers’ knowledge and skills (Garet et al.,
2001) and a longitudinal survey of over 200 teachers at three points in time (Desimone, et
al., 2002). The surveys provided self-reports of behaviors after engaging in professional
development, not subjective judgments of the quality of professional development
experiences, thereby avoiding potential positive bias and increasing validity and
reliability (Porter et al., 2003). The study showed that “activities of longer duration and
activities that encourage collective participation of teachers in the same school or grade
tend to place more emphasis on content, provide more opportunities for active learning,
and provide more coherent professional development than other activities” (Porter, et al.,
2003, p. 27). However, all six features were not highly prevalent in the professional
development experienced by many teachers in the national probability sample. For
example, less than 20% of activities were longer than six months, and a similar amount
involved teachers from the same school or grade participating together. The report
advocated that districts engage in the management and implementation strategies for this
type high quality professional development that lead to the outcomes of enhanced teacher
knowledge and skills and improved teaching practices.

The structural and core features of professional development have been widely
accepted by leading researchers and designers of professional development at the national
level (Guskey, 1997; Loucks-Horsley et al., 2003; Maldonado, 2002). Isolated, one-shot
programs too often attempt to train teachers in superficial activities that do not take into
consideration teachers’ ongoing efforts to improve practice for the specific school context
in which they are teaching (Birman et al., 2000; Darling-Hammond, 1996; Lewis, 2000;
Porter et al., 2003). For example, at two charter schools in Baltimore founded by non-profit organizations, professional development that promised improvements in student achievement was teacher-led within the school rather than led by outside experts brought in by the district (Abell Foundation, 2006). At KIPP (Knowledge is Power Program) and Crossroads schools, professional development was site-based and teacher-led. Grade-level teams met daily at KIPP “to discuss specific implementation and revisions needed to meet state standards” and conduct bi-weekly peer evaluations with feedback (p. 12). At Crossroads school the students were released early every Wednesday to allow teachers time to engage in professional learning community models of professional development “in which teachers come together to solve problems and create action plans” (p. 12). These schools were the only two middle schools in Baltimore achieving Adequate Yearly Progress as defined by the No Child Left Behind Act (2001).

A report by the Abell Foundation (2006) attributed the schools’ successes, relative to the city’s other middle schools, to this form of professional development along with a number of other innovations. Effective teacher-led professional development initiatives are collaborative efforts that build content knowledge and examine student learning. The evaluation study examined multiple data sources, from teacher education, parental and student commitment, and school leadership; very little quantitative data beyond the unavoidable student achievement results were collected. All of these indicators pointed to a flexibility for teachers to assess student learning needs at the classroom level. School leadership was trained in facilitation, not micromanagement, and parents and students supported the teacher’s diagnosis of student needs based on learning goals, not covering a predetermined number of topics. The results of these many variables added up to student achievement that was higher than that of the city’s public middle and K-8 schools. KIPP students were among the highest performers in the state.

The National Staff Development Council’s Standards for Staff Development were originally developed in 1994 by a task force comprised of members of many educational associations that “examined the research and used its empirical knowledge to design standards that each organization could support as critical for high-quality staff development” (Hirsch, 2001, para. 5). The revised 2001 Standards reflect the NSDC’s current vision which “requires that staff development be results-driven, standards-based,
and job-embedded” (para. 6). The revised Standards underscore the need for high-quality standards-based professional development that is embedded within the job of teaching and is driven by results.

The NSDC Standards provide guidance in three domains--the context, process, and content--when designing professional development (NSDC, 2001). The context standards guide developers to organize learning communities, cultivate leadership of those learning communities, and arrange for adequate resources for these efforts. The process standards direct developers to design activities that are data-driven and research-based, that incorporate evaluation for continuous improvement, and use appropriate adult learning strategies and ample opportunities to learn, all in a collaborative framework. The content standards promote quality teaching through strengthened teacher content knowledge, instilling in teachers a sense of equity by modeling supportive learning environments and high student expectations, and providing teachers with the skills to involve families (NSDC, 2001).

Collectively, these standards advocate the development of learning communities engaged in data-driven evaluation efforts to collaborate in designing strategies to promote learning for all students. Learning communities are teacher-led endeavors that have the potential to affect teachers in a variety of ways that can lead to improved student learning (Marks & Louis, 1999; Murphy & Lick, 2005; NSDC, 2001). This advocacy by the NSDC includes articles published in NSDC journals over the last six years describing the process and the benefits it promises to its practitioners (Richardson, 2001; 2004). Such teacher-led learning communities, like lesson study, provide teachers with the opportunity to determine the course of their own professional growth and improve their practice in a collegial, supportive environment (Desimone et al., 2002). It encourages teachers to focus on their own practice in the context of their own classrooms, while sharing lessons learned in a collaborative setting. It is essentially an empowerment process that has the potential to be a positive influence on practice (Marks & Louis, 1997, 1999).

A type of learning community that is familiar to many U.S. teachers is action research. Like lesson study, it involves the collaborative efforts of teachers in examining a problem in student learning and searching for strategies to alleviate the situation. Lewis
(2002) has described lesson study as a collaborative form of action research. For this study, it served as a yardstick against which to compare lesson study and helped situate lesson study as a learning community form of professional development (Loucks-Horsley et al., 2003; Murphy & Lick, 2005). Action research traces its roots to community psychology in the early part of the last century as a method to identify and solve social problems within the local context (Lewin, 1946; Schwalbach, 2003; Stringer, 1996). Thus, the idea that there is a connection between lesson study and empowerment evaluation is reasonable given Fetterman’s background in community psychology and his familiarity with action research (Fetterman, 2001).

Although it did not originate in the context of educational problem-solving, action research was soon found to provide a method to address “a range of contemporary concerns and provide a dynamic for collaborative programs of action in schools (Kemmis, 1982, as cited in Schwalbach, 2003, p. 3). After a brief decline in practice during the 1960s, action research resurfaced in Great Britain in the mid-1970s. The work of Carr and Kemmis (1986) is widely cited for its role in this resurrection. The “cycles of planning, acting, observing and reflecting, with each of these activities being systematically and self-critically implemented and interrelated” aimed to improve practice by involving practitioners in all of these stages (p. 162). They made the realm of educational research accessible to practitioners by opposing the “claim that educational research should be the sole preserve of the academic ‘experts’” (p. 2). They attempted to “develop theories of educational practice that are rooted in the concrete educational experiences and situations of practitioners” in order to close the gap between educational theory and practice (p. 215). Lesson study, like action research, is also a long-term, collaborative form of professional development that improves practice through collaborative, contextually based activities led by practitioners rather than academic experts.

Recent examples of professional development research using action research as a tool for generating changes in practice and professional knowledge bolster the claim that action research does meet many of these characteristics of high quality professional development. Case study research by Ponte, Bouwe Beijaard, & Wubbels (2004) found that action research contributed to the development of professional knowledge of teachers.
at the six schools in their study. The study presumed four assumptions about action research, that it is contextually based, engages teachers in reflection on their own data, is collegial, and uses the classroom as the research setting. Facilitators for action research guided the teachers through social science research methods using dialogue and reflection on practice, and used the subsequent “insight and understanding gained in this way to systematically improve practice” (p. 571-2). Their results indicated that on their own teachers normally developed professional knowledge of methods, techniques, and strategies (what they wanted to do in the classroom) rather than educational norms, values, and objectives (what they wanted their students to achieve) or even an understanding of the connections between the two. Active facilitation by outside teacher educators increased the level of knowledge gained by teachers in these last areas. Lesson study routinely engages the insights of an outside observer to achieve similar depth of knowledge (Lewis, 2002).

A literacy project by Warrican (2006) used action research by teachers to address the issue of teacher buy-in when new innovations in educational practice were introduced. Action research was used as a tool to achieve the level of teacher involvement and change in practice necessary for the innovation to be sustainable because action research works within a collaborative relationship, rather than a power structure, to effect change. The study approached the problem of “promoting a culture of leisure-reading among reluctant readers in a secondary school” to increase the opportunities for improving literacy and language skills (p. 2). Teachers were frustrated at the low reading levels and were willing to engage in a collaborative problem-solving project with the researcher to develop and implement a reading program. Findings confirmed that action research provided the necessary teacher collaboration for buy-in, which is a key ingredient for sustainability and change. In addition, the researcher found that action research also situated the problem-solving efforts within the school context. Instead of importing solutions or innovations developed externally and adapting them to the school culture, action research focused on tailoring the solution to fit the setting, much as the lesson study process works.
CHAPTER THREE

Methods

The primary purpose of this study was to attempt to explore qualitatively the degree and manner in which the Japanese practice of lesson study empowered teachers to begin to direct their professional growth. The research questions were developed from the review of the literature, the results of a pilot study, and personal experience with the lesson study process. The study was informed by the current understanding of empowerment theory (Peterson & Zimmerman, 2004) and is rooted in a constructivist epistemology (Guba & Lincoln, 1989). This section provides a description of the research design, the collection and analysis of data from the study, the role of the researcher, and limitations to the study.

A pilot study conducted over the course of two semesters informed the research questions and data needed answer them. The research questions were carefully selected to provide insight into the personal and professional benefits that lesson study provided for these teachers. According to the literature, lesson study has the potential to empower teachers to determine the course of their own professional growth through its collaborative, student-centered approach. In order for lesson study to succeed, it may be helpful to identify the contextually based factors that may inhibit or support lesson study in order to prepare a favorable setting for engaging in the process. The four questions for this study were:

1. To what degree does lesson study effectively empower teachers—that is, enable them to develop self-determination to improve their classroom teaching practice?
2. What other personal and professional benefits do teachers participating in lesson study experience as a result of the process?
3. How does lesson study produce these effects and what aspects of the process seem to have the greatest positive impact?
4. What are the enabling or inhibiting factors that may impact these teachers’ practice and perceptions of lesson study?

The qualitative, exploratory research design limited the nature of the conclusions that could be drawn from the data. Data sources for this study included interviews with teachers who participated in lesson study and, to serve as negative cases, interviews with teachers who decided that lesson study was not an option for them. Researcher notes and reflections, teacher reflections, and documents generated during both the lesson study and an empowerment evaluation conducted at the conclusion of the school year provided additional current data on teacher benefits from lesson study. See Table 3 for a list of the data sources and analysis methods for each research question.

To explore the degree to which lesson study effectively empowered teachers, evidence was needed from the teachers themselves, in the form of interview responses and reflective journals. The benefits that the teachers themselves attributed to the process were triangulated using researcher notes and reflective memos. Negative case interviews with teachers who elected not to participate in lesson study also provided evidence regarding empowerment, thus serving to confirm the dependability of results emanating from the cases. Obtaining multiple perspectives of lesson study through interviews of the multiple participants and triangulating teacher comments with research field notes helped to increase dependability of the data and credibility of the findings. The empowerment evaluation results were also triangulated with the interview and teacher and researcher reflection data to further enhance credibility.

To understand other benefits of lesson study, interviews with the eight teachers who participated in a lesson study cycle in spring 2007 provided the major source of evidence for the findings. However, the negative case interviews with teachers who elected not to participate in lesson study also provided supporting evidence regarding some of the benefits of lesson study, thus serving to confirm the dependability of results emanating from the cases. Other documents generated during lesson study from the school, in the form of the principal interview and documents about the school’s staff development and improvement plan were obtained for information on the school vision.
Table 3: Research Questions and Data Sources and Analysis

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<th>Research Question</th>
<th>Data Sources</th>
<th>Analysis Methods</th>
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<tr>
<td>To what degree does lesson study effectively empower teachers—that is, enable them to develop self-determination to improve their classroom teaching practice?</td>
<td>8 teacher interviews, researcher field notes, empowerment evaluation results, teacher reflections, 6 negative case interviews, 8 individual professional development plans</td>
<td>Constant comparative analysis on interviews, axial coding of empowerment evaluation, triangulation with other data sources, debriefing with a neutral party</td>
</tr>
<tr>
<td>What other personal and professional benefits do teachers participating in lesson study experience as a result of the process?</td>
<td>8 Teacher interviews, researcher reflective journals, 6 negative case interviews</td>
<td>Constant comparative analysis, triangulation of data, debriefing with neutral party</td>
</tr>
<tr>
<td>How does lesson study produce these effects and what aspects of the process seem to have the greatest positive impact?</td>
<td>8 Teacher interviews and reflections, researcher field notes, and new researcher reflections</td>
<td>Constant comparative analysis, triangulation of data, member checking, debriefing with neutral party</td>
</tr>
<tr>
<td>What are the enabling or inhibiting factors that may impact the teachers’ practice and perceptions of lesson study?</td>
<td>8 Teacher and 1 principal interviews, 2 years of school improvement plans, 8 individual professional development plans, 6 negative case interviews, empowerment evaluation results</td>
<td>Constant comparative analysis, document review, triangulation of data and sources, member checking, debriefing with neutral party</td>
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for the role of lesson study in school improvement. The teachers’ own professional development plans provided similar information on individual conceptions of lesson study as a tool for professional growth.

To assess how lesson study produces its effects, teacher interviews and reflections and reflective researcher memos were examined. The multiple perspectives revealed in the interviews and reflections of the teachers, researcher observations of the lesson study
group at various stages of the process, and reflective researcher memos from field notes were used for validation of the findings. The lesson study process was also examined using an empowerment evaluation approach in which the teachers evaluated their engagement in the process and determined those aspects which they perceived to be important to successfully engaging in the process. They then developed strategies to adapt and improve the process to achieve the desired benefits.

To reveal the contextual factors the impact the ability of teachers to engage in lesson study, either to limit or enhance participation, teacher and principal interviews, negative cases, documents, and the empowerment evaluation results were analyzed. As before, multiple perspectives of lesson study through interviews of the teachers triangulated with reflective researcher memos from field notes and the teachers’ individual professional development plans served to increase dependability of the data and credibility of the findings. The negative case interviews with teachers who elected not to participate in lesson study also served to confirm the dependability of results emanating from the cases. The empowerment evaluation results were triangulated with the interview and teacher and researcher reflection data to further enhance credibility.

Research Setting

The study took place at the Creek Side Elementary School, a fictitious name for a pre-kindergarten through fifth grade school of approximately 570 students in a mid-sized city in the southeastern United States. Approximately 15% of the students attended the school through the school choice program to take advantage of its math and science curriculum emphasis. The school served a diverse student body comprised of 52% Caucasian, 32% African American, 5% Hispanic, 4% Asian, 7% multiethnic. As of 2005, 47% of the students were on free or reduced lunch, and 21% were classified with various exceptionalities, excluding gifted; nineteen individual students were described as gifted. Although it was not as socioeconomically depressed as the Paterson School No. 2, which had successfully implemented lesson study for over seven years, it did provide a range of student characteristics in terms of ethnicity and achievement, which was an attractive characteristic in the decision to approach the principal and teachers about the lesson study research.
The school was located within the city limits, adjacent to a large shopping mall, a large strip mall, and an amusement arcade. Housing in the area included single-family homes, multiple-family public housing, and family-oriented apartment complexes. Many of the families that made up the school community were employed in state government agencies or among the faculty and staff of the three institutions of higher learning in the city. The school boasted a small but highly active parent-teacher organization that served mainly as a fundraising organization to support educational field trips and teacher classroom expenses.

In 1999, in response to a decline in enrollment resulting from the opening of a new elementary school nearby, Creek Side applied for status as a math and science magnet school. Concurrently, the school developed a partnership with the state university’s science outreach office. This relationship enabled the teachers to receive science and math-oriented professional development on a regular basis through workshops, institutes, family science nights, and team teaching with office personnel. Since then the administration has supported science-oriented professional development and family science activities on a regular basis.

The principal at the time of the study had been at Creek Side since the spring of 1999 when the school began the process of applying for the magnet school designation from the local school district. Although the prior principal of the school initiated the process of becoming a math and science magnet, his successor was enthusiastic in his support of the teachers’ and university partner’s efforts to become a science and math magnet school. All teachers at the school participated in professional development using the Great Explorations in Math and Science (GEMS) supplemental curriculum developed by the Lawrence Hall of Science at the University of California, Berkeley. The principal generously allowed the university partner to use the school’s science lab and classrooms to offer a variety of science institutes and workshops for the last six summers. Teachers from throughout the district and from several other districts in the state attended these activities held at the school.

According to the local district’s 2005 data, there were 41 teachers at Creek Side, 83% of whom were white and the remaining 17% African American. Thirty-five percent of these teachers held a masters degree, and approximately 54% had ten years or more
years of teaching experience. The school hired seven new teachers at the beginning of the 2005-2006 academic year, mostly due to attrition but also due to the expansion of the school’s magnet student population.

**Research Design**

Briefly, I used a qualitative multiple case study approach (Stake, 1995, 2006) to investigate the lesson study process as it took place at an elementary math and science magnet school, and to assess the extent to which teachers were empowered to improve practice as they determined was best for them. The cases were two groups of four elementary teachers as they engaged in lesson study and their subsequent evaluation of the process using an empowerment evaluation approach to help insure that lesson study could become embedded into the school’s professional development plan. The multiple case study approach was selected for this study because the unique character or subculture of each lesson study group required that they be treated as individual cases, as opposed to examining the lesson study experience of the school as a whole. Each group, indeed each cycle of lesson study, was a separate entity with its own distinct characteristics. Such subcultures result from the unique combination of the individual characteristics of members and the setting in which the group exists (Foster-Fishman et al., 1998).

The purpose of case study research is to observe, collect, organize, and analyze in-depth information, problems, and relationships within a specific case or unit of analysis (Patton, 2002; Stake, 2006). The units of analysis were the two groups of teachers as they engaged in lesson study and empowerment evaluation. The participants in these lesson study groups self-selected to participate in the research study, a limitation to the study that I recognized at the start of the research.

All of the teachers who agreed to participate in the study were asked to provide data in the form of interviews, reflections, notes, and their individual professional development plans (IPDP). Additional interviews and reflective journals were obtained to complement secondary data sources obtained from prior interviews and school documents such as the school improvement plans (SIP). Other documents such as lesson plans and transcriptions of audio- and videotapes of study lessons and discussions were
available and were examined for alignment with the outcomes of lesson study. In addition, the school’s principal was interviewed for his perceptions of lesson study. Although students were present during videotaping, they were not included in the research; the study focused solely on the teachers’ professional development and the empowering processes and outcomes that may have resulted from their experiences. I also provided data in the form of field notes from my own observations as the lesson study facilitator, which provided valuable information about the implementation of lesson study. The field notes formed the basis for researcher reflective memos on the teachers’ depth of engagement in the lesson study process and reflections on their ability to think deeply about student learning (Lewis, 2002). Observations of the lesson study planning sessions occurred either in the grade-level pods or in the school’s science lab, while observations of the research lessons occurred in classrooms with students. A thorough description of the history of lesson study at Creek Side is provided in Chapter 4.

Teacher interviews lasted thirty to sixty minutes and were conducted in the teachers’ classrooms approximately one week after the lesson study cycle concluded. A combination of a structured, open-ended interview and an interview guide (Patton, 2002) were used for interviewing teachers. I developed the interview protocol after reviewing literature on lesson study, empowerment theory, and empowerment evaluation. Particularly helpful in this task were the ten guiding principles of empowerment evaluation: improvement, community ownership, inclusion, democratic participation, social justice, community knowledge, evidence-based strategies, capacity building, organizational learning, and accountability. (See Appendix A for the interview protocol.)

The Empowerment Evaluation Approach

I hope that this study will help position lesson study as an empowerment approach that is suitable for teachers seeking to evaluate and improve their teaching. At a procedural level, there are striking similarities between the processes of lesson study and Fetterman’s three-step approach to empowerment evaluation as noted in Chapter 1. (Refer to Table 1 on p. 6.). However, a deeper examination reveals that lesson study also may share many of the principles and ideals of empowerment evaluation for fostering improvement and self-determination.
At the conclusion of the academic school year, the teachers and the school principal participated in an empowerment evaluation on the lesson study process in order to “foster improvement and self-determination” (Fetterman, 2001, p. 3) in their future lesson study activity. Following the three-steps of empowerment evaluation, they assessed their use of lesson study as it is described in the literature, planned strategies to improve future cycles of lesson study at their school, and determined the evidence they would need to collect to evaluate their success. The results of the empowerment evaluation served as a source of data to help determine whether lesson study led to empowering the teachers to evaluate and improve their lesson study practice.

The first exercise for the lesson study group was to generate a formal mission statement for guiding the plans for future action and improvement of the lesson study process as it is conducted at the school. While most educators engage in professional development activities designed at the state or district level, these teachers conducted a multi-pronged campaign for improvement at the classroom level where student learning was the focus of the effort. Lesson study offered the teachers a chance to conduct a meaningful method of professional growth, and the empowerment evaluation activity offered the opportunity to mold lesson study into a process that is attuned to the circumstances—the needs, resources, skills, talents, and overall context—of the Creek Side teaching and learning environment.

An empowerment evaluation has three major steps: mission, taking stock, and planning for the future. Each step helped focus the goals of lesson study and provided a foundation for the next step. The first step was to generate a mission statement for lesson study that served to focus the group on specific needs and strengths within the school context. The teachers began by brainstorming key phrases that captured the goals of lesson study. From the key phrases, a mission statement was drafted that was refined throughout the rest of the evaluation process. The mission statement did not have to be accepted by everyone, just accepted by consensus; it provides a starting point for the second step. It reflected the values of the group and represented the foundation for the next steps in the evaluation:

Lesson study is a true, site-based process for teachers to collaboratively set goals for student learning and to engage in deeper conversations about
teaching and learning. This process will result in more effectively-structured lessons that both increase teachers’ knowledge and improve student learning.

The second step, Taking Stock, was composed of two substeps, but first began with generating a list of key activities that are crucial to the functioning of lesson study. The list comprised what the teachers believed to be the most significant features or activities of lesson study as they engaged in it. After this list was generated, the most important activities that the group collectively determined warranted closer evaluation were prioritized. Each member of the group voted on the items in the list, identifying those activities they believed deserved more focus during the next phase of the evaluation. Those activities that received the most votes became the prioritized list of activities meriting closer evaluation. This voting process served to limit the scope of the evaluation.

The second part of Taking Stock involved rating the prioritized activities. Each participant rated the activity according to how well they thought that activity was being conducted by the lesson study group, with 10 being the highest rating and 1 being the lowest. Each teacher was required to explain their ratings so that individual thought processes were made clear to everyone in the group. Sharing and discussing ratings served to open a dialogue about the entire lesson study process and help revealed the collective and individual perceptions about the process and its role at the school. In addition, definitions for each activity being rated were clarified and misconceptions were resolved through this process. The lower the rating, the more the teachers believed in the need for improvement in this area.

The third step of the activity, Planning for the Future, addressed setting improvement goals, devising strategies to meet these goals, and developing measures to determine whether the strategies worked. Taking Stock set the stage for this final step of the evaluation. This phase allowed the group to ask “where do we want to go from here with lesson study?” The list of activities rated in Taking Stock guided Planning for the Future. A thread of coherence existed from the mission statement, through Taking Stock, to the Planning for the Future. Each participant set specific goals for each activity, based on the results of Taking Stock, then shared and worked collaboratively to reach a
consensus on these goals. The group developed their strategies and identified the resources within the school and within their own practice for achieving these goals. Each strategy was designed to generate its own evidence that would help monitor the progress toward each goal. The resulting goals were within the lesson study group’s talents, resources, and scope of capability.

The empowerment evaluation provided data in the form of a lesson study mission the teachers developed; documents generated during Taking Stock of the groups’ lesson study efforts; and the goals, strategies, and evidence the teachers devised in Planning for the Future. The empowerment evaluation results are provided in Appendix B. In addition to these evaluation artifacts, the teachers were asked to reflect on their experiences with the empowerment evaluation prior to a group discussion about their experiences. The teachers were asked to reflect on the ten principles of empowerment evaluation (improvement, community ownership, inclusion, democratic participation, social justice, community knowledge, evidence-based strategies, capacity building, organizational learning, and accountability) and comment on the extent to which they perceived these principles were present in the lesson study process. Thus, the summer empowerment evaluation along with follow-up and negative case interviews and lesson study planning in August 2007 rounded out the collection of data for this study.

Data Analysis

Data consisting of narratives from interviews, teacher reflective journals, and researcher reflective memos were analyzed using constant comparative methods (Strauss & Corbin, 1998), facilitated with QSR International NVivo 2.0 software. As each data source, especially interview data, was examined and emerging categories were noted, current and secondary data sources from the pilot study were examined or reexamined with each new category in mind. If categories were supported in multiple places throughout the data, they were considered for inclusion in the search for larger themes. This constant reexamination of the multiple data sources is consistent with constructivist epistemology and contributes to the dependability of the data.

Other data were documents such as the school improvement plan (SIP), teachers’ professional development plans (IPDP), the empowerment evaluation results, researcher
field notes and observations, transcriptions of planning meeting and discussion session
tapes, and videotapes of the study lessons. These data were used for triangulation to
test for corroborating or refuting evidence of the findings that emerged from the
interview and reflective journal data. Where contradictions or support existed, they were
noted in the results.

The multiple data sources described above were analyzed for evidence that would
help answer the four research questions in this study. Some sources, such as the teacher
interviews and the empowerment evaluation results, featured more prominently than
others. However, all data sources were scrutinized carefully and triangulated with as
many other sources as possible before reporting the evidence it contained.

To begin the analysis of the data for this study, I began open coding of the
interview data from the current study and compared the emerging categories and themes
to those that had emerged from secondary interview data from the pilot study. Those
categories and themes that did not emerge from this coding were eliminated and the
remaining secondary and newly emerging codes were reorganized. The categories and
themes developed from the coding for secondary data and current data can be found in
Table 4. As analysis progressed using this constant comparative method, the codes
continued to be revised, expanded, and refined by revisiting previously coded data to
arrive at a set of categories and themes for the current study. Briefly, some of the
categories that emerged focused on the new ability that lesson study afforded the teachers
to observe students closely for evidence of learning, the strength of the collaborative
planning component, and the sense of professionalism the teachers felt from engaging in
a unique professional development process. Categories such as careful planning were
developed from specific ideas in the teachers’ responses. From these categories, themes
emerged as related categories were grouped together. All data were analyzed in a similar
manner in order to answer the four research questions on the benefits, the mechanisms,
and the contextual factors impacting lesson study.

For the third research question, the interview data also were analyzed for the
degree each teacher either implicitly or explicitly expressed the principles of
empowerment evaluation. This was measured by how many and at what frequency each
of the principles were either implied or explicitly stated in their interviews and
**Table 4:** Categories and Themes for Secondary and Current Data.

<table>
<thead>
<tr>
<th>Secondary Data Categories</th>
<th>Current Data Categories</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barriers to LS</td>
<td>Barriers to LS</td>
</tr>
<tr>
<td>Being open</td>
<td>Being open</td>
</tr>
<tr>
<td>Careful planning</td>
<td>Careful planning</td>
</tr>
<tr>
<td>Change in practice</td>
<td>Change in practice</td>
</tr>
<tr>
<td>Collaboration</td>
<td>Collaboration</td>
</tr>
<tr>
<td>Distilling what’s important</td>
<td>Effective Teaching</td>
</tr>
<tr>
<td>Effective teaching</td>
<td>Empowerment: <strong>improvement</strong>, democratic participation, social justice, community knowledge, evidence-based strategies, capacity building, organizational learning, inclusion, community ownership, accountability</td>
</tr>
<tr>
<td>Empowerment</td>
<td>First experience</td>
</tr>
<tr>
<td>First experience</td>
<td>Future of LS</td>
</tr>
<tr>
<td>Informal assessment</td>
<td>Informal Assessment</td>
</tr>
<tr>
<td><strong>Other forms of professional development</strong></td>
<td><strong>More LS experience</strong></td>
</tr>
<tr>
<td>Professional development</td>
<td>Observing students</td>
</tr>
<tr>
<td>Seeing others</td>
<td>Role of facilitator</td>
</tr>
</tbody>
</table>

Categories in regular font did not change between secondary and current data, while those in **strike through** did not emerge in the current study. Categories in *italics* were developed into larger themes in the current study, and categories in **bold** emerged only in the current data.
Table 4: Continued

<table>
<thead>
<tr>
<th>Secondary Data Categories</th>
<th>Current Data Categories</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Student benefits of LS</strong></td>
<td><strong>Student learning</strong></td>
</tr>
<tr>
<td>Supporting each other</td>
<td>Supporting each other</td>
</tr>
<tr>
<td>Support for LS</td>
<td>Support for LS</td>
</tr>
<tr>
<td>Thoughts about the process</td>
<td>Thoughts about the process</td>
</tr>
<tr>
<td>Professionalism</td>
<td>Professionalism</td>
</tr>
<tr>
<td><strong>Being reflective about teaching and learning</strong></td>
<td></td>
</tr>
<tr>
<td>Classroom relevance of LS, of other PD</td>
<td></td>
</tr>
<tr>
<td><strong>Content coverage vs. student learning</strong></td>
<td></td>
</tr>
</tbody>
</table>

Categories in regular font did not change between secondary and current data, while those in strike through did not emerge in the current study. Categories in *italics* were developed into larger themes in the current study, and categories in **bold** emerged only in the current data.

 reflections. The analysis followed an axial coding method (Strauss & Corbin, 1998) using the lens of empowerment evaluation principles. To do this, it was found useful to use Fetterman’s principles as “sensitizing concepts” (Patton, 2002, p. 456) to scrutinize the teacher interview and reflection data for evidence that the values of empowerment evaluation were “in force at some level” (Fetterman, 2005a, p. 9) during lesson study. The principles as described in Fetterman (2005a) were redefined in the language of teaching and learning using the evidence from the interview data. For example improvement is a goal of both lesson study and a principle of empowerment evaluation. Fetterman explained the principle of improvement is valued in empowerment evaluation because of “the fundamental assumption that the vast majority of programs desire to achieve positive results” (p. 29). Evidence from teacher interview and reflection data that reflected the theme of improvement was used to establish a definition, or value to use Fetterman’s language, for the improvement principle in the language of teaching and learning. In a sense, I redefined Fetterman’s principles in teaching and learning terms as
they emerged from the interviews and reflections. Teacher data that reflected their “desire to achieve positive results” were reflected in their ideas about changes and improvements in practice, new teaching strategies, or new insights about teaching and learning. This process could be considered deductive in nature by “testing and affirming the authenticity and appropriateness of the inductive content analysis” (Patton, 2002, p. 454). Table 5 presents the values of each principle in the language of teaching and learning as they emerged during the content analysis in juxtaposition to the “underlying values of empowerment evaluation” (Wandersman et al., 2005, p. 29) that oriented the analysis.

To help determine to what degree and in what manner lesson study produced its effects, an empowerment evaluation to improve lesson study at the school also was conducted. The goals, strategies, and evidence the teachers developed would provide insight about which aspects of the lesson study process seemed to produce these effects. The interview data were analyzed first for evidence that the ten principles were “in force at some level” (Fetterman, 2005a, p. 9) in the teachers’ lesson study practice, then the empowerment evaluation was examined for evidence of the teachers’ self-determination to improve their lesson study practice. As the interview data were analyzed, evidence of the principles emerged in the language of teaching and learning. For example, the empowerment evaluation principle of social justice was reflected in the teachers’ comments about their desire to help all students learn. Teacher comments that mentioned how children learn best, why some children are not learning, or helping children learn more or better were coded as embodying the principle of social justice. Using the principles of empowerment evaluation as sensitizing concepts provided a focus for the analysis and a general direction in which to look (Blumer, 1969).
<table>
<thead>
<tr>
<th><strong>Principle</strong></th>
<th><strong>Underlying Value from Wandersman et al. (2005)</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Social Justice</strong></td>
<td>“a fair and equitable allocation of resources, opportunities, obligations, and bargaining power”, “to make a difference with an eye toward the larger social good” (p. 33-34)</td>
</tr>
<tr>
<td></td>
<td><strong>How children learn best, why some children are not learning, helping children learn better</strong></td>
</tr>
<tr>
<td><strong>Improvement</strong></td>
<td>“the fundamental assumption that the vast majority of programs desire to achieve positive results” (p. 29)</td>
</tr>
<tr>
<td></td>
<td><strong>Changes and improvements in practice, new teaching strategies, new insights about teaching &amp; learning</strong></td>
</tr>
<tr>
<td><strong>Democratic Participation</strong></td>
<td>“the importance of deliberation and authentic collaboration as a critical process for maximizing use of the skills and knowledge that exist within the community”, “fairness and due process” (p. 33)</td>
</tr>
<tr>
<td></td>
<td><strong>Having equal input, contributing to the process as much as desired, trusting colleagues’ input</strong></td>
</tr>
<tr>
<td><strong>Capacity-building</strong></td>
<td>“when stakeholders learn the basic steps and skills involved in conducting program evaluation, they are in a better position to shape and improve their lives and the lives of those who participate in their programs” (p. 35)</td>
</tr>
<tr>
<td></td>
<td><strong>Learning more about lesson study, learning from the facilitator, teacher direction over the process</strong></td>
</tr>
<tr>
<td><strong>Community Knowledge</strong></td>
<td>“people typically know their own problems and are in a good position to generate their own solutions” (p. 34)</td>
</tr>
<tr>
<td></td>
<td><strong>Using other teachers as resources, seeking out and relying on other teachers’ strengths</strong></td>
</tr>
<tr>
<td>Table 5: Continued</td>
<td></td>
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<tr>
<td>--------------------</td>
<td></td>
</tr>
<tr>
<td><strong>Evidence-based Strategies</strong></td>
<td>“Just as empowerment evaluation respects the work of the community and its knowledge base, it also respects the knowledge of scholars and practitioners who have provided empirical information about what works in particular areas” (p. 35)</td>
</tr>
<tr>
<td><strong>Relying on existing resources, evidence from observations, learning objectives for lessons</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Organizational Learning</strong></td>
<td>“uses tools and practices that are specifically designed to meet programs ‘where they are at’ and to facilitate motivation and skills that support the development of an organizational learning culture” (p. 37)</td>
</tr>
<tr>
<td><strong>Expanding lesson study school-wide, including administration in the process, developing a culture of lesson study</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Inclusion</strong></td>
<td>“the evaluation of a program or organization benefits from having stakeholders and staff from a variety of levels involved in planning and decision making” (p. 32)</td>
</tr>
<tr>
<td><strong>Including more teachers, sharing with other teachers, administrators, and schools</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Community Ownership</strong></td>
<td>“the community has the right to make decisions about actions that affect their lives” (p. 31)</td>
</tr>
<tr>
<td><strong>Control or direction over the process or lesson</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Accountability</strong></td>
<td>“the likelihood of achieving results is greatly enhanced when stakeholders collect process evaluation information and hold staff accountable for their activities and plans” (p. 37)</td>
</tr>
<tr>
<td><strong>Being faithful to the process, using observer data to improve lessons, being accountable to the administration</strong></td>
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</tr>
</tbody>
</table>
Brief Description of Each Data Source

The multiple data sources included interviews with the teachers who participated in one or more lesson study cycles, teacher reflective journals, transcripts from planning meetings and post-lesson discussions, researcher notes and reflections, the empowerment evaluation report from spring 2007, the school improvement plans for the 2005-2006 and 2006-2007 school years, the teachers’ individual professional development plans, and interviews with the principal and six teachers who opted not to participate in further lesson study after one or two cycles. Interviews and reflective journals were initially coded to look for evidence of the categories and themes that had emerged from the secondary data. After the initial coding, those themes and categories that did not emerge were eliminated and new ones were added to the remaining ones. Each of the data sources and general findings that emerged during this iterative process will be described briefly below.

Teacher Interviews

There were eight teachers participating in two lesson study groups in spring 2007. Each group was treated as a case in this study. The second grade group included Linda, Stacey, Gayle, and Deb; the first grade group was comprised of Lois, Leslie, Kelly, and Yvonne. Collectively, the second grade group had over one-hundred years of teaching experience. Their interviews tended to be longer and their question responses tended to be more extended and detailed than those of the teachers in the first grade group. On average, the responses of teachers in the second grade group were twenty-percent longer determined by word count, contained twenty-five percent more passages, and contained eight more themes than the responses of the first grade teachers. Kelly, in the first grade group, had the shortest interview at approximately nineteen minutes, and Stacey from second grade had the longest at over an hour. When these outliers were removed the trends remained, but were considerably reduced. For example, the difference in word count would be only four percent between the two groups if these two interviews were removed.

Second grade group members Deb and Linda had more lesson study experience, three and four cycles, respectively, than any of the teachers in the study. Deb, who had ten years of teaching experience in kindergarten and third grade, had attended a lesson
study conference in Chicago in the May 2007 where she observed lessons at the elementary, middle, and high school levels. Not surprisingly, her perceptions of the lesson study process and the benefits it offered to teachers were quite insightful. Linda and Gayle each had thirty-three years of teaching experience and were continually seeking ways to improve their teaching. Gayle was no longer a classroom teacher, but served as the magnet coordinator, science resource, reading coach, and remedial mathematics teacher for the school. Stacey participated in the fall 2006 lesson study group on volume that “did not go well.” The group had spent three months planning the lesson and teachers were uncomfortable critiquing each other’s teaching. To participate in a second lesson study cycle and this study, Stacey had to be convinced that it would be a more positive experience.

The first grade lesson study group had nineteen years of combined experience. Leslie had ten years of experience at the kindergarten level. Lois had five years in pre-kindergarten, and Kelly and Yvonne were in their second year of teaching. Yvonne and Lois were in second careers and were older than their years of experience would imply. Not surprisingly, their responses in the interviews were more thoughtful and detailed than either Leslie’s or Kelly’s. For Yvonne, the spring lesson study cycle was her first experience; she dropped out of the fall group because the size of the group was large and she could not coordinate her schedule with the other teachers. Leslie, Kelly, and Lois had participated in the fall 2006 group and, although they also spent nearly three months in planning the lesson, the experience was positive enough that they promptly agreed to participate in the spring 2007 cycle and this study.

Planning Meetings and Post-Lesson Discussion Transcripts

The transcripts were used primarily to corroborate statements in the teacher interview and reflective journals and to situate them in their proper context to safeguard the credibility of the teachers’ responses and my assertions about those responses. The planning meetings were scheduled for one hour and most of them followed the same pattern: teachers arrived individually and as much as ten minutes after the scheduled time, snacks were opened and a period of catching up initiated the meetings, one of the teachers would eventually turn the groups’ focus to the task of planning, periodic tangents interrupted the flow of planning, and either the time limit or previous
commitments ended the meeting. On occasion, I started the meeting or acted in some way to refocus the group. Post-lesson discussions were more task-oriented. They occurred either just hours before the revisions had to be completed for the second teaching, or at the end of the school day and had no required time length so the teachers remained focused on completing the discussion so they could depart school. Once the revisions were agreed upon by the whole group, it was left to the next teacher to change the lesson plan and make copies.

In the first grade group, the teachers relied upon the adopted science text for content. I supplied manipulatives only when none of those materials supplied by individual teachers was satisfactory to all. In one instance, the teachers rejected five online video clips about life cycles that contained inaccurate content or inappropriate graphics or discourse (e.g., dated vocabulary or anthropomorphisms). The flow of the lesson was developed from “scratch” as the text offered no set of activities the teachers liked. They decided to use a learning cycle (Bybee et al., 1989) comprised of an invitation to learn, a period of exploration followed by concept introduction, and ending with an application activity. Students would be invited to tell the class what they knew about pine cones, which would segue into each pair of students having a pine cone, seed, and sapling to examine. Students were already familiar with the adult pine trees which grew throughout the school grounds. The terms for these life cycle phases were introduced, and were followed by an activity in which the students glued photographs of the life cycle stages in the correct order. The cycle was repeated with an adult plant, cut flower, seed, and seedling of a daisy. The first lesson was discussed and it was decided that few significant changes were needed. The teachers added the opportunity for students to stand up and share their pine and daisy life cycles, and one of the posters the teachers used to introduce the terms was modified.

In the second grade group the teachers used the Great Explorations in Math and Science guide, Aquatic Habitats (Barrett, Willard, Bergman, & Babcock, 1998), as their teaching unit on habitats and food webs. The guide included four sessions but the teachers agreed to modify the unit so that there were only three lessons. The third lesson, in which the students added mosquito larvae to their aquatic habitats, served as the study lesson. After the first teaching, the lesson was revised by shortening the time for students
to generate their own food chains individually and lengthening the whole class discussion. The fish tanks were also removed from the desks during discussion to focus the students’ attention.

**Researcher Field Notes and Reflective Memos**

Field notes and reflective journals were maintained throughout the two school years when lesson study was being planned or conducted. The field notes were used to record daily conversations with the teachers and scheduling decisions made primarily with the magnet coordinator, who was serving as a liaison to the teachers. The reflective journal entries, which were integrated with the field notes, were records of my impressions of the teachers and the lesson study process as the teachers engaged in it. Many of the reflective memos were digitally audio-recorded immediately after a planning meeting to capture as many researcher impressions as possible before they were forgotten. Most comments were about specific dialogue or remarks made during the planning meetings and were verified against the planning meeting transcripts. An interesting thread through the reflective journal was my recognition of Stacey’s transformation from a lesson study skeptic to an advocate. I noted in the first entry that “I don’t think she [Stacey] wanted to be here to begin with because she had originally said she didn’t have time, but would do it if I actually needed an extra person. So, she came in [to the first meeting] with the comment of being the first here so does that mean she gets to be the first to leave.” In the last entry, I commented, “Stacey is getting more and more, I guess, engaged and excited.”

**School Improvement Plans**

The school improvement plans (SIP) were annual documents that established achievement goals for the student population and strategies to reach and monitor progress toward these goals. The school improvement plans for Creek Side were given a public review by the school community, then approved by the school’s School Advisory Council, principal, and the school representative to the district’s Teacher Education Center. Professional development strategies were typically among those listed to meet the goals. For the 2005-2006 academic year, lesson study was included among the strategies for both science and mathematics achievement goals. Oddly, it was included as a strategy for inquiry-based learning experiences, not as a professional development
strategy. At the point during the summer of 2005 when the SIP was developed, only the magnet coordinator was familiar with lesson study, mistakenly as a process for developing lesson plans, not as a professional development experience. For the 2006-2007 school year, the SIP again included lesson study in the mathematics and science goal areas. It was not listed as a professional development activity, but that category had been eliminated as a separate thread and was integrated into the overall strategy for each school goal.

**Individual Professional Development Plans**

Like the school improvement plan, the individual professional development plans provided the teachers’ annual strategies for improving throughout the academic year. Teachers listed the in-service activities in which they would engage and their professional goals. The school improvement plan required that the teachers include a learning community type of professional development as one of their activities. Seven of the eight teachers listed lesson study as the major activity in which they would participate that year; Stacey did not include lesson study in her IPDP.

**Principal Interview**

The principal at Creek Side, Mr. Thompkins, generously agreed to an interview at the conclusion of the first year of lesson study at the end of the 2005-2006 academic year. His enthusiastic support for the lesson study work in which the teachers engaged was encouraging. Despite his misconception of lesson study as a “curriculum development process,” Mr. Thompkins’s conception of lesson study also included the understanding that it was not about creating the perfect lesson. His ability to delegate various responsibilities among the school staff, rather than micromanage all activities, was an important factor in the introduction of lesson study at the school. According to Mr. Thompkins’ interview, in order to continue to provide the necessary environment for successful lesson study, he saw his leadership and support as encouraging from the sidelines. Mr. Thompkins described his role in facilitating lesson study, “Well, first of all, I try to make it as non-threatening as possible. Why we’re there is to try to help and to adjust, not to criticize. It’s like a team effort. We’re in there to help each other.”

Unfortunately, Mr. Thompkins left the school at the end of the 2006-2007 school year and a second interview was not conducted. Whether he knew he was leaving the
school was not clear. He attended half of the empowerment evaluation and the limited comments he made were captured on videotape. In general, his comments did not contribute any substantial ideas for improving lesson study, but they were encouraging to the teachers’ efforts. He offered to provide days for planning and teaching lesson study the following year and to help encourage more teachers to participate.

Negative Case Interviews

A total of nineteen teachers at the school participated in lesson study cycles at various times during the two years. Of those nineteen, eleven opted not to participate in the spring 2007 cycle and the research study. After the school year, one teacher transferred to another school; the remaining ten were approached about granting an interview to discuss the factors in their decision not to participate. Four teachers did not respond to the request, but six agreed and their interview transcripts were a contributor to the research questions about personal and professional benefits and about contextual factors affecting the process. These interviews also contributed to safeguarding against researcher bias when analyzing and interpreting data to answer the research question about the empowering effects of lesson study. The most cited reason for not participating in further lesson study was lack of time.

Empowerment Evaluation Results

The purpose of the empowerment evaluation was to generate a formal mission statement for lesson study and to guide plans for future actions to improve the process as it was conducted at the school. Although most educators engage in expert-led professional development activities mandated at the state or district level, these teachers conducted their own multi-pronged campaign for improvement at the classroom level where student learning was the focus of the effort. Lesson study offered the teachers a chance to conduct a teacher-directed method of professional growth. Their empowerment evaluation activity then offered them the opportunity to mold lesson study into a process that was attuned to the circumstances—the needs, resources, skills, talents, and overall context—of the Creek Side teaching and learning environment. By the end of the two days, the teachers had generated a list of eight key activities with fifteen goals and twenty-seven strategies for improving and expanding lesson study during the next academic year. (See Appendix B for the teachers’ empowerment evaluation report.)
Credibility of Data

Obtaining multiple perspectives of lesson study through interviews of the multiple participants, observing the lesson study group at various stages of the process, reviewing available documents and reflective researcher memos from field notes were among the methods for triangulation to increase dependability of the data and credibility of the findings. Research findings were shared with the participants through a member checking process, the purpose of which was to identify those contextually-based factors within the school that made the setting favorable or detrimental for lesson study. The negative case interviews with teachers who elected not to participate in lesson study also served to confirm the dependability of results emanating from the cases. In addition, a colleague from the science outreach office where I work helped scrutinize the findings to promote credibility and to help ensure the trustworthiness of the results (Lincoln & Guba, 1985). The empowerment evaluation results were triangulated with the interview and teacher and researcher reflection data to further enhance credibility. Themes that emerged are presented in the Findings chapter of this study.

Role of the Researcher

I was the assistant director of the state university’s science outreach office that first introduced lesson study to Creek Side Elementary School in the fall of 2005. I, along with other members of the office, first learned about lesson study at an open house at Paterson No. 2 in New Jersey in the winter of 2005 and at a professional workshop on facilitating lesson study offered by the Lesson Study Research Group at Teachers College, Columbia University. At the open house, I observed a first grade lesson on subtraction with decomposition and a fifth grade lesson on area of parallelograms, and participated in the post-lesson discussions for both lessons. Subsequent experience with lesson study was gained from a two-day lesson study conference in Atlanta in September 2005 sponsored by the Southeast Regional Eisenhower Mathematics and Science Consortium (SERC), and at a three-day conference sponsored by the Chicago Lesson Study Group in May 2007.
My role in lesson study at the school, including the pilot study, was to serve as a “knowledgeable other” in the process (Lewis, 2002), to develop the procedure for analyzing teacher benefits achieved as a result of engaging in the lesson study process, and to facilitate an empowerment evaluation of lesson study. As a researcher, I helped determine the schedule for the lesson study research so that it would not impact standardized testing, school holidays, or report card preparations. I educated the teachers on the lesson study process, guided them through the cycle of developing a research theme for their lesson study and selecting the study lesson, and provided feedback in the lesson planning process. During the study lessons, I was an observer in the classroom and provided my reflections on the lesson during the post-lesson discussions along with the teachers.

In the empowerment evaluation after the school year ended, I served as a facilitator as described in Fetterman (2001) to help the teachers and the school administrator take stock of the lesson study process in which they engaged and plan for the future of lesson study at Creek Side. Considerations for the teachers were the school’s improvement plan (SIP) and the school-wide research goal that the lesson study group developed together.

Throughout the process, both as a participant in lesson study, as an evaluation facilitator, and as a researcher, I attempted to maintain a high level of reciprocity with the teachers. I realized that my study would be impinging on their limited time. I remained sensitive to their needs, rescheduling planning meetings and interviews at every request. My schedule was not as structured as a classroom teacher’s, so remaining flexible was one way that I could assure that, among other things, the information they shared during interviews was not distorted by annoyance or frustration with a poorly timed interview or observation.

In addition, I had a personal investment in the school since my older son attended the school from 1999 – 2003, and my younger son attended between 2002 and 2008. I was also instrumental in working closely with the teachers and administration to plan and write the proposal that granted the math and science magnet status in 1999. My university office was a partner with the school, providing professional development and science outreach programs free of charge. I often stopped by to talk with staff or to loan...
or borrow science teaching materials. In addition, I was frequently in the school for parent-teacher conferences, volunteering, and school programs. It was through my role as a parent that I built trust among the teachers. They transferred this trust in my efforts to participate in my sons’ education into a trust in the sincerity of my efforts to improve teaching at the school. I believe this contributed to their willingness to participate in my research at a collegial level. Therefore, I did not want to mar my relationship with the teachers, administration, and staff in any way that would make anyone uncomfortable in my presence.

**Methodological Limitations**

In addition to the limitations which are inherent to all qualitative research, this study was not without a number of other limitations. The study did not attempt to control for any other collaborative, teacher-led professional development in which the teachers engaged in concurrent with or subsequent to lesson study at their school. In the case of the veteran teachers, who had participated in innumerable professional development activities, the effects of this limited experience may have been diluted by the effects of previous activities. For example, at least one teacher recently received national certification by the National Board for Professional Teaching Standards. Other variables such as the teachers’ personal sense of self-efficacy or level of pedagogical knowledge were not controlled.

The teachers self-selected to participate in the lesson study research project, which created limitations in interpreting data, especially from interviews. Self-selection indicated that the teachers already had some prior positive perceptions or experiences with lesson study or other teacher-led forms of professional development, or with engaging in any opportunity to improve practice. The teachers also may have possessed those intrapersonal characteristics that the literature (Zimmerman et al., 1992) revealed could promote psychological empowerment—a sense of self-efficacy, belief in their capability to gain control, and an awareness of the choices that exist within their school—which may have influenced them to self-select for the study. Negative case data were collected to try to safeguard against this threat to credibility.
In order to safeguard against any bias as an advocate of lesson study, I consulted a critical friend who helped me examine my motivations throughout the study, from conducting the interviews and coding teacher responses, to reporting results of the study. My committee members and colleagues also served as critical friends to remind me of my responsibility to remain as unbiased as possible. Data were coded and recoded as many as four times to increase dependability and confirmability. Findings from interview data were triangulated with reflective journals, documents, planning meeting transcripts, and the empowerment evaluation results to further increase credibility. Care was taken to confine the conclusions to the context of this study so that the recommendations made were not generalized to all settings without careful consideration of those contexts.
CHAPTER FOUR

Background for the Study

The background for this study extends to the summer of 2005 when a brief mention of lesson study resulted in an invitation from the science and math magnet coordinator to provide more information about the process to a group of teachers at Creek Side Elementary School. The interest generated led to four lesson study cycles over two years involving a total of nineteen teachers. A pilot study conducted in the first year led to the idea that the school might provide a good setting for exploring lesson study as an evaluation tool for teachers. A full description of the evolution of the various lesson study groups from this first year is described below. See Table 6 for a timeline of lesson study activities. In addition, I have included comments about the roles of the principal and the magnet program coordinator at the study site.

Lesson Study at Creek Side Elementary School

During the summer before the 2005-2006 school year, the magnet coordinator at the school approached me for information about the lesson study process, which I had mentioned to her in the winter of 2005 after returning from an open house at Paterson No. 2. The 2005-2006 school improvement plan (SIP) was being developed by a school committee of teachers and parents and lesson study seemed to be something that might interest the teachers. She explained that the teachers in the science group, comprised of one teacher from each of the grades one through five, and an ESE teacher, were “looking for something more” (magnet coordinator, personal communication) for their individual professional development. I explained the process in more detail and offered to meet with the science group during the pre-planning week to describe lesson study and, if they wished, to lead them through a cycle that fall.
Table 6: Lesson study activities at Creek Side Elementary School, 2005-2007

<table>
<thead>
<tr>
<th>Time Frame</th>
<th>Lesson Study Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>August 2005 – November 2005</td>
<td>Teachers at Creek Side were introduced to lesson study by university outreach personnel. Eight planned, taught, discussed, revised, and retaught a lesson on night and day in second grade.</td>
</tr>
<tr>
<td>April 2006 – May 2006</td>
<td>The same lesson study group completes a second lesson study on food chains in third grade.</td>
</tr>
<tr>
<td>August 2006</td>
<td>A group of eleven teachers form two new lesson study groups (second grade and kindergarten) and received training on the practice.</td>
</tr>
<tr>
<td>September – December 2006</td>
<td>The new lesson study groups met after school approximately once a week to plan a study lesson. Teachers maintain a reflective journal.</td>
</tr>
<tr>
<td>January 2007</td>
<td>The second grade lesson study group taught, discussed, revised, and retaught their first study lesson on volume. Human Subjects approves research.</td>
</tr>
<tr>
<td>January 2007</td>
<td>The kindergarten lesson study group taught, discussed, revised, and retaught their first study lesson on identifying coins.</td>
</tr>
<tr>
<td>April 2007 – May 2007</td>
<td>Two new lesson study groups formed, for first and second grades, and met after school weekly to conduct a full cycle of lesson study.</td>
</tr>
<tr>
<td>June 2007</td>
<td>The lesson study groups conducted an empowerment evaluation on their lesson study practice and planned for the future of lesson study at the school.</td>
</tr>
<tr>
<td>August 2007</td>
<td>Second interviews were conducted and a summary presentation was presented to the new principal by two of the members and the facilitator. Plans are made for a lesson study open house in spring 2008.</td>
</tr>
</tbody>
</table>

Leading lesson study that fall entailed conducting an introductory workshop for seven classroom teachers at Creek Side and facilitating the planning meetings for the research lesson (See Appendix C for the fall 2005 introductory workshop agenda). This
group of seven teachers participated in two cycles of lesson study in the 2005-2006 school year. They represented a very diverse group in age and experience. All teachers were females between the ages of 24 and 58, with a comparable range of experience from one year to 33 years. Six of the teachers were Caucasian and one was African American. See Table 7 for the composition of the 2005-2006 lesson study groups.

**Table 7:** 2005-2006 Lesson Study Group Composition.

<table>
<thead>
<tr>
<th>Name*</th>
<th>Grade level</th>
<th>Lesson study experiences</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deb</td>
<td>Kindergarten</td>
<td>Planning, taught second fall lesson on night and day, observer</td>
</tr>
<tr>
<td>Caroline**</td>
<td>1</td>
<td>Planner, observer</td>
</tr>
<tr>
<td>Linda</td>
<td>2</td>
<td>Planning, taught first fall lesson on night and day, observer</td>
</tr>
<tr>
<td>Colleen</td>
<td>3</td>
<td>Planner, taught second spring lesson on food chains, observer</td>
</tr>
<tr>
<td>Layne</td>
<td>4</td>
<td>Taught first spring lesson on food chains</td>
</tr>
<tr>
<td>Leanne**</td>
<td>5</td>
<td>Planner, observer</td>
</tr>
<tr>
<td>Monica**</td>
<td>ESE</td>
<td>Planner, observer</td>
</tr>
<tr>
<td>Gayle</td>
<td>Magnet coordinator</td>
<td>Planner, observer</td>
</tr>
</tbody>
</table>

*All names are fictitious. ** Interviewed as negative cases for current study.

In the early stages of the fall 2005 lesson study, the teachers were fully engaged in creating the overarching research lesson theme for the coming school year. They were committed to reaching an agreement on a theme that was appropriate for the students at their school. By establishing a vision of the qualities they would like their students to possess by the time they left the school, and by producing a list of the most common qualities that most students currently displayed, the teachers were able to generate a research theme that would help address the gaps that were evident in the Creek Side students. The teachers were concerned about closely following the process as described
in Lewis (2002), and made frequent reference to this literature as they engaged in developing their theme. The research theme initially developed by the 2005-2006 lesson study group was “To develop independent learners who are organized and confident in their thoughts and ways.” One teacher, Caroline, who had over 25 years of experience, was not quite satisfied with the theme because it did not convey the love of learning that she thought was so important for students. With the addition of one word, all teachers agreed that they should be working “to develop happy, independent learners who are organized and confident in their thoughts and ways.” This experience was the teachers’ first collaborative effort to create a goal for not only educating students to meet the formal state standards, but for nurturing the type of ideal learner that they felt all students should be.

The 2005-2006 academic year included two cycles of lesson study, one cycle focusing on the primary grades kindergarten through second in the 2005 fall semester, and one cycle with an intermediate third through fifth grade focus in the spring 2006. The fall 2005 lesson selected by the primary grade teachers was “What causes day and night?” as required by a grade K-2 state science standard that students know that the appearance of sunrise and sunset is due to rotation of the Earth every 24 hours. The intermediate grade lesson study in spring 2006 focused on a grade 3-5 standard that required students to understand the relationship among organisms in aquatic and terrestrial food chains (for example, the role of producers, consumers, and decomposers). (See Appendix D for the lesson study plans.) Teachers did not engage in lesson study during January through March, the months leading up to and including the administration of the state’s standardized testing regimen.

The subsequent collaborative efforts to plan the research lesson were sporadic and tentative. Due to existing responsibilities such as parent conferences, before and after school duties, and other meetings, not all teachers in the lesson study group could meet at the same time. During the first lesson study cycle in fall 2005, the teachers had two planning sessions for which most were present, and the remaining planning was conducted either individually by the two teachers who were doing the first and second teachings, or electronically through e-mail. In the spring 2006 lesson study cycle, there was one full planning meeting, followed by electronic and small group planning. As this
was the teachers’ first attempt at lesson study, I did not push the necessity of meeting together on a regular basis; instead, I favored the need to complete the cycle to get a “feel” for the process. The decision to do this was two-fold: first, by being overly prescriptive of the teachers’ efforts, I risked obstructing the teacher-led nature of lesson study, and second, pushing for more collaborative planning created the risk that the teachers would get bogged down in this phase trying to create the “perfect” lesson (Fernandez, personal communication, 2005).

In the fall 2006 semester new teachers joined and others left the 2005-2006 lesson study group, such that two new groups were formed, one group of six teachers focusing on kindergarten lessons and the entire second grade team of five teachers (See Table 8 for fall 2006 group composition and lesson study focus). This third lesson study cycle in fall 2006 began with another introductory workshop for the classroom teachers at Creek Side who were interested in using lesson study to meet their individual professional development plan (IPDP) goals. (See Appendix E for the fall 2006 introductory workshop agenda.) Initially, 21 teachers responded to a letter inviting them to attend the introductory workshop to learn more about the process. Eventually, eleven teachers self-selected to participate in the two lesson study groups that fall. Other learning community opportunities, such as book study, were available to the teachers at the school.

One lesson study group was comprised of five second-grade teachers and the other one was comprised of one pre-kindergarten teacher, three kindergarten teachers, and two exceptional student education (ESE) teachers. One kindergarten and one first grade teacher had dropped out of the latter group early in the process because the large size made coordinating their schedules difficult. The remaining teachers were a very diverse group in age and experience. The two groups were comprised of eleven female teachers, ten of whom were Caucasian and one African American, divided into two groups, both of which chose to focus on mathematics for the lesson study (See Appendix D for lesson plans). The second grade group chose to concentrate on the concept of volume of cubes, and the kindergarten group chose to focus on coin identification. These teachers were asked to maintain a reflective journal during the lesson study planning process.
Table 8: Fall 2006 Lesson Study Group Composition and Focus.

<table>
<thead>
<tr>
<th>Lesson Study Cycle</th>
<th>Name* (grade level)</th>
<th>Lesson study experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall 2006: Second Grade lesson on understanding volume using cubes</td>
<td>Linda (2)</td>
<td>Third lesson study, Taught fall 2005</td>
</tr>
<tr>
<td></td>
<td>Stacey (2)</td>
<td>First lesson study, Taught first</td>
</tr>
<tr>
<td></td>
<td>Kristine** (2)</td>
<td>One lesson study; planner, observer</td>
</tr>
<tr>
<td></td>
<td>Donna (2)</td>
<td>One lesson study; planner, observer</td>
</tr>
<tr>
<td></td>
<td>Megan (2)</td>
<td>One lesson study, taught second</td>
</tr>
<tr>
<td>Fall 2006: Kindergarten lesson on distinguishing pennies, nickels, dimes, and quarters</td>
<td>Diane** (K)</td>
<td>One lesson study; planner, observer</td>
</tr>
<tr>
<td></td>
<td>Lois (pK)</td>
<td>First lesson study, Taught second</td>
</tr>
<tr>
<td></td>
<td>Leslie (K)</td>
<td>First lesson study, Taught first</td>
</tr>
<tr>
<td></td>
<td>Belinda** (ESE)</td>
<td>One lesson study; planner, observer</td>
</tr>
<tr>
<td></td>
<td>Jody (ESE)</td>
<td>One lesson study; planner, observer</td>
</tr>
<tr>
<td></td>
<td>Kelly (K)</td>
<td>One lesson study; planner, observer</td>
</tr>
<tr>
<td></td>
<td>Deb (K)</td>
<td>Dropped out, Taught fall 2005</td>
</tr>
<tr>
<td></td>
<td>Yvonne (1)</td>
<td>Dropped out</td>
</tr>
</tbody>
</table>

* All names are fictitious.
** Interviewed as negative cases for current study.

During the two years I worked with the various lesson study groups I tried to build trust and a rapport with the teachers. I lived near the school so I frequently stopped by just to chat to see how teachers were doing. I offered to obtain materials, find content information, or schedule meeting rooms for the groups. I attended every planning meeting, lesson, and discussion during the first two cycles of lesson study in fall 2005 and spring 2006; of course, this was made possible because there was only one group to facilitate.
Interviews were conducted in the fall of 2006 with three of the four teachers from the previous spring. The method of criterion sampling was used to select teachers for interviews based on the types of lesson study experiences they had and their level of teaching experience. Each teacher had participated in both lesson study cycles and in teaching one of the research lessons, either for the first teaching or the second teaching. These teachers were Layne, a first-year fourth grade teacher; Deb, an African American kindergarten teacher with ten years of experience; and Linda, a second grade teacher with thirty-three years of experience. The fourth teacher who taught one of the lessons was on maternity leave in fall 2006. Each interview lasted between thirty and forty-five minutes. (See Appendix F for the fall 2006 interview guide.) At the time the interviews were conducted, two of the teachers, Deb and Linda, were participating in the weekly planning meetings of the fall 2006 lesson study cycle. Their interview responses often alluded to current lesson study activities, but the focus of the questions remained their previous year’s lesson study experience.

Analysis of the three interviews with the teachers from the first year of the lesson study revealed that the teachers had positive perceptions of their experiences engaging in the collaborative planning and teaching process at the core of lesson study. Themes that emerged from these interviews included their appraisal of lesson study as a collaborative, teacher-led form of professional development, the sense of empowerment and professionalism they gained from participating in the endeavor, and their recognition of the improvement of teaching practice that lesson study facilitated. These themes were consistent with the research on lesson study in Japan and elsewhere in the United States (Fernandez et al., 2003; Fernandez & Chokshi, 2002; Lewis, 2002; Stigler & Hiebert, 1999) that lesson study helped teachers to improve their practice as they determined necessary. These themes reemerged in the research project and will be elaborated in Chapter 5.

Teachers in the fall 2005 and spring 2006 lesson study cycles explicitly stated that teacher-led, collaborative experiences were more meaningful to them as learners themselves than traditional workshops. As an example of this type of professional development, lesson study also helped teachers improve their teaching practices by creating a collegial community of learners all engaged in examining the student learning
occurring in their classrooms. They saw the value of an experience that engaged them in determining what was needed by their students to improve learning. Lesson study gave them the “eyes to see children,” which Japanese educators believe is the real goal of the process (Lewis, 2002, p. 36). Instead of feeling threatened or exposed by having other teachers observe their teaching, the teachers generally felt supported both during the lesson and in the discussion sessions afterwards. Several teachers’ comments after their first formal observation of a colleague in the classroom reflected the sense that this observation component to lesson study added authenticity and importance to the process, lending support to the premise by Stigler & Hiebert (1999) that the most effective place to begin improving teaching is in a classroom context where student learning occupied the heart of the process.

During the second year of lesson study, the fall 2006 second grade group elected to meet on a day I was unavailable. A university colleague volunteered to serve as facilitator during their meetings and provide updates after each session. The fall 2006 kindergarten group initially met at a more convenient time for me, but they tended to reschedule, hold impromptu meetings, and lack full membership at their planning meetings, causing the two teachers to drop out due to lack of coordination in their schedules. Therefore, during these lesson study cycles, I was not actively involved in the planning process and the teachers ended up extending the process out over three months. In fact, while planning began in mid-October, the first lesson for both groups was not taught until well after the December break, in early February. My absence and the prolonged planning period contributed to a less than optimal first experience for many of the teachers, especially in the second grade group.

The third cycle achieved mixed results. The kindergarten group in this cycle had a very positive introductory experience with lesson study. Many of their reflective journal comments mirrored those of Belinda, an exceptional student education (ESE) teacher, who wrote,

For the second teaching, we decided to move the summary questions from the end of the lesson to the beginning of the lesson when the students were exploring the coins. We felt we needed to focus their attention more on the attributes of the coins early in the lesson. This decision was made
based on the errors the students made during the Bingo game and the final assessment [activity]. … I felt like we all had a better idea of what to look for in student responses during the second teaching. I found myself thinking what a wonderful resource it would be for every teacher to have this type observation done in their classroom. I think we were able to give the teachers a great deal of feedback and information about how each student was processing the information being taught, and what common errors in student learning were.

On the other hand, according to several teachers, the lesson study did not “go well” for the second grade teachers in fall 2006. The teachers in that group spent nearly three months planning a lesson on volume from scratch. When it became apparent that their choice of “Starburst” candies was not appropriate for teaching the volume lesson, the teachers were reluctant to select another manipulative. The magnet coordinator and I located wooden cubes in the science lab that could be used. Three members of that group agreed that the cubes would be a better manipulative because their regular shape allowed only one way of for the students to stack them. Two group members wanted to retain the Starburst for their motivational appeal to students despite the fact that students could not stack them well (their wrappers were slippery) and they did not contribute to helping students achieve the learning goals of the lesson. The revised lesson with the cubes was shorter and more focused on understanding volume. However, the two teachers had lost their investment in the process and did not like the second lesson because they felt it did not reflect their individual teaching styles.

The reflective journals from the fall 2006 lesson study teachers provided insight into the difficulties this group faced. Stacey, a twenty-six year veteran participating in lesson study for the first time, taught the first lesson on volume to her class. Based on the post lesson discussion and the second teaching, she recognized the new lesson as an improvement, but was personally too close to the other second grade teachers to offer her honest opinion of the two lessons. The experience was too uncomfortable despite the collaborative nature of the planning; she felt she would be criticizing her colleagues rather than the jointly planned lesson. She commented in her reflective journal that,
because we had spent so much time planning this lesson, but suggestions for change did not all come directly from us, we tended to become defensive of the lesson. We had really spent an unrealistic amount of time developing one lesson so we felt too much ownership of it. I do feel spending less time creating the lesson would have probably been better. The teachers that created the lesson were in agreement there were parts of the lesson that were unnecessary and that the Star Burst presented some difficulty when trying to stack them although they were extremely inviting to the students. … As we discussed the lesson for the second time we all felt that the lesson had become more effective in teaching volume of three-dimensional objects. It was very difficult for me to make suggestions about the lesson. I felt she [the teacher teaching the lesson] had not been accurate with some concepts but was not willing to tell her, which made me wonder what the other teachers were thinking when I was teaching.

Kristine, one of the teachers who wanted to keep the Starburst in the lesson, had alternative perceptions of the lesson than Stacey. She wrote,

Although the students were engaged and learning the whole time, the [first] lesson took longer than would probably be best in a regular class time. There were not really many observations that were made by the teachers during the lesson that caused revisions. The revisions that were made were based on the lesson study facilitator’s ideas. The only suggestion the teachers had was to find a way to shorten the lesson. This could be done easily by cutting out some of the extraneous discussion that the first teacher had included. I felt that the second lesson was flat. It lacked a lot of the interest that was in the first lesson.

The results of the pilot study informed the development of a new interview guide for a study to focus on eliciting how lesson study fostered the principles of empowerment evaluation and on the contextual elements influencing the teachers’ practice of lesson study at Creek Side. The pilot also provided an initial framework for analyzing the data.
As described in Chapter 3, NVivo was used to aid in constant comparative analysis of this data (Strauss & Corbin, 1998) for emerging categories and themes. These were revised, expanded, and refined as the current study progressed to arrive at a final set of categories and themes for the current study. Briefly, the strongest themes to emerge from both this secondary data and the data from the current study focused on the new ability that lesson study afforded the teachers to observe students closely for evidence of learning, the strength of the collaborative planning component, and the sense of professionalism the teachers felt from engaging in a unique professional development process.

The Lesson Study Research Project

Approval to conduct the research was granted by the university’s human subjects committee beginning in January 2007 (See Appendix G for approval documents). Teachers did not engage in lesson study from mid-February through the end of March, 2007, the months leading up to and including the state’s standardized testing regimen. For the spring 2007 lesson study, five of the fall 2006 members were joined by the magnet coordinator and two other participants, one of whom had participated in the first year of lesson study, but dropped out of the fall 2006 cycle. (See Table 9 for lesson study group composition and focus.) The resulting participants included of five Caucasian and three African American female teachers. The eight teachers divided themselves into two separate groups of four, which encouraged more active participation by all members. Five of the teachers in the spring 2007 lesson study groups had ten or more years of experience and had been at the school for at least ten years. The remaining three had less than five years, all of which were spent at the school. Both groups chose to conduct the lesson study in science (See Appendix D for lesson plans).

The first grade group was composed of one pre-kindergarten, one first grade, and two kindergarten teachers. The first grade teacher, Yvonne, was one of the teachers who had to drop out of the kindergarten group in the fall, so this was her first full experience in the process. The other three teachers had been members of the fall kindergarten group and included the two teachers, Leslie and Lois, who had taught the coin identification
Table 9: Spring 2007 Lesson Study Group Members and their Experience

<table>
<thead>
<tr>
<th>Spring 2007 Group</th>
<th>Teacher (grade)</th>
<th>Years of Teaching</th>
<th>Lesson Study Experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Grade:</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Life Sciences     | Kelly (K)       | 2                 | Participating in second lesson study  
|                   |                 |                   | First lesson study fall 2006, focused on coins in kindergarten |
|                   | Lois (pK)       | 5                 | Participating in second lesson study  
|                   |                 |                   | First lesson study fall 2006, focused on coins in kindergarten |
|                   | Leslie (K)      | 10                | Participating in second lesson study  
|                   |                 |                   | First lesson study fall 2006, focused on coins in kindergarten |
|                   | Yvonne (1)      | 2                 | Participating in first lesson study  
|                   |                 |                   | Dropped out of fall 2006 cycle |
| Second Grade:     | Gayle           | 33                | Participating in fourth lesson study  
| Life Sciences     |                 |                   | Original lesson study member since 2005-2006 |
|                   | Deb (K)         | 10                | Participating in third lesson study  
|                   |                 |                   | Original lesson study member since 2005-2006  
|                   |                 |                   | Dropped out of fall 2006 cycle |
|                   | Linda (2)       | 33                | Participating in fourth lesson study  
|                   |                 |                   | Original lesson study member since 2005-2006 |
|                   | Stacey (2)      | 26                | Participating in second lesson study  
|                   |                 |                   | First lesson study fall 2006, focused on volume in second grade |

study lesson for the first and second time, respectively. These teachers collectively had only nineteen years of teaching experience. The group chose to study how plants change over time, from a seed to an adult plant that produced seeds. Yvonne taught the first lesson to the first grade class of Caroline, 2005-2006 lesson study participant. Kelly taught the second lesson in Yvonne’s first grade class. Many of Yvonne’s students had been in Kelly’s kindergarten class the previous year. Borrowing other teachers’ classes in a common practice when lesson study groups are comprised of teachers from several grade levels.
The second grade group was composed of two second grade teachers, a kindergarten teacher, and the magnet coordinator. Collectively they had 102 years of teaching experience. All but the magnet coordinator, Gayle, had taught either a first or second study lesson, however she had participated fully or partially in all lesson study cycles. For one teacher, Linda, this was her fourth lesson study cycle. The kindergarten teacher, Deb, had dropped out of the fall 2006 group, but she had been a member of the 2005-2006 lesson study group so this was her third lesson study cycle. Stacey was a member of the second grade group that conducted the volume study lesson in the fall. She had initially declined to participate in the spring group due to the negative experiences she had in that group, but reconsidered when I personally asked her to give the process a second chance. Her recent experience with the National Board Certification process compelled her to empathize with my dissertation work and she agreed to participate. The group chose to teach a lesson on food webs from a unit on habitats.

The teachers at Creek Side were guided through a typical lesson study cycle with few deviations. However, I suspect that the teachers gave little forethought to the topic or goals for the lesson study. It seemed that the teachers were not as familiar with grade level expectations for student learning as they were with the superficial goals and outcomes of individual activities they conducted in their classrooms, year after year. The concept of a unit of instruction, with each subsequent lesson building on the outcomes of the prior lesson did not seem to be evident. This type of prior planning, however, was typical, according to comments from the teachers. The deep and collaborative conversations about student learning fostered by lesson study were something new and for which the teachers previously had little time.

The topics for the study lesson were selected by examining the state standards for certain content strands that the teachers believed their students were lacking. In both groups, two or three benchmarks were discussed at length. Of particular concern was the developmental appropriateness of the benchmark and whether the students would have difficulty with the concepts. The idea that the students were too advanced for a benchmark never materialized. Teachers were focused on being sure all students could master the concepts. In the planning phase, they did discuss the issue of keeping more advanced students engaged by introducing optional content to which those students
would be subtly directed. For example, in the second grade lesson, the teachers planned a word wall, upon which several of the words would be far more advanced for most students. One teacher anticipated that her top student would seek out the meanings of these words at some point in the lesson.

Each planning meeting began with a period of settling in once everyone had arrived. Greetings were extended, snacks were shared, last minute cell phones calls were placed, and materials were spread on the table. If the teachers languished in updating one another on their personal lives or the antics of particular students, I usually intervened with a question to bring them on task. From that point on, discussion was focused on lesson planning: questions to ask students, their possible answers, materials to obtain, what types of worksheet or handout to produce, or the use of pictures or videos. Until the task turned to putting the lesson on paper, little mention was made about objectives beyond the state standard benchmarks.

The first and second teachings of the study lesson were conducted on the same day, which is not common in the Japanese model. However, the teachers left several hours between each lesson to discuss and revise the lesson. My concern was that the revised lesson would not be internalized in that short time and the teacher would forget the changes made and revert to portions of the original lesson. This concern was unfounded as both second teachings were conducted more or less along the planned lesson; the few deviations were minor and usually involved the order of presenting materials or handouts.

The post lesson discussions were not as deeply concerned with student learning goals as they were with describing the words and actions of individual students. I attributed this lack of depth with the teachers’ inexperience with observing students and interpreting their observation notes into terms of evidence of student learning, as is common in Japanese lesson studies. For the most part, lesson studies at Creek Side typically followed the form and function of the Japanese model, if not the depth. This limited success in collaborated planning for lesson study, however, was a positive step and was encouraging for achieving the depth at some time in the near future, given the appropriate contextual support.
Throughout the two years that lesson study had been conducted at the school, the principal exhibited a supportive, “can-do” attitude to the teachers and to me. He provided substitute teachers, release time, and stipend funds for the time the teachers spent outside of their normally contracted hours. He provided meeting space for the planning meetings and attended as many of the study lessons as he could, although he did not attend any post-lesson discussions. After the first lesson study cycle in the fall of 2005, he was so impressed with the efforts of the teachers at their faculty meeting presentation that he asked them to make the same presentation at the district principals’ meeting early the next year. Despite their nervousness at the thought of presenting to all of the principals in the district, many of the teachers also expressed their pride, confidence, and sense of worth at being recognized for their pioneering lesson study endeavor.

The school’s magnet coordinator, Gayle, provided the most encouragement and support for lesson study, both for me and for the participating teachers. She was a tremendous resource for the school, not only for her thirty-three years of teaching experience, but for her commitment to professional development and her openness to new ideas. My brief description of lesson study during a casual conversation resulted in an invitation from Gayle to provide a more in-depth description of the process to a group of teachers interested in improving science teaching at the school. Gayle subsequently attended a three-day regional lesson study conference conducted by the Southeast Regional Eisenhower Mathematics and Science Consortium (SERC) in Atlanta in September 2005 to enable her to become a better lesson study resource for her school.
CHAPTER FIVE

Findings

The findings reported in this chapter focus on the two lesson study groups that met during spring 2007 at Creek Side Elementary School. They were drawn from teacher interviews and reflective journals, the empowerment evaluation results, and researcher reflective journals on the teachers’ level of engagement during the lesson study process. Also included as supporting data are the post-lesson discussion transcripts, the school improvement plans (SIP) for two years, teachers’ individual professional development plans (IPDP), and interviews with teachers who declined to participate in further lesson study cycles. The trustworthiness of the study was increased by triangulation of these multiple data sources and by careful scrutiny of the data during the analysis process. Member checking and debriefing with a colleague were also valuable safeguards against threats to credibility. All data were analyzed for categories and themes related to teachers’ conceptions of the benefits of lesson study for their own practice, of collaborating with their colleagues, of professionalism and empowerment, and of the contextual setting for lesson study at Creek Side. The findings related to the four research questions are followed by a full discussion and recommendations in the last chapter.

As described earlier, teachers at Creek Side Elementary School were initially introduced to lesson study in August 2005 by a group of science outreach personnel from the state university. During the 2005-2006 academic year, a group of seven teachers from kindergarten through fifth grade, one ESE teacher, and the coordinator of the school’s magnet program engaged in two cycles of lesson study. The next academic year, 2006-2007, the kindergarten and second grade teachers joined two new lesson study groups that were forming in their respective grades. Two cycles of lesson study were planned for the 2006-2007 year, though the group composition changed slightly between
the fall and spring cycles as described in the previous chapter. The first cycle, in the fall 2006 semester, focused on familiarizing the new teachers to the process and protocol for engaging in lesson study. The current research project was centered on the spring 2007 lesson study and the empowerment evaluation conducted following the end of the school year.

The activities associated with the spring 2007 lesson study cycle provided the main source of data collected for this study. This cycle entailed four weekly after-school planning sessions, the first teaching and discussion of the lesson, revising the lesson, and the second teaching and discussion. Eight teachers in two groups were involved in lesson study, one at the first grade level and one at the second grade. As the teachers in this group learned about and engaged in lesson study during the academic year, they documented their experiences through lesson plans, meeting notes, reflective writing, and recordings of meetings and lessons. Findings for the four research questions were drawn from multiple data sources, as explained at the beginning of each of the following sections.

Research Question 1: To what degree does lesson study effectively empower teachers—that is, enable them to develop self-determination to improve their classroom teaching practice?

This section presents findings from the teacher interviews, researcher field notes, the empowerment evaluation, teacher professional development plans, and teacher reflections that pertain to the first research question. Interviews with the eight teachers from the spring 2007 lesson study provided the major source of evidence for the findings. However, the negative case interviews with teachers who elected not to participate in lesson study also provided evidence regarding empowerment, thus serving to confirm the dependability of results emanating from the cases. Obtaining multiple perspectives of lesson study through interviews of the multiple participants and triangulating teacher comments with researcher field notes helped to increase dependability of the data and credibility of the findings. The empowerment evaluation results were also triangulated with the interview and teacher and researcher reflection data to further enhance credibility. In addition, a colleague from the science outreach office where I work helped
scrutinize the findings to promote credibility and to help ensure valid and reliable results (Lincoln & Guba, 1985).

Because the two groups’ experiences during the lesson study cycle were very different, it was possible to examine the different degrees to which these groups may have become empowered in their quest for professional growth. The teachers also possessed different levels of experience in the teaching field and with lesson study. As mentioned in the previous chapter, the teachers in the first grade group collectively had only nineteen years of teaching experience, versus 102 years for the second grade group. Within the second grade group, Linda had thirty-three years of teaching experience and had participated in a total of four lesson study cycles. Gayle had thirty-three years and four cycles, Stacey twenty-six years and two cycles, and Deb ten years and three cycles. Within the first grade group, Leslie had ten years of teaching experience and had participated in a total of two lesson study cycles. Lois had five years and two cycles, Kelly had two years and two cycles, and Yvonne had two years and one cycle. In general, the second grade group had more teaching and lesson study experience than the first grade group.

The second grade group data reflected more of the ideas associated with empowerment, although both groups valued collaboration and participation. Teachers in the second grade group to a slightly greater degree appeared to begin directing their own professional growth earlier, and with less guidance from me, in the planning stage of lesson study. By the end of the first group planning meeting these teachers were assigning roles and tasks to be completed by different members of the group. They selected a topic and unit at the second session and began to structure the study lesson and think about student assessment. However, I was not without reservations about this group of veteran teachers and their level of self-direction and willingness to try something new and different. My reflective journal before the second planning session contained the following contemplation,

I’m interested to see what happens next week with the second grade group because they left with ‘gung-ho’ plans on doing the entire Aquatic Habitats GEMS guide. I wonder how they will have changed it, and if they will have fallen back into the rut of “Throw some content and
activities against the wall and hope some of it sticks,” the quote from the Understanding by Design book. (Wiggins & McTighe, 2005, p. 15)

In contrast, the teachers in the first grade group did not select a topic until the third planning meeting. I had concerns about this group’s progress until the end of that session. I commented in my reflective notes,

I’m not worried about this group anymore because they sat down today and decided they wanted to do it the same week as the second grade group. We talked about the different options and my time limitations—that I would be unavailable Wed-Fri—and they came around to deciding to do it all in one day just like the second grade so that getting substitutes would be a lot easier, and they would just do the whole thing in one day.

The interview data also were analyzed for evidence that Fetterman’s principles of empowerment evaluation (2005a) were in force to some degree. I used the principles as a lens, or as “sensitizing concepts” (Patton, 2002, p. 456) to scrutinize the teacher interview and reflection data for evidence that the values of empowerment evaluation were “in force at some level” (Fetterman, 2005a, p. 9) during lesson study. Evidence of empowerment emerged in the teachers’ talk reflecting self-determination and improvement, specifically in teacher comments about being open and supportive to this new form of professional development (community ownership, organizational learning, democratic participation), the importance of participation and collaboration (democratic participation, inclusion), the results of gaining more experience with lesson study (capacity building, improvement) and optimism about the future use of lesson study in the school and district (organizational learning). These conceptions are consistent with Fetterman’s (1995) finding that collaboration, participation and empowerment were related strategies in community-based empowerment evaluation and with Smylie’s (1994; Smylie et al., 1996) theoretical framework built using evidence that motivated behavior could lead to self-determination and autonomy. The principles will be discussed in more detail in the findings regarding how lesson study produces its effects and what aspects of the process seem to be the most influential.
Linda, Stacey, and Deb, members of the second grade group, made nearly fifty-three percent of all of the comments about being open and supportive about the process. Although only third of all such comments were made by three of the first grade group members, I did comment in my field notes after their third planning meeting on “their willingness to try new things” and being “willing to do something outside their normal routine.” All but one of the negative cases admitted that they found the process to be a meaningful professional development experience. One teacher of ESE students interviewed as a negative case did not find the process to be relevant to her classroom practice and did not expect lesson study to play a role in her future professional development activities.

Gayle described how she felt lesson study had changed her and other teachers as a result of taking the chance on this new form of professional development. By being open to the process, she believed that,

by being a part of a lesson study, to me, has changed the teachers because they’re looking at their teaching, because they’re looking at their techniques, they’re gathering… they’re not relying on their own knowledge, but they’re relying on their teammates’ knowledge. And by doing that they’re not as afraid—and that’s the word—afraid to do something different, or failure. We as teachers are always afraid of failing. And we don’t want anyone to see us fail, but by doing this the fear is gone.

Deb provided a caveat that there was an initial period of learning and adjustment involved in recruiting and encouraging teachers. She explained,

I think people are afraid to actually take it and do it because it’s something new. You know, I’m ready, but I’ve got to have… You know, we’ve got to get some more people. And I think they’re coming around. … I think it’s something that can be developed because you are always going to have skeptics and they can always be changed. You know, teachers, we change like the wind anyway. And I think that if you… if they get into the process and see it done all the way through, in the end results—because you’ve got to see all of it, you can’t just see parts of it—in a big ‘aha’
moment for everyone. And I think that all of it, they’ve got to see all of it because it is a lot of work but it makes you such a better teacher. And if you really want to become a better teacher, then you stick with it all the way through.

Leanne, one of the negative cases, concurred that lesson study as a form of professional growth and self-evaluation, was different than what is traditionally experienced by teachers:

> What I liked about it [lesson study] was it was non threatening. It wasn’t like an administrator or one person coming in and observing and telling you what you did wrong. The group came in and focused on what the children were doing during the lesson.

When it came to comments reflecting the importance of participating and collaborating fully in the lesson study process to gain the benefits, the two groups did not differ on the frequency of such comments. All four teachers in both groups noted the need for all members of the group to contribute to the processes of planning, discussing, and revising a lesson. In the first lesson study experienced by three teachers in fall 2006, one of the complaints had been about a lack of participation by several members. This group contained eight members, which was large by lesson study standards precisely because it tends to limit full participation by all members.

Lois recognized the benefits of collaborating with a group of different teachers because “you kind of realize where different teachers’ strengths are and you let them take the lead on certain things. … I felt like when I did have an idea, everyone was open to it. I really felt like it was a good collaboration.” Linda concurred in her remark about teachers complementing each others’ input. She explained,

> Well, I gain a sense that it’s important to be an active person in… you have to do your part and your part might not be the same as another person’s part, but if it can complement and work towards the goal of having the lesson ready, knowing what questions to ask, you know just the whole thing. It’s like a project that kind of evolves out of a lot of people’s input.
Over the course of planning the lesson for the second grade in spring 2007, Stacey changed from a unwilling participant to a fully collaborating member of the group. At the first meeting, she was impatient and slightly irritated in her demeanor and comments. The following record in the researcher field notes illustrates Stacey’s comportment,

Stacey got to about the second line [of the purpose of lesson study] where it says a ‘tool for teachers whose overarching goal is not to raise test scores’ and she immediately laughed and she said ‘Well, that’s of course what we all want to do. We all want to raise test scores.’ And I said, ‘Well, really you want to teach your students to understand the material so that when they need that knowledge they have it and they know how to access it.’ She said, ‘Right, right I’m sorry. I’m just being facetious.’ So I knew that she was sort of like a hostile witness or whatever you want to call it. However, by the end of that same planning session, her complete reversal of attitude was unmistakable. I remarked in my notes that the teachers had

assigned themselves homework. Actually, Stacey said, ‘Okay, so what we’re going to do for next week is we’re going to read through the file—I had made photocopies of all the references—‘and we’re going to read through the Aquatic Habitats to make sure this is the one we want to do.’ So it looks like Stacey is stepping up and she’s excited about doing it; they all seem to be excited about doing it.

By the third planning meeting, my reflective journal entry read,

Stacey is getting more and more, I guess, engaged and excited. She is a perfectionist. She insists on crossing all the t’s and dotting all the i’s. I think she’s just… she has to write everything down. Maybe she’s a visual learner. She has to take notes on it, which is good. So I’m going to rely on her to read through the lesson to see if it makes sense because that seems to be what she does. I think of all the contributors, Stacey’s probably the one that does think the most about how students are going to
learn, followed by Gayle and Linda. Linda is just Linda; she’s great. She likes to try new things, which we learned last year when she did lesson study. She’s always into trying things at least once. So this is her fourth lesson study, so she’s probably the most experienced. Deb is just so light hearted sometimes. She’s a really good teacher, but I don’t think she really thinks that much about student learning as much as the others do. Not that she doesn’t; maybe it’s just because it comes more naturally so she doesn’t discuss it or maybe it’s because she only has 10 years of teaching and the others have over 20 and 30 years. I don’t know. She’s a good teacher, but I think she might be deferring a little bit. Gayle likes to be in on the logistics and planning and getting what is needed.

This entry notes the level of participation Stacey had achieved, but it also corroborates previous comments by Lois and Linda about the different roles teachers assume based on their strengths and weaknesses.

Leslie noticed the difference in her two lesson study experiences in which the levels of group participation and collaboration were different and remarked,

You know, it’s just a matter of time, having time to do things like that with your team, but I definitely think you get better lessons when you have more… more brains. As long as everyone is putting in, you know how… you know, with the different groups, like the first group not everyone was really putting in, I thought. You know, whereas with the second I thought everybody was contributing.

Diane, one of the negative cases, was a member of that first group, the kindergarten lesson study in fall 2006. She explained the lack of participation in her comment,

But then I felt like the first time I was very frustrated with the non-participation and dragging it out of just … I felt like I was frustrated that… I felt like I was just, like, talking too much and it was like more me, and I would wait for other people to contribute and they wouldn’t and I would be like ‘Argh, just do it,’ so that was my frustration.
Deb also described her experience with different levels of participation within a group,

But, you know, I think with that first one, once you got us going, everyone kind of jumped on board and said, “Okay, well, let’s do this and let’s do that.” So everyone, well, maybe not necessarily everybody, but the majority of the group bought into it and added to it. And so we all had a hand in it and so it makes you proud. Because we did. We worked on it together.

Her qualification that not everyone was “on board” was in reference to the ESE teacher in the first lesson study at Creek Side, in fall 2005, who played a limited role in planning and discussions. There were eight teachers in the group. Of those teachers, only Deb, Linda, and Gayle continued to engage in lesson study at the school. The process provided some type of benefit to these teachers that they deemed valuable enough to continue with the practice. Three of the teachers from 2005-2006, interviewed as negative cases, claimed a lack of time as the major reason for not participating in lesson study. (The remaining two teachers from 2005-2006 were unavailable for interviewing due to time conflicts.) Barriers to participating in lesson study, such as lack of time, are described in a later section.

The teachers in the second grade group made twice as many comments as those in the first grade group on the results they experienced as they participated in more cycles of lesson study. This finding is logical, considering that the members of the second grade group had twice as much lesson study experience. They had collectively participated in thirteen cycles, while the first grade members had only seven cycles to their collective credit. Of course, comments about the results they experienced comprised the bulk of the interviews, since the teachers participated in lesson study in order to reap any benefits the process could provide. All of the negative cases had participated in only one lesson study cycle so findings regarding the benefits of more lesson study experience were not forthcoming from that data source.

Deb, also speaking to the need to be open and supportive of lesson study, described how repeated experience with the process naturally could result in more teacher direction and focus on improvement. She explained,
I think you have to be comfortable with criticism and know that it’s not directed necessarily towards you, but the lesson. I look at the first lesson study we did and how we were all kind of shy and not wanting to speak up. And then, you know, it took us a long time to plan that lesson, and then the last one we just did was like, ‘Wow, okay, let’s just lay it all on the table. This is what I saw. This is what we think we need to change. Let’s keep this.’ So it was a lot more, ‘Let’s get this done.’ So it’s a comfort level. I think people have to feel comfortable with each other. And, you know, how do you build that? You just keep doing it.

Stacey expressed similar beliefs in the value of gaining more experience with the lesson study process; that more practice resulted in a better process. The focus becomes student learning and improvement, rather the process itself. She commented,

But, uhm, definitely the more you do it, the more in tune you get with the process and you can step back from the lesson and see what needs to change. … You just have to go back and do it over and over again, because I don’t know whether the... being more comfortable with the process, it was a combination, but it also had to do with the fact that... we didn’t create the lesson. And that made it maybe a little bit easier. … Practice doing it is, I think, the answer to it.

Gayle was more explicit when she explained that lesson study provides a process for teachers to focus on student learning goals. She believed that,

…as a way for inservice, this is the best thing you can do. You’re learning how to work with a group; you’re improving your skills; you’re not improving the lesson, you’re improving your techniques in the classroom. You’re getting confidence because you’ve been okayed by a group of teachers, but as a teaching tool it is a lot better than a lesson and I think that’s what we need to say: it’s a lesson study, but it’s also almost a teaching study—a study of teaching, or how a child learns best and to me that should be the whole focus of lesson study.
Gayle also described how teachers could become more self-directed in the process as they participated in more cycles. She described the growth in self-determination between the first year of lesson study and the spring 2007 lesson study cycle,

That was our year that we really didn’t know what we were doing and we tried different things and you were really helpful for guiding us last year. On this one, I think it went easier because Deb and I had both gone through last year, and we understood the process, and I think if you don’t know the process you need to realize that you will need guidance.

Three teachers from each of the spring 2007 groups expressed optimism about the future use of lesson study in the school and district. Although Lois, the pre-kindergarten teacher in the first grade group made over forty percent of all comments about the future of lesson study, Deb’s and Gayle’s comments were more extensive, detailed, and deliberate. These two teachers had also attended lesson study conferences and had more lesson study experience at the school than most of the other teachers. They addressed district-wide dissemination, group structure, expanding to subject areas beyond science and math, and necessary contextual supports. They speculated on the outcomes of district-wide lesson study and the benefits for participating teachers and schools. None of the negative cases explored the future direction of lesson study at the school or in the district.

Deb extensively described her vision of the future of lesson study,

I would love to see it at the district level. I would really like to see teachers from other schools getting together and doing some lesson study lessons. Well, I think we would have to start with an open house just so they could see what it was all like. … I’d really like for us to get more teachers involved and I think that’s a process. And I think that, you know, this year we got a few more, so you know it will lead a little bit more in. But, you know, then the next five to ten years—because this isn’t something that’s just stopping—it’s something that’s going to continue hopefully. I can see it being a district-wide thing.
Gayle stated that she “would love to see an entire school that would do this” regardless of content area. She said, “I would like to see the reading teachers do it. I would like to see, in the perfect world, the entire school using it.” Leslie also had ideas about expanding lesson study and sharing it with other schools in the area. She shared that,

I think it would be nice to have the opportunity to be able to do it more often. To be able to share and say, ‘Hey, you know, we did this’ … I think to have people come and to also be able to go and see what other schools are doing. I’m all for one that likes to get ideas from other teachers. And of course lesson study is about bringing ideas together, I think.

Most of Lois’ comments addressed issues of recruiting more teachers and group structure in lesson study at Creek Side. She speculated that lesson study would need to “be part of their routine” and “built into the curriculum” in order for more teachers to engage in lesson study. She also thought that “a preview of how it works, like if you could show the videos of what we did” or “some sort of carrot” would help encourage more teachers to try the process. Lois also had an idea that the structure of the lesson study groups would be an important consideration. Having participated in two groups with teachers from multiple grade levels impressed upon her the benefit of collaborating across grade levels. She offered that lesson study cycles could concentrate on “your grade level then a grade up and a grade down, you know, so you kind of criss cross and learn from each.”

*Empowerment Evaluation Results*

The empowerment evaluation results and teachers’ reflections also were analyzed for evidence of the principles (See Appendix B for the teachers’ full evaluation report). This section will use these data to provide evidence that the lesson study process fostered the ten empowerment evaluation principles, which promoted the subsequent empowerment evaluation. The evaluation was composed of three stages, developing a lesson study mission statement, Taking Stock of the lesson study process as it currently existed, and Planning for the Future of lesson study at the school.
The lesson study mission the teachers settled on was crafted from an initial list of key phrases that captured the goals of lesson study:

Lesson study is a true, site-based process for teachers to collaboratively set goals for student learning and to engage in deeper conversations about teaching and learning. This process will result in more effectively-structured lessons that both increase teachers’ knowledge and improve student learning.

Figure 2 represents the list of phrases as it was generated on chart paper by the teachers. Six of the ten empowerment evaluation principles were represented within the mission statement. The “site-based process for teachers” embodied the principles of inclusion and community ownership and reflected the teachers’ sense that all teachers can participate and the value of the teacher-directed nature of lesson study. Including “to collaboratively set goals” spoke to the democratic participation that the teachers believed lesson study required. Improvement was exemplified in “deeper conversations,” “more effectively-structured lessons,” and “increase teachers’ content knowledge.” Social justice was embodied in “set goals for student learning” and “improve student learning.” As in the teacher interview data, improvement and social justice appeared to be important principles. “Deeper conversations about teaching and learning” and “increase teachers’ content knowledge” also reflected the principle of community knowledge to which the collaborative process contributed.

As the empowerment evaluation progressed, the teachers sought to capture the essential activities in which they engaged. The mission setting step was followed by the step called taking stock. The activities for which the teachers voted as important to promoting successful lesson study included “providing a supportive environment” and “creating a culture of lesson study” at the school. These activities revealed that all of the teachers held similar attitudes regarding the professional nature of the lesson study process. All ten of the principles of empowerment evaluation were represented within six of the eight key activities that the teachers had selected for further scrutiny. Figure 3
| * understanding and love of learning |
| fun & enjoyment |
| ** collaborative effort |
| giving input & sharing strengths & experiences |
| ** in depth conversations about learning and teaching |
| observing teachers and students to improve learning and instruction |
| ** deepen subject knowledge |
| * questioning techniques |
| enlightening & reflective |
| * common goals |
| * structuring lesson content to achieve goals |
| ** effective process & product |
| efficient time use |
| * recognizing misconceptions |
| ** engaging for teachers and students |
| not teaching as telling |
| teacher-directed |
| * continuous, long-term effects |
| ** student-centered perspective |
| ** more eyes to observe students |

**Figure 2:** Key Phrases Generated to Create Lesson study Mission Statement.  
*Key phrases that were discussed but not used to generate mission statement.  
**Key phrases that were discussed and used to generate mission statement.
Arranging time for teachers to meet for collaborative planning and discussions of lessons.

Choosing a topic for lesson study from among a suite of topics that either create difficulties for student understanding or for instruction.

Focusing on realistic expectations for students based on developmental appropriateness, time constraints, resources, and standards.

Simplifying activities within the lesson to achieve the greatest depth of understanding and clarity in instruction.

Providing a supportive environment within individual lesson study groups and across all lesson study groups at the school to increase the comfort level of participants.

Developing a “culture of lesson study” among the school community to increase participation and improve the professional outlook among participating teachers.

Providing incentives for teachers participating in lesson study, whether tangible or intangible.

Writing the lesson plans.

Figure 3: Prioritized List of Key Lesson Study Activities Generated in Taking Stock.

represents the prioritized list of key activities from most to least important as determined by the teachers.

Arranging time for teachers to meet for collaborative planning and discussion of lessons was reflective of inclusion, democratic participation, and community knowledge. By carefully arranging time, more teachers could be included; collaborative planning denotes democratic participation; and planning and discussions of lessons spoke of community knowledge. The next key activity, regarding selection of a topic, embodied both improvement and social justice, as the lesson chosen was either difficult for teachers to teach, or difficult for students to learn.

Focusing on realistic expectations for students based on developmental appropriateness, time constraints, resources, and standards reflected three principles. Realistic expectations for students addressed social justice, developmental appropriateness involved evidence-based strategies, and accountability was addressed in the consideration of time, resources, and standards. Simplifying activities for depth of
understanding focused on social justice; the teachers believed that the “mile wide, inch deep” curriculum was a disservice to students.

Capacity building, community ownership, and inclusion were embodied in two key activities. Providing a supportive environment within and across groups to increase comfort level and developing a culture of lesson study to increase participation both concerned involving more teachers in the full, teacher-directed process of the lesson study cycle. Organizational learning was also reflected in the desire to “improve the professional outlook” among teachers at the school.

The goals, strategies, and evidence that the teachers developed to improve each of the key activities listed in Figure 3 were worked out in a Planning for the Future brainstorming session on the afternoon of the first day and morning of the second day of the empowerment evaluation. Arranging time would mainly require the teachers to rely on the good favor of the principal, but other strategies included using staff from the university’s science outreach office as substitute teachers and sharing substitute teachers between two classes for half days each. Choosing a topic involved a systematic examination of state standards, test data, and teacher experience, which Gayle volunteered to outline. Realizing that state standards and test scores left much to be desired, the teachers wanted to consult research-based resources such as national standards and conduct a “curriculum topic study” (Keeley, 2005) to set more realistic expectations. Simplifying the lessons’ activities would involve the teachers in a “checks and balances” method during planning sessions. The supportive environment, achieved through mentoring and group norms, would ensure democratic participation.

Perhaps the most exciting key activity for the teachers was developing the school-wide culture of lesson study. As discussed in the next section, the teachers in the second grade group, who were more experienced in overall years of teaching and lesson study, expressed the characteristics of professionalism to a greater degree than did the teachers in the first grade group. (See Table 11 on p. 108.) However, during the empowerment evaluation I noted in my reflections that Lois, Leslie, and Yvonne were more invested in the lesson study process than I had expected based on my previous interactions with them. At some point in the evaluation, I noted a level of importance or impact that Leslie
sensed about participating in lesson study. Regarding their discussions about creating a
culture of lesson study, I wrote in one reflection,

Leslie surprised me in her comments about wanting Creek Side teachers
who weren’t participating in lesson study to feel like they were really
missing out on a chance to become a better teacher. When I joked that she
sounded ‘clique-ish’ she clarified that she only wanted other teachers to
feel that same sense of satisfaction that she felt during lesson study.
The teachers wanted to exploit a person’s natural desire to belong to encourage teachers
to participate in the “culture of lesson study.”

Stacey, who was initially the least receptive to lesson study, was surprised to find
that there could be two days of material to discuss concerning lesson study. She admitted
toward the middle of the first day that she came to the evaluation thinking “that we had
already learned everything there was to learn about lesson study so there wasn’t anything
else to talk about.” She had wondered, “What on earth can we talk about for two days?”
But the careful scrutiny given to every stage of the cycle led her to realize that lesson
study was something “that we truly can own. We can make it something that we don’t
have to have some one come in and lead us through to learn how to be a better teacher.”
It appeared that the empowerment evaluation was critical for Stacey to come to the level
of self-determination that other teachers in her group had reached earlier during lesson
study. Although the second grade group overall was more experienced in teaching and
lesson study, Stacey was the sole resistant member. The first grade group, on the other
hand, lacked the overall level of teaching experience, but were, as a group, very receptive
to engaging fully in lesson study, perhaps due to the recency in which most of them had
completed teacher education.

At the beginning of the 2007-2008 school year, Deb and Gayle were motivated to
approach the new principal who replaced Mr. Thompkins to educate her about lesson
study and establish a new group for the fall semester. Their goals were to recruit new
participants according to the strategies they developed in the evaluation and prepare for a
lesson study open house at the end of the cycle. Deb’s enthusiasm for lesson study had
already influenced two new teachers from third and fourth grades to participate in lesson
study in the new school year and she was ready to set the first meeting date to begin
selecting the topic. The data suggested that the capacity for improvement and self-determination the teachers gained during lesson study was used in the evaluation to determine where and how their practice of lesson study needed improvement.

Research Question 2: What other personal and professional benefits do teachers participating in lesson study experience as a result of the process?

This section presents findings from the teacher interviews and reflective researcher memos that pertain to the second research question. Interviews with the eight teachers from the spring 2007 lesson study provided the major source of evidence for the findings. However, the negative case interviews with teachers who elected not to participate in lesson study also provided supporting evidence regarding some of the benefits of lesson study, thus serving to confirm the dependability of results emanating from the cases. Multiple perspectives and reflective researcher memos helped to increase dependability of the data and credibility of the findings, and the scrutiny of the findings by a colleague helped promote credibility and ensure valid and reliable results (Lincoln & Guba, 1985).

Two broad themes emerged from the interview data regarding the benefits of the collaborative lesson study process: improving classroom teaching practices and gaining a sense of professionalism. The theme of improving practices was reflected in teacher comments about the opportunities that lesson study provided for careful planning, more reflection about teaching and learning, observing students, improving content knowledge, targeting student learning versus covering benchmarks, changing in practices, and learning new ideas about effective teaching. The lesson study process led to a new focus on promoting student learning rather than simply “covering material.” The teachers believed lesson study resulted in changes in classroom practice and new ideas about effective teaching. None of these tactics for improving teaching practice explicitly involved creating perfect lesson plans to add to a teacher’s repertoire of lessons; instead they addressed teaching from a more student-centered, practice-oriented approach that was generalizable to any content area.

Professionalism was implicitly revealed through teacher comments about being more open to new processes such as observing and being observed by colleagues, and
collaborating with and supporting group members during the planning, observation, and post-lesson discussion phases of lesson study. Specifically, the teachers were positive and thoughtful in their attitudes, dedicated to learning the lesson study process, and conveyed the sense that lesson study provided a practical and meaningful route to becoming better teachers.

**Improving Teaching Practice**

In this study, the benefits provided by lesson study to help teachers improve their practice included careful planning and reflection about teaching and learning. All of the teachers interviewed could provide concrete examples of how lesson study had impacted what they practiced in the classroom on a daily basis. Being attuned to student learning through more thoughtful planning, resisting the pressure to cover more material, and being able to observe students for evidence of learning were mentioned by several of the teachers as skills that they gained as a result of lesson study.

Although the experiences of the two lesson study groups were very different, it cannot be said that either groups’ experiences were deficient in the teachers’ level of engagement in the process of professional growth. The first grade group lacked the extensive teaching experience of the second grade group, and some of their interview responses lacked the depth and detail of those of most of the second grade group members. However, the frequency with which that group mentioned benefits such as careful planning, reflection, improving content knowledge, the importance of learning over covering benchmarks, or observing students for evidence of learning was not very different from that of the second grade group. Table 10 shows the percentage of group members who discussed in their interview specific teaching improvements brought about by lesson study. The teachers were nearly universal in their perceptions of lesson study’s influence on careful planning, changes in practice, and observing students. Content knowledge was perceived as a benefit to a lesser extent, according to interview data, and more teachers in the first grade group mentioned the opportunity to reflect on teaching and learning.

Seven of the teachers specifically commented on their appreciation of the planning phase of lesson study. Over half made comparisons to how most of their
Table 10: Percentage of Group Members who Discussed Ideas about Improvement

<table>
<thead>
<tr>
<th>Categories reflecting the benefits of lesson study for improving classroom practices</th>
<th>Percentage of teacher interviews reflecting the theme of improving classroom practices</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Second Grade Group</td>
</tr>
<tr>
<td>Careful planning</td>
<td>100%</td>
</tr>
<tr>
<td>Reflection</td>
<td>50</td>
</tr>
<tr>
<td>Observing students</td>
<td>100</td>
</tr>
<tr>
<td>Content knowledge</td>
<td>50</td>
</tr>
<tr>
<td>Coverage vs. learning</td>
<td>75</td>
</tr>
<tr>
<td>Changes in practice</td>
<td>100</td>
</tr>
<tr>
<td>Effective teaching</td>
<td>75</td>
</tr>
<tr>
<td>Average</td>
<td>78.6</td>
</tr>
</tbody>
</table>

Collaborative planning opportunities before learning lesson study were superficial and based on covering standards, not improving student learning. The opportunity to plan with colleagues in a more meaningful manner in order to consider carefully the structure of the lesson, questions and problems to pose, and materials to include was a major benefit of collaboration for many teachers.

In her interviews, Deb, in the second grade group, provided her insight on the focus on student learning she experienced during the group planning sessions for lesson study:

I think that’s what happens when you’ve got a group of people working together, is you want to create a great lesson, yes, but we also want to make sure that in creating that great lesson it’s developmentally appropriate, not over their heads or too easy… When you’re planning
with this [second grade] team it’s a lot more focused, it’s a lot more task oriented, and it’s a lot more for the kids. What do we want the students to learn? ... And I would love to go back to just dig deep and I think lesson study helps us to know that we need to dig deep because the students are coming to us with misconceptions that they don’t know because we’ve only touched the surface.

She alluded to the lack of depth of lessons when planning was more centered on covering the required standards rather than on concentrating on students. Through lesson study planning, more consideration was given to student learning than to superficial coverage. This phenomenon was echoed by Yvonne, in the first grade group, when she said,

We need to kind of step back a little bit and look at the whole picture instead of saying what we just need to cover in this picture. ‘I need to get that done, they need to know that, okay, okay, okay, let’s go.’ But do they really retain that, did they really learn it?

Stacey, from second grade, marveled at the collaborative planning experience, which is especially revealing considering her twenty-six years of teaching experience.

I don’t remember…oh, boy, I could be wrong on this, but to the best of my knowledge I don’t ever remember spending that much time discussing one lesson with a group of teachers. We may have snippets of conversations or ideas, but spending a lot of time with each other really makes you think of all the different aspects that… I’ve never had that opportunity before.

Kelly disclosed that even the group planning in which her regular kindergarten team engaged was not focused on student learning but was teacher-centered, intent on covering the selected topics without concern for student learning and understanding: “We kind of just teach it how it feels comfortable to us because everybody’s different. We just pick a theme and we get all the same materials that we need for the lessons and we teach them throughout that week.”

Even though covering standards still held sway for most, using lesson study to collaboratively plan lessons enabled the teachers to become more reflective about
important educational decisions regarding student learning and different teaching strategies. Being reflective appeared to be a luxury for which four of the teachers complained that they usually had little time. In addition to her comment above about planning, Stacey expressed her desire for “having that time to really go back and think it through.” Yvonne used phrases such as “step back” and “slow down” to refer to the reflection she enjoyed using during the lesson study planning process,

Well, I mean it just made us overall look at planning in general. You know, like, ‘Wow, do we really stop to think about exploration? Do we really stop to investigate?’ I mean most of the time it’s really, ‘All right, this is what we’re doing. Let’s go ahead and do this and then we can check it off.’ Like, it’s not really a process like we [the lesson study group] did. I think it was a good thing because it made me kind of think, ‘Well, maybe we need to slow down a bit so we can get that whole process going.’…It just made me step back and kind of think, you know, about a couple of things and what I can improve on.

Deb explained how she now thought more carefully about student learning as a result of the opportunity for reflection through lesson study,

First thing is that, I think, as a teacher it opened my eyes to a lot of things that I wasn’t aware of. Sometimes when we speak and we teach we don’t necessarily look at the student and what the student…where the student is. We tend to kind of just teach the lesson how the lesson was written, instead of ‘well, where are these students and where am I trying to get them?’ So I think it’s more focused. It’s gotten me a little more focused on where I want my students to be and what I want my students to understand.

Reflecting on teaching strategies and their effects on student learning was aided in the lesson study process by the unique practice of teachers observing a student or group of students during actual classroom instruction. This experience was acknowledged as innovative and valuable by seven of the teachers in their interviews. Four of them
explicitly noted being able to see what individual students were doing during an entire lesson, which was rare for a teacher who must attend to all students during a typical forty- to fifty-minute instructional period. Linda, the second grade teacher who had participated in four lesson study cycles, developed a new appreciation for student collaboration as a result of lesson study and incorporated it into more of her teaching. This appreciation developed from her observations of students during study lessons. Leslie, a kindergarten teacher in the first grade group, commented on the benefits of observing students not only for the observing teacher, but for the teacher doing the instruction. She liked “being able to observe the children during [teaching] and also get feedback” from the observing teachers to compare to her own observations.

Deb was the only teacher to have taught a lesson both the first time as well as the second time after revisions were made. In her response to a question about the effect of lesson study on her overall teaching practice, she commented about observing students in her classroom. She appreciated her new insight into what she needed to “look for” in student learning:

Now I know what I need to look for in each individual group, so I think having the other observers initially helped you to focus on what you need to look for, instead of just, you know, being the teacher sitting there and looking, ‘Oh, everyone’s working.’ Now I need to know, ‘Well, he’s working on this particular thing and this group is really having a good discussion on this.’ Whereas before it may have just been ‘Okay, they’re all working.’ Now the focus is more on what are they working on and how are they working.

She also commented extensively on the benefits to the observing teacher,

As a teacher when you’re observing students working, you’re looking at all of the students. In lesson study you’re looking at one group of students when you’re an observer. As a teacher you’re not necessarily getting to each group to see if everyone’s learning. Whereas as an observer you’re able to hone in and focus on, well, who’s getting this and who’s not. So I think a lot of times as a teacher we’re getting the big picture, but as an observer of lesson study, you’re a little bit more focused on what the
students are getting, which in turn can sometimes flip the whole lesson, because we think they’re getting it when actually they may not be. It may be that five or six that are always the ones that, you know, raise their hand and speak out. Whereas you may have the other 20-30% of the class that doesn’t have a clue, but they’re answering the same. They’re answering right because the smart person in the group knew what was going on.

Yvonne also used the picture metaphor to describe the experience of observing students:

I guess when you’re looking at someone else teaching opposed to you doing it, you see, you know, the behaviors and how they really react. It’s stepping out of the picture instead of being in the picture all the time. And I think that helped me out a lot trying to see what was going on. You know, you have a wider view of what’s going on when you’re sitting back and kind of observing. It makes you more aware of what’s going on opposed to you just doing it by yourself all the time and not really being able to see what you’re doing, if you understand what I’m saying.

Although planning and reflection are important skills for teachers seeking professional growth, ready access to the content being taught cannot be discounted. The interviews revealed examples of how collaborative planning through lesson study improved the teachers’ content knowledge in the area being taught. Three of the teachers appreciated their better understanding about the topic of instruction in their interview comments. Lane, the pre-kindergarten teacher in the first grade group, even extrapolated to the content knowledge that could be gained by departmentalized teachers in secondary grades, “And I would think, too, that if you had something that you were kind of weak in, I would think maybe in the upper grades, maybe high school level and you were teaching DNA or something.” Stacey, more than any other teacher, experienced the benefit of learning more content through lesson study. In fact, she implied that this growth was possibly the most valuable outcome of lesson study for her,
I mean it taught me, I think as a teacher, a new concept, which is probably the most exciting thing for me, you know. Being able to discuss with my peers and the conversations that we had about an idea, and the food chain versus food web and that sort of thing. … I’m going to be better teaching food webs. I mean truly, and that is an important benchmark. I mean just focusing in, I’m going to be better teaching that skill. I learned, and this goes back to not just your strategies, but your content.

Four of the teachers interviewed as negative cases also enjoyed a few benefits of improvement provided by lesson study despite their limited participation. Among the aspects of the practice they specifically mentioned were the team approach to planning and improving a lesson. Caroline and Leanne, two teachers from the 2005-2006 lesson study group, appreciated the differing perspectives that lesson study provided them. Working with teachers from different grade levels, with different backgrounds and experiences was “helpful because you’re getting the viewpoint of other people,” according to Leanne. Monica, who was in the same group, concurred that, “with all the people there, we were able to talk about what we could do to improve” a lesson. Diane, who helped plan the kindergarten coin lesson, valued the collaboration, when we could dialogue as teachers. That was genuine. That was very good. And the improvements that we made to our particular lesson were fantastic. You know as a teacher, you, like, ‘Oh, ah ha! Light bulb. Let’s do it this way.’ And I would not have done it that way had we not met and dialogued.

It is not possible to make any speculations regarding the benefits of lesson study that may or may not have been gained by the four teachers who declined to be interviewed as negative cases.

**Gaining a Sense of Professionalism**

This section will present evidence from the qualitative data about the sense of professionalism that the process engendered in participants. The perception that lesson study was the type of activity in which professionals engaged was evident in the process
from beginning to end. In the introductory workshop in fall 2005, as mentioned earlier, the teachers took the task of creating an overarching research goal very seriously. One teacher assigned herself the task of keeping track of the stages of the process to ensure that the group would not miss any critical part of lesson study. In each discussion session after observing the research lessons, the teachers were very concerned with making contributions to the discussion that would be useful for improving practice, and they evidently paid very close attention to the protocol of providing constructive feedback in a positive manner. Most of them began their remarks with a positive comment about some part of the lesson, and then proceeded to describe their observations of students or provide ideas for revising some portion of it. Despite feeling unsure of exactly how these discussions were supposed to proceed, having never seen or participated in lesson study before, every teacher made a concerted effort to comment on the instances or “non instances” of student learning that they observed.

Although the data were not as strong as those for improvement, the teachers’ actions revealed evidence of the professionalism encouraged by the practice, especially being receptive to and supportive of the new experience of observing each other teach and the collaborative planning process. According to the researcher reflective notes, the teachers were open and earnest in lesson study planning, including sharing ideas, questions, and problems with content and activities. They displayed their professionalism through their dedication to the lesson study process, positive attitude, and sense of pride in accomplishing a new form of professional development independent of the district or school administration. Table 11 shows the theme professionalism and the percentage of group members who discussed in their interview ideas related to their sense of professionalism gained by participating in lesson study. The second grade group data reflected more of the ideas associated with professionalism, although both groups unanimously valued collaboration.

Their comments frequently revealed qualities such as a competent and positive attitude, dedication to high-quality work, and self-direction in accomplishing their work that I would define as exemplary of professionalism. Their actions implied that they were experiencing lesson study as a professional activity and their interview responses provided the evidence that they had gained a sense of being professional. Linda and
Table 11: Percentage of Group Members who Discussed Ideas about Professionalism

<table>
<thead>
<tr>
<th>Categories reflecting the benefits of lesson study for gaining a sense of professionalism</th>
<th>Percentage of teacher interviews reflecting the theme of gaining a sense of professionalism</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Second Grade Group</td>
</tr>
<tr>
<td>Positive attitude</td>
<td>75%</td>
</tr>
<tr>
<td>Dedication</td>
<td>75</td>
</tr>
<tr>
<td>Independence</td>
<td>50</td>
</tr>
<tr>
<td>Being open</td>
<td>75</td>
</tr>
<tr>
<td>Observing colleagues</td>
<td>75</td>
</tr>
<tr>
<td>Support by and for colleagues</td>
<td>50</td>
</tr>
<tr>
<td>Collaborating with colleagues</td>
<td>100</td>
</tr>
<tr>
<td>Average</td>
<td>71.4</td>
</tr>
</tbody>
</table>

Stacey provided two nice examples of positive attitude and dedication to improving. Linda remarked,

I want more science background. I want more ways to successfully teach concepts. I don’t want a book that’s just full of workbook pages. I know teachers from lesson study who have strengths who can help me if I need professional help to develop lessons.

Stacey remarked about the positive feedback she experience from seeking to improve, which she saw as a benefit of lesson study. She explained,

I think the better you become, though, if you can learn how to present a better lesson, that in itself, you start to feel it’s more important, when you see that what you do and how you teach a lesson changes the way a child
thinks. So if you’re seeing that, that might encourage you to want to participate [in lesson study] and to make an effort to improve yourself.

Both Linda and Stacey displayed a dedication and desire to improve practice that is desirable in all teachers. They also implicitly referred to lesson study’s teacher-direction, which is not commonly experienced by teachers in their professional development, a point corroborated by Leslie when she asserted,

I think a lot of teachers will tell you there are certain things that they know that they need... that they would like to work more on. And we don’t need someone saying to us that based on your test results it looks like you need to work on measurement a little bit more, you know?

Deb’s feelings about the teachers’ accomplishments through lesson study were evident in her clarification of her use of the word “pride” when responding to a question about ownership of the lesson study process. She explained that her feelings stemmed from the teacher-led effort of the group because it was,

something that we did together and we saw it work. … So when we saw all of it come together and this is something that we all worked on it, I mean, it made me proud because I can work with other people and have a finished product that was actually… That we can take into a classroom and do again. So that was what I mean when I say pride, is it makes you feel good to be able to see the lesson work.

Linda, Stacey, and Deb discussed lesson study as professionals. Their experiences brought about the qualities that professionals display in their work. At the very least, they were dedicated, independent, and positive about their work. Being open to engaging in lesson study and having the support of colleagues to be successful in it were necessary to reap these benefits of the process.

Being open was a common characteristic that the teachers mentioned as a requirement for being in a lesson study group. Six of the teachers commented on being open to the process of observing and being observed by colleagues, working
collaboratively with teachers to plan one lesson, or accepting the critiques of colleagues. Gayle explained the value of being observed to improve practice as, “You’re not being observed for a grade or points to get a check or whatever, but you are being observed for your techniques.” When Stacey described what happened immediately after one lesson, she assured that the purpose of observing each other was for student learning and nothing the teacher should fear,

because when Gayle and I did talk about it, I mean we talked immediately—they were still cleaning up the tanks—and already I was saying, ‘Well, you know, this we need to…’ and it wasn’t anything from Deb. It wasn’t anything that she had done. I could just see what the kids weren’t getting…. And I think that’s why a lot of teachers are hesitant, because it is kind of a scary process, having people observe you, because we don’t observe each other.

The individual being observed is not the only one to benefit from the study lesson; the teachers who were observers also remarked on the value of the process. Being able to see a teacher who has taught in the room next to you for years was eye opening for those who commented about it. Linda proclaimed that “it was a major opportunity to see Gayle teaching and Stacey teaching.” Stacey concurred that,

it was fun to watch Gayle because we don’t get a chance. I’ve never seen her teach before and so I really enjoyed it. And I’ve never seen Megan teach before. You know, I thought she did a really… I thought there were a lot of things that she did that I was really surprised… I thought were excellent.

Being supportive of each other is important for mitigating the fear that may well up in teachers and inhibit engaging in the process. Teachers began to learn that what they were striving for was more important than any hesitance they may have had about being watched by their colleagues. Gayle explained that “it builds a bond between those teachers, and if that bond is strong enough it will carry on,” and added that,
We as teachers are always afraid of failing. And we don’t want anyone to see us fail, but by doing this the fear is gone. Everybody has a stake in the lesson and what you’re presenting is not yours, it’s ours, and that makes a big difference.

Lesson study fostered a sense of professionalism by encouraging teachers to be open and supportive of each other. Since teachers normally did not observe each other teach or plan collaboratively, these qualities must have evolved during the process. Gayle also believed lesson study did change teachers to make them more open to something different. She asserted that, being a part of a lesson study to me has changed the teachers because they’re looking at their teaching, because they’re looking at their techniques, they’re gathering… They’re not relying on their own knowledge, but they’re relying on their team mates’ knowledge. And by doing that they’re not afraid, and that’s the word, afraid to do something different, or failure.

Stacey was also somewhat nervous about having outsiders observing when she taught the first lesson on volume. She felt that eight extra people in the room, some from the university, were too many and that lesson study should be limited to people in the lesson study group. These feeling indicated that Stacey’s first experience failed to convey the importance of fully collaborating on the lesson, critiquing not the teacher but the group’s lesson planning, and inviting outside observers to bring a different perspective to the discussions. As mentioned earlier, Stacey had to be convinced that her next lesson study experience would be much different than the first. Her perceptions of the personal and professional benefits of lesson study revealed above indicated that her second lesson study cycle was a much more positive experience.

As mentioned earlier, three members of the second grade group made nearly fifty-three percent of all of the comments about being open and supportive about the process while only a third of all such comments were made by three of the first grade group members. The first grade teachers collectively had only nineteen years of teaching
experience and the second grade group had over one hundred years combined. Many of the teachers with less classroom experience explained that they were used to being observed because their teacher preparation and induction programs were very recent experiences. Kelly and Yvonne were second-year teachers, and Lois was in her fifth year. They both commented during one of the planning meetings that it didn’t bother them to have people come in and watch them because they had had so many observers over the last two years, during internships and induction, that it no longer bothered them. Lois, having just five years in the classroom, also had many observers entering her pre-kindergarten classroom. With only ten years of experience, even Leslie was still open to being observed. She said that “for me it doesn’t matter. I’m used to having [people] in and out of my classroom. You know, it’s just the way I am.” The novelty of observing and being observed didn’t exist for them, so it is possible that the experience was not as remarkable as it was for the second grade members.

The myriad benefits that teachers can glean from lesson study confirm the value of engaging in the process to improve teaching practice. However, like any new development, especially in education, there are many factors that can lead to its ultimate successful adoption or its being tossed aside. The next section will explore the evidence from several data sources of those inhibiting and enabling factors to the implementation of lesson study.

Research Question 3: How does lesson study produce these effects and what aspects of the process seem to have the greatest positive impact?

This section presents findings from the teacher interviews and reflections and reflective researcher memos that pertain to the third research question. The multiple perspectives revealed in the interviews and reflections of the teachers, researcher observations of the lesson study group at various stages of the process, and reflective researcher memos from field notes were used for validation of the findings. These research findings were shared with the participants through a member checking process.

As described in the previous section, the teachers who participated in lesson study were receptive to new ideas and supported each other throughout the collaboration. They took time to reflect upon the process and goals of lesson study, displaying a reasonable
degree of professionalism. As the teachers collaborated in lesson study, the data suggested that they improved their individual practice through the process. There also was evidence that each of the principles of empowerment evaluation was indeed “in force” (Fetterman, 2005a, p. 9) to some degree in lesson study and that the process provided a tool for self-determination and improvement, which are the goals of empowerment evaluation (Fetterman, 2001).

The interview data were analyzed for the frequency with which each of the principles were either implied or explicitly stated in their interviews and reflections using the principles of empowerment evaluation as a lens. The principles are improvement, community ownership, inclusion, democratic participation, social justice, community knowledge, evidence-based strategies, capacity building, organizational learning, and accountability. I redefined Fetterman’s principles in teaching and learning terms as they emerged from the interviews and reflections. For example, Leslie made three comments that were coded as representing the principle of improvement. Collectively, the teachers made twenty remarks that exemplified the improvement principle. Although the second grade group made almost twice as many remarks that reflected the ten principles than did the first grade group, the two groups did not differ very much in the frequency each of the principles were expressed in relation to one another. For both groups, improvement and social justice were reflected the most, and community ownership, inclusion and accountability were the least evident. Table 12 reports the frequency with which each principle was evident in the teacher interviews. Although some principles were manifest more than others, all ten were indeed expressed, either explicitly or implicitly in the data. In the following sections, the principles are presented from high to low frequency.

Social Justice and Improvement

The principles that were highly evident in the teacher interviews for both groups were social justice and improvement. All eight teachers made comments that were symbolic of the social justice principle and seven made comments about improvement, Kelly being the exception. In total, only forty-one passages, or thirty-three percent, from the interview data reflected these two principles. Social justice, as stated earlier, was embodied in comments about how children learn best, why some children are not learning, and helping children learn more or better. Teachers who mentioned how lesson
Table 12: Relative frequency of the principles in teacher interview comments

<table>
<thead>
<tr>
<th>Principle</th>
<th>Kelly</th>
<th>Lois</th>
<th>Leslie</th>
<th>Yvonne</th>
<th>First Grade</th>
<th>Gayle</th>
<th>Deb</th>
<th>Linda</th>
<th>Stacey</th>
<th>Second Grade</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improvement</td>
<td>0</td>
<td>1</td>
<td>3</td>
<td>3</td>
<td>7</td>
<td>4</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>13</td>
<td>20</td>
</tr>
<tr>
<td>Community Ownership</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>5</td>
<td>7</td>
</tr>
<tr>
<td>Inclusion</td>
<td>0</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>5</td>
<td>8</td>
</tr>
<tr>
<td>Democratic Participation</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>5</td>
<td>3</td>
<td>4</td>
<td>2</td>
<td>1</td>
<td>10</td>
<td>15</td>
</tr>
<tr>
<td>Social Justice</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>4</td>
<td>9</td>
<td>4</td>
<td>5</td>
<td>1</td>
<td>2</td>
<td>12</td>
<td>21</td>
</tr>
<tr>
<td>Community Knowledge</td>
<td>0</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>5</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>0</td>
<td>7</td>
<td>12</td>
</tr>
<tr>
<td>Evidence-based Strategies</td>
<td>0</td>
<td>1</td>
<td>3</td>
<td>0</td>
<td>4</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>0</td>
<td>6</td>
<td>10</td>
</tr>
<tr>
<td>Capacity-building</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>4</td>
<td>2</td>
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study helped achieve more equitable learning outcomes and improve their practice so that all students were positively impacted were guided by the social justice principle.

Improvement was exemplified by comments regarding changes and improvements in practice, new teaching strategies, or new insights about teaching & learning. Essentially, any remark revealing how lesson study was geared toward achieving positive results in these areas were reflective of the improvement principle. In the initial coding of the interview data, many of the teacher comments representing professionalism and collaborating with their colleagues also represented the principle of improvement. As mentioned earlier, the components of lesson study that the teachers found to be most beneficial to them were planning collaboratively and observing individual or small groups of students during actual instruction, which advanced the improvement and social justice principles. The goals of lesson study are to help students learn and improve teaching practice (Stigler & Hiebert, 1999), which are consistent with the social justice and improvement principles.

Social justice was being served when the students, not the lesson, became the focus of teaching. In lesson study, the lesson was only the “vehicle” or instrument teachers used to focus on their students’ learning. Gayle described lesson study as an “eye opener” that enabled her to “look at the child and see the growth or non-growth.” She explained her conception of lesson study as,

a vehicle to gauge student learning, not for the best lesson. I would like to see why this child is having such a hard time and I think if we go through the lesson study process we can watch, we can watch… And you can see what their weaknesses are, and if their thinking is faulty or their ideas are not coming, and I would like to see the entire school using it.

Deb similarly talked about looking at her students in a new way that enabled her to help them learn.

Now, instead of just teaching the lesson the way that it’s quote, unquote supposed to be taught according to the guidelines in the book, I look more at, are my students learning it? Are they getting it? So your focus changes from teaching just the content to teaching the students.
The shift in focus that Deb described reflected a shift in her sense of responsibility, from being responsible for covering the content to being responsible for student learning.

Teacher comments on improvement ranged from those about specific instructional strategies to those about general teaching practices such as planning. Including a new strategy that addressed the various ways in which children learn best or taking more time to reflect on teaching and learning was an improvement that could lead to more effective teaching practices. Linda and Stacey related how their teaching was impacted by specific things they learned in lesson study. Linda gained a new sense of value for student collaboration, explaining “I think just giving kids opportunities to observe and share their answers together. I really like how we had kids ask questions last time. That was really good for me to put into my repertoire of teaching science or anything.” Stacey was most affected by the new understanding she gained in content knowledge. Her misconceptions about food webs and food chains were exposed and resolved, which was “probably the most exciting thing for me, you know, being able to discuss with my peers and the conversations we had about the food chain versus the food web.”

Yvonne reflected on the impact lesson study had on her conceptions of improvement in planning. She valued the opportunity to examine current planning practices and the potential to improve her practice through more considerate planning. She elaborated that, “it just made us, I think, overall just look at planning in general. You know, like ‘Wow, do we really stop to think about exploration? Do we really stop to let them investigate?’” Participating in the full lesson study process enabled Yvonne and the other teachers to plan more purposefully to achieve the desired learning outcomes for all students and a general improvement in practice that would lead to specific instructional strategies in the classroom.

**Democratic Participation and Capacity Building**

The teachers’ efforts to participate fully in lesson study and understand the process reflected the principles of democratic participation and capacity building, which were in moderately high evidence in both groups. All eight teacher interviews showed evidence that the principle of democratic participation was in effect and seven teacher interviews, excepting Yvonne’s, demonstrated capacity building. Twenty-nine passages,
or twenty-four percent, from the interview data reflected these two principles. When teachers spoke about having equal input, contributing to the process as much as they desired, and trusting their colleagues’ decisions, they were exemplifying democratic participation. Many of the comments that revealed democratic participation concerned the openness, collaboration, and support that were necessary to benefit from lesson study. Lois commented, “I felt like when I did have an idea, everyone was open to it. I really felt like it was a good collaboration. You know, we’d take things and if it didn’t work we’d just move on to something else.” Yvonne remarked, “I think it was interesting because everyone got a chance to express what they thought, opinions, and let’s try to make it better.” Kelly admitted, “I think I felt more comfortable with this one. I think also because I had to teach it, I felt like I had more input than before,” which also connected democratic participation to being comfortable with the process.

As teachers built their capacity to engage in lesson study more fully and more accurately, they expressed the sense that lesson study was something unique, requiring specialized knowledge. Many of the interview comments that reflected capacity-building at work were also coded for change in practice and professionalism. Deb envisioned the prospects for lesson study as capacity increased,

> You think of the learning community that could grow from all of us getting together planning lessons, doing lesson study lessons. I mean you’d have… This district would just be so connected because you know, I’d be working with a teacher from [another school], someone I never even knew. I mean you make friends and everything. So I mean it’s a global thing, it really is. And I could see it happening in the district if it was allowed.

The sense that lesson study was an activity for professionals who were dedicated to improving teaching and learning is evident, albeit implicitly, in Deb’s comment.

Leslie shared a similar vision for building lesson study capacity at the school. She remarked,

> It would be nice if it could be district… It would be nice if people could share. I think it would be nice to have the opportunity to be able to do it more often. To be able to share and say, ‘Hey, you know we did this. We
came up with a really good idea of teaching the life cycle, or you know, introducing the penny and we feel, you know, strongly that this was…basically, good.’

She even noted that the experience she and the first grade group gained would allow them to pursue lesson study without a facilitator. As the process became clearer and teachers became more receptive to the idea of critiquing the lesson, their capacity to engage in the process and to improve their practice would increase. Leslie also expounded that, “it gives you the opportunity to reflect on what you think…and the flexibility to be able to look at the areas where you think you need to improve.” The collaborative processes of lesson study made it possible for all teachers to participate in the decisions needed to improve a lesson to best fit their students, learning objectives, and school context.

*Community Knowledge, Evidence-based Strategies, and Organizational Learning*

Although the three principles of community knowledge, evidence-based strategies, and organizational learning were not as “in force” (Fetterman, 2005a, p. 9) as the four principles described above, they were evident at a moderate level. The principles of community knowledge and evidence-based strategies were also associated with the collaborative lesson study experience and ideas about student learning. Six of the teacher interviews contained remarks that reflected the community knowledge principle and five represented evidence-based strategies. In total, only twenty-one passages, or seventeen percent, of interview data reflected these three principles. Thirty-two passages, or twenty-six percent, from the interview data reflected these three principles. Evidence of organizational learning emerged during conversations with four of the teachers about the future of lesson study.

When teachers spoke about using each other as resources and seeking out and relying on other teachers’ strengths, the principle of community knowledge was represented. Remarks about relying on existing resources, using the evidence from student observations, or how to achieve the learning objectives for lessons, the teachers were exhibiting the principle of evidence-based strategies. The first grade group expressed community knowledge and evidence-based strategies relatively more frequently than the second grade group, but three teachers in each group did allude to community knowledge in their interviews.
Many of the statements about the collaborative effort of lesson study and the support the teachers received from one another were reflective of community knowledge. Gayle explicitly expressed the opportunity that lesson study provided for teachers to share their knowledge on content, student learning, objectives, and strategies to plan a lesson together. She explained that “they’re not relying on their own knowledge, but they’re relying on their teammates’ knowledge… Everybody has a stake in the lesson and what you’re teaching it’s not just yours, it’s ours, and that makes a big difference.” Lois concurred, adding that during lesson study she began “to realize where different teachers’ strengths are and you let them take the lead on certain things. Linda is so ‘science.’ I would think that she’d be a great resource for that group.” Linda further elaborated that,

lesson study is not just giving you opportunities to work with other teachers and see their viewpoints and strengths or weaknesses for planning lessons. I mean, we just spent weeks going ‘what is our question? What is it we want these kids to learn?’ And together we answered all those questions.

Throughout the planning and revision phases of lesson study, the teachers recognized the value of their colleagues’ professional knowledge and their tacit understanding of the school context, including individual students, curriculum, and the administration. During observations and post-lesson discussions, however, the influence of typical educational resources was also evident. Formal, research-based curriculum and instruction resources were valued by both groups in addition to the informal, locally relevant knowledge collectively held by the teachers. During the planning meetings, Linda frequently produced textbooks, activity guides, and other educational resources accumulated over the years as the representative to the district Teacher Education Center. At the weekly planning sessions Leslie and Lois also produced surprisingly extensive files of resources collected over their relatively short teaching careers. Thus, the teachers effectively combined community knowledge with evidence-based strategies gleaned from teacher resources to provide the groups with both research-based and contextually-based knowledge to help improve teaching and learning in their school.
However, evidence-based strategies were also generated during the lesson study process itself. Linda provided insight into how the observation and revision stages of lesson study provided teachers with evidence for improvement. She said, “But it’s also about teachers who are focused enough to work together to find out what works and what doesn’t work. What is effective? When do we know if the students have learned a concept?” Leslie stressed the value of the evidence of student learning they collected while observing a lesson. She contended that she thinks “it’s really good, especially the way we’re able to observe and then come back for the second lesson, to be able to really have more eyes to see and go ‘Okay, the kids got this, they didn’t get that.’” The teachers were able to collect and use that evidence to revise the lesson to help improve student learning. As the teachers learned more about the lesson study process, they hoped to pass the method on to more of their colleagues.

Organizational learning was revealed in teacher comments about expanding lesson study school- or district-wide, encouraging the administration to participate fully in the process, and developing a culture of lesson study at the school. The second grade group expressed the organizational learning principle relatively more frequently than the first grade group; Lois was the only member of the latter group to discuss issues related to organizational learning.

Two second grade members, Deb and Gayle, were not only more experienced with lesson study; they had attended conferences where they became more motivated to share lesson study with more teachers. All but one of their group’s references to the principle of organizational learning came from them. Deb’s experiences allowed her to speak at length when asked about the possibilities for lesson study at the school:

You know I’ve talked about that. That’s what I would like to see. I’d like, really like, for us to get more teachers involved and I think that’s a process. And I think that, you know, this year we got a few more so you know it will lead a little bit more in. But you know then in the next five to ten years—because this isn’t something that’s just [going] to stop—it’s something that’s going to continue hopefully. I can see it being a district-wide thing.
Deb thought the process of getting more teachers involved would require them to commit to engaging fully in and learning about lesson study. She asserted that, “they’ve got to see all of it because it is a lot of work, but it makes you such a better teacher. And if you want to become a better teacher, you stick with it all the way through.”

Sharon qualified that expanding the scope of lesson study “depends on how much the administration is backing it up. I think it depends on accountability factors, and I think it depends on do people have a school-wide goal to be a better school of teaching science and math?” In order for organizational learning to be “in force” (Fetterman, 2005a, p. 9) would require a change in thinking for administration as well as teachers. Such a change was suggested by Lois when she supposed that lesson study could work “if it was built into the curriculum, that you could do it on certain lessons.”

Inclusion, Community Ownership, and Accountability

The principles of inclusion, community ownership, and accountability were the least represented in the data of the ten empowerment evaluation principles. Inclusion and community ownership were reflected in three of the second grade groups’ interviews, all but Stacey, which was noteworthy. Among the first grade group members, Lois and Leslie addressed the principle of inclusion, and Leslie and Yvonne, community ownership. Inclusion was represented by ideas for including more teachers or sharing lesson study with other teachers and administrators. Community ownership was coded any time the teachers spoke about their control or direction over the lesson study process or the lesson itself. Accountability was reflected in only four interviews, all but Stacey in the second grade group, and only Leslie in the first grade group. It was evident in teacher comments about being faithful to the full process, being accountable to other teachers, or being accountable to the administration for their professional development. In total, only twenty-one passages, or seventeen percent, from the interview data reflected these three principles.

Only two passages reflected community ownership in the first grade group, and five in the second grade group. The first grade teachers were the least experienced with lesson study and were mainly focused on defining their learning objectives for their lesson and incorporating the strategies best suited for achieving them. Leslie believed the group had “complete control” over the process and Yvonne, talking about control in
terms of collaboration, said “as far as ownership, like ‘I did this,’ I mean I think we all overall did a pretty good job together.” The second grade group contained teachers who had been involved in lesson study since fall 2005. Their comments were more accurately reflective of community ownership. Deb related that she thought “it went smooth, the planning process went a lot smoother because we were a little bit more aware of what needed to happen, and I don’t think that people had a problem owning it.” Linda related a particular decision her group made about the lesson, “Nope, that’s making the lesson too long and we’re the ones that will have to do this and this is how we’re going to do it.”

I noted in my reflective journal that the first grade teachers “seemed to be willing to go through the process and they seemed to indicate that they were already learning from it,” but they were not independent yet. On another day I continued, “I do feel that I’m guiding this group more than the other group. I’m offering more suggestions [for the lesson].” Although I usually suggested reading assignments for the first grade group, the second grade group was more self directed. At the end of the first meeting, they were assigning their own homework. I related that “Stacey actually said ‘Okay, so what we’re going to do for next week is we’re going to read through the file’—I had made photocopies of all the references—‘and we’re going to read through the Aquatic Habitats to make sure this is the one we want to do.’ So it looks like Stacey is stepping up and she’s excited about doing it and they all seem to be excited about doing it.”

Inclusion was usually addressed in terms of including more teachers from more grade levels and other schools and encouraging the administration to attend all phases of a lesson study cycle. In one instance, Lois explained that she needed to be shown “that it’s really worthwhile” to participate, which reflected her perception of what was required in order to include more teachers like herself. Gayle, who also mentored beginning teachers, thought lesson study would be a wonderful way to introduce them to “the whole idea of working together as a team of teachers.” Deb and Gayle, with their lesson study conference experience, shared their ideas on introducing lesson study to other schools. Deb envisioned starting “with an open house just so they could see what it was all like” while Gayle related her chance to describe lesson study to other teachers in a workshop, “I was talking with a group of teachers and I was telling them about lesson study…and
when I finished a lot of teachers said that sounds like a great idea. …They wanted to learn more about it and they’d like to see one…”

Accountability was represented as securing administrative support, adhering to the lesson study format as closely as possible, and honoring the collaborative nature of the process. Linda and Gayle both described the need to follow the lesson study format to observe students for evidence of learning and revise the lesson appropriately. Linda reflected that following the full cycle, collaborating with the whole team, and making the most of each other’s strengths were a “recognition of what’s valuable” in lesson study and were important for ensuring that “all the parts get put together to make the whole happen.” Deb acknowledged that administrative support was critical for lesson study success “because they can see how hard we work at it for one thing, and how important it is.” Although accountability was not as clearly represented as some of the other principles, it is evident that the teachers in the second grade group, who had more experience with the process, were indeed showing evidence of this principle in their ideas about the future of lesson study.

Research Question 4: What are the enabling or inhibiting factors that may impact these teachers’ practice and perceptions of lesson study?

This section presents findings from the interviews, negative cases, documents, and the empowerment evaluation results that pertain to the second research question. As before, multiple perspectives of lesson study through interviews of the teachers triangulated with reflective researcher memos from field notes and the teachers’ individual professional development plans served to increase dependability of the data and credibility of the findings. Research findings were shared with the participants through a member checking process, the purpose of which was to identify those contextually-based enabling factors within the school that made the setting conducive for lesson study. The negative case interviews with teachers who elected not to participate in lesson study also served to confirm the dependability of results emanating from the cases. In addition, a colleague from the science outreach office where I work helped scrutinize the findings to promote credibility and to help ensure valid and reliable results (Lincoln
& Guba, 1985). The empowerment evaluation results were triangulated with the interview and teacher and researcher reflection data to further enhance credibility.

Teachers were also asked about the potential for lesson study to become a part of their regular repertoire of professional development and teaching activities. In most cases the views were either that the school was ready to support such an endeavor, or that the potential existed to do so. In all cases, teachers felt that the collaborative opportunities, both within and across grade levels, to plan with and observe each other were something that the school needed, but a few challenges remained to be addressed if lesson study was to become embedded in the school’s professional development culture. The following sections provide evidence from the teacher and principal interviews, the empowerment evaluation results, negative case interviews, the school improvement plans, and teacher individual professional development plans to support these findings about the inhibiting and enabling factors (See Table 13).

### Table 13: Enabling and Inhibiting Factors

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<td>Collaboration skills</td>
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<td>Lack of motivation to improve</td>
<td>Motivation to improve</td>
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<td>Unreceptive attitude</td>
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Barriers to Lesson Study

Barriers that could prevent a school from engaging in lesson study can emanate from the school context, from within the teachers at the school, or from the lesson study process itself. The most commonly cited barrier in the teacher interviews was a lack of time for collaborative planning. The barrier created by the standardized testing schedule was obvious in the lesson study schedule created by the lesson study groups. This barrier also could be considered a constraint on time, since large blocks of time during the months leading up to and including various tests were marked off the calendar even before the planning meetings were scheduled. The teachers felt that too much of their time would be devoted to preparing students for the tests to add another duty to their responsibilities. It follows then, that the need for time to complete the process was a barrier intrinsic to the lesson study process.

Other barriers emanating from the school context were related to funding to conduct lesson study. Although a lack of money to buy time for lesson study is acknowledged in the literature as another barrier (Chokshi & Fernandez, 2004), none of the teachers or the principal in this study mentioned funding as an obstacle. This need for funding can be perceived as an intrinsic barrier to lesson study if the practice is not embedded into the regular job of teaching during the normal school day. Lesson study that is not embedded, which is usually the case in the United States, can be limited by a lack of money for teacher stipends and substitute teachers.

Classroom coverage was also an issue with Kelly and Leslie, who believed that “if you don’t have that, if you can’t get out to go observe… I mean that’s the most important thing.” Several of the teachers mentioned stipends to meet after school, when they were not on contract hours, as a good incentive for lesson study to grow. Leslie thought “if they [the district] could find a way to build money into it, that would be great. Maybe they’d pay you an extra hour a week or something like that. … I think a lot of people would buy into it that way.” Deb and Lois would like to see lesson study become part of the school scheduling structure. Lois envisioned that “it would just have to kind of get to be part of their routine. You know, every Monday or every Friday, your team’s going to get together. … I would think if it was built into the curriculum, that you could do it on certain lessons. That would be cool.”
Another contextual barrier in the literature was a school administration that did not support and encourage teachers to engage in lesson study, or even discouraged them outright from participating (Chokshi & Fernandez, 2004; Fernandez & Chokshi, 2002). Fortunately, the Creek Side lesson study teachers enjoyed the enthusiastic support of their principal, Mr. Thompkins, and the new principal seemed receptive to the practice. At the time of this submission, she had agreed to attend a lesson study conference at William Paterson University in New Jersey in March 2008.

For lesson study to grow at Creek Side, the existence, or even the perception, of barriers to implementing lesson study needed to be minimal. For the full benefits of collaborative planning efforts to be realized, teachers needed time for regular, undisturbed planning. Time to engage in this level of collaboration was not something that could be eked out a few minutes at a time. It needed to be incorporated into the structure of the school day. Even with a regularly scheduled after-school meeting time, Creek Side teachers found it hard to meet due to their other responsibilities such as after-school duties and parent conferences. Five of the teachers talked about the problem of finding the time to meet and plan together. When asked about what she thought would have to be provided for lesson study to become part of teachers’ regular routine, Lois responded, “I can’t see they would do it. … I mean, we’re so booked with stuff,” and added, “it’s really a shame that we don’t have more time as teachers to get together.”

Linda agreed that time was an obstacle, but thought that it could be overcome with planning, “I would like to see lesson study go again even next year. It’s just the time commitment to meet after school is hard, but once you get into it and do it regularly, you better have everything else planned.”

The data from the negative cases helped to underscore the critical barrier of time. All of the teachers cited time as the major reason they did not participate in more lesson study. Each included qualifiers as to why they did not have the time to participate. Monica said lesson study took her out of her ESE classroom too much and her time out of class was disruptive to her students. Caroline and Diane each had three children and cited that the after school meetings made it difficult to pick up them up and travel home at a reasonable time. Leanne was doing a book study with her grade level team and had no other time to meet, and Kristine had a second job and lived thirty minutes from school.
The possibility also existed that the first lesson study experience itself is too intimidating as to prevent further participation in the process. This barrier intrinsic to lesson study presented themselves as threats to teacher autonomy. For teachers who have spent the majority of their teaching time isolated in enclosed classrooms, the prospect of opening their doors to outside observers, administrators, university researchers, and even their own colleagues was daunting. This threat to autonomy was compounded by unreceptive attitudes, personality, and motivations; barriers that are intrinsic to teachers themselves.

Not to be trivialized or overlooked were what could be called intrinsic barriers, or those that reside within the perceptions and actions of the teachers themselves. Four of the teachers mentioned obstacles that emanated from within themselves. Of the five teachers in that group, only Linda volunteered for the spring 2007 lesson study when the group was first asked; Stacey had to be coaxed to try the process a second time. Linda had the most lesson study experience in the study and she had worked with eleven different teachers over the two years. She reflected that she knew, “teachers who just wanted to do it for stipends or had some negative attitudes throughout,” which led her to seek out “other people in the school who are my resource people” with whom to work in lesson study. Linda implied that she would not expect these teachers with negative, unreceptive attitudes or who were not motivated to participate without a stipend to engage in lesson study due to dedication or a desire to improve their teaching, attitudes that are incompatible with the collaborative process.

Stacey was acutely aware of the effects of not being open to the process, as mentioned in the previous section. She made twenty-one references to “not being comfortable” in her interview, either feeling uncomfortable or needing to feel more comfortable. Such comments about “comfort” were made only six times by four of the other teachers, and one of those was in reference to Stacey. Stacey explained, “You know, we are very self-conscious and the first time you go through that process it’s a little uncomfortable.” Referring to the fall 2006 lesson study, Stacey said of the revised lesson, “there were some issues that I thought were not…what they should have been, but I did not feel comfortable sitting in the group and saying it.” She found herself in the
unfortunate position of not being comfortable critiquing her colleagues because she worried that they would have “to look at each other, you know, every single day.”

Her individual case is exemplary of how being uncomfortable with the unique process of lesson study, specifically observation and critiquing, can be a major deterrent to participating in the process. She speculated that “that is probably the unfortunate point about it because I think the first time teachers do it they tend to say, ‘Okay, I’m not doing that again.’” Her willingness to participate in this study could not be attributed to being receptive to another potentially uncomfortable experience, but to her empathy with my circumstances, having recently completed the demanding process to earn her national board certification.

Deb talked retrospectively about her first experience with lesson study in fall 2005 when the teachers engaged in their first post-lesson discussion. She mentioned that everyone was hesitant to talk at first because they were unfamiliar with the process, having never seen it in action, and perhaps because “we were all kind of shy and not wanting to speak up.” Certainly a diffident personality can contribute to an unwillingness to openly participate, but also implied in her comment was a lack of group cohesion or group norms to which group behavior conformed, which also related to a lack of openness to the process.

Again, the negative case interviews revealed that some of the intrinsic barriers are serious impediments to participating in lesson study. Leanne related that she, “had some personal issues that came in to play last year, too, that involved that decision” not to participate in more lesson study. Monica’s view that “it wasn’t something that I could use” in her teaching of emotionally handicapped students was more professional than personal (and perhaps a misconception about lesson study), but still an intrinsic barrier. Kristine also did not feel that lesson study was the right form of professional development for her, but she did not elaborate beyond that. Although she stated that it was not a factor in her decision, Caroline admitted that having other teachers observing can be intimidating for a teacher.

Diane expressed a unique perspective with one of her reasons for deciding not to participate in more lesson study. She was in the kindergarten group that conducted the
lesson study on coin identification. Although time was a large factor, she also expressed frustration at some teachers’ lack of motivation, as she described it, the non-participation and dragging it out. I just felt like I was talking too much and it was like, more me, and I would wait for other people to contribute and they wouldn’t and I would be like ‘Argh! Just do it!’ So that was my frustration. I felt like I was almost doing it all and it wasn’t…my thing to do.

That lesson study group was comprised of six teachers, including Kelly and Leslie, after two dropped out. Diane related that Kelly and Leslie told her that “it wasn’t that way the second time [in spring 2007]. Kelly and Leslie were like, ‘Oh, you should have done it. It was great!’” Diane’s aversion to participating stemmed more from a concern that she would be “too controlling and bossy.”

Factors that Enabled Lesson Study

Enabling factors must outweigh the barriers to build the capacity of lesson study within a school and to enable it to grow from school to school and state to state. Like inhibiting factors, these factors can emanate from the school and teachers, but they also are inherent to the nature of lesson study itself. Unlike many of the professional development experiences in which teachers participate, lesson study is teacher-led and focused on student learning. Teachers controlled the direction and goals based on their professional and personal goals and the learning needs of their students. Lesson study, therefore, was inherently relevant to the everyday classroom experiences of the teachers. Teacher-direction and classroom relevance generated a supportive atmosphere among members. Other contributions to engaging in lesson study were found to be contextually-based, such as a supportive administration, which helped alleviate some of the contextual barriers, and a knowledgeable lesson study facilitator. The teachers in the lesson study group at Creek Side enjoyed a high level of support from the school administration. This section describes those characteristics of lesson study that enabled teachers to participate and the supportive conditions the teachers perceived to exist within the school. Evidence from the principal interview and negative cases confirmed their perceptions.

For the teachers to have participated in a professional development activity that was not mandatory, the experience must have offered something appealing or of value to
them. The professional benefits of lesson study have already been described in a previous section. The characteristics that appeared to appeal most to teachers at Creek Side were its teacher-directed structure, its immediate relevance to classroom practice, and the support of other teachers. Five teachers spoke of the sense of ownership they had over the direction of the lesson study process. The school improvement plan included lesson study among three different learning community opportunities that the school would support for its teachers. Seven of the eight teachers listed lesson study as one of the professional development activities in which they would participate during the year. Leslie was forthright in her opinion of the teacher-directed nature of lesson study when she proclaimed,

I thought we had complete control. I mean, it was basically our idea and, you know, our decision on what specific benchmark we were going to teach, down to exactly how we were going to teach it and going in to evaluate it and seeing how can we do this better.

Linda specifically related how the members firmly steered the structure of the lesson to meet their goals. The lesson study videotapes revealed that the tendency had been for lessons to run longer than planned, which created issues with student attention and coordination with the school schedule. She related that “someone gave us the input of doing the assessment at the end of it; I mean, the teachers just kind of said, ‘Nope, that’s making the lesson too long and we’re the ones that will have to do this and this is how we’re going to do it.’” Such ground level decision-making is common with learning community-type professional development like lesson study, but rare in traditional workshops (Smylie, 1994).

Decisions such as the one mentioned above speak to the classroom relevance of the structure and benefits of lesson study. As described in the sections on the improvement and professionalism benefits of lesson study, the collaboration of teachers to improve their teaching and student learning are focused on their unique and specific classroom context. Five of the teachers spoke about the problem of relevance with much of their professional development training. Leslie avowed in a forthright way, “I can tell you right now, hands down, I’d rather meet with other teachers and share ideas than go to
a two-week whatever where you’re getting bombarded with information that you’re going, ‘I’m not really sure if I can use this.’” Stacey concurred with equal frankness that, you know, you go to so many in-services and there’s people up there maybe who’ve never even taught before and they’re telling you this and they’re telling you that. You tend to sit back and go [looked at her fingernails], ‘Okay, uh hmmm, thank you. Is my time up?’ So I think that … we were all the presenters, you know?

Teachers felt that lesson study offered them the opportunity to address the classroom issues of teaching and learning that were of immediate concern to them, which also speaks to enabling factors that are intrinsic to teachers. Teachers also possessed personal characteristics that enabled them to participate in the process. As described in the literature on empowerment theory, individuals who have a sense of self-efficacy, believe they have the capability to gain control, and are aware of the choices that exist within their environment can act to achieve the empowered outcomes available to them.

Leslie believed that lesson study was “something that you can use with any grade, and say ‘Okay, I can take any lesson, any specific skill that we’re trying to teach, and implement it [lesson study].” Kelly was in her second year of teaching and, having just finished her beginning teacher program, compared her prior educational experiences to lesson study cycles that she had just completed, “Well, those are just ideas that we talk about in the class or the workshop. These are things that we actually do.” Basing professional development on something teachers “actually do” speaks to the classroom focus of lesson study.

The teacher direction and classroom relevance generated interest and support among the teachers who participated. This collegial support offered by lesson study was one of the characteristics that helped teachers become comfortable with and open to the process. As Stacey was well aware, the scrutiny of colleagues could be very intimidating, but the collaborative structure of lesson study was designed to build trust and support among group members. Six of the teachers spoke about the meaning of this support for them. In the section on professionalism, Gayle spoke of the “bond between those teachers” engaging in lesson study and its effect on making “teaching on a grade
level a lot easier and probably a lot more exciting. ... You’re getting confidence because you’ve been okayed by a group of teachers.”

Lois went beyond moral support to describe the support produced through the collective skills, knowledge, and abilities of members of the group. She explained,

And it seems like, too, you kind of realize where different teachers’ strengths are and you let them take the lead on certain things. You know, I would think, especially when you are working with the second grade group, Linda is so ‘science.’ I would think that she’d be a great resource for that group. ... I think it just helped to spark each other a little bit.

Linda also talked about the support she received through other teachers in terms of borrowing from the strengths of her colleagues to help her improve,

I’ve known Stacey for over thirty years, but just to see... I mean there is teaching, and then there’s just everything embedded in the method, like classroom management, and I can see... I just constantly look for their strengths and see if I can incorporate them in to making me a better teacher.

The solidarity that teachers experienced through lesson study stemmed from the personal as well as the professional relationships. Teachers felt that they grew professionally in their content knowledge and teaching skills, but also in their personal ties with each other. During the later empowerment evaluation, the teachers set several goals to create a non-threatening and supportive environment for group interactions and to create a culture of lesson study such that being a lesson study group participant might become a symbol of dedication to teaching and motivation to improve. The teachers were developing the “bond” of which Gayle spoke and were eager to include more of their colleagues in this bond.

Though Leanne was included in this study as a negative case, she provided her perspective about why lesson study was a positive experience. She said,

What I liked about it was it was non-threatening. It wasn’t like an administrator for an observation, or one person coming in for an observation and telling you what you did wrong. It wasn’t so much about
the teacher as the students learning. The group came in and focused on what the children were doing during the lesson. … And I liked that it was a whole group thing. I mean, it all goes together, the teacher teaching the lesson and the students learning.

She summed up many of the elements about the process and the school context that made it appealing to her. It was non-threatening, collaborative, teacher-directed, and focused on student learning.

The existence of lesson study at Creek Side was a testament to the support that the teachers received from the school administration. Although Gayle initiated the introduction of lesson study, Mr. Thompkins had the final decision whether it would stay. All eight teachers spoke about the ways the school could or did provide support in fostering their efforts. Gayle remembered that during the first year of lesson study, the group was given four days of substitute time from a pool of money from the school’s account at the district’s Teacher Education Center (TEC) that had rolled over from a previous year. She hoped that this could become a standard practice, with the district adding “more money to our TEC budget so we can use our sub hours for lesson study.”

But most of the teachers talked about the intangible support they perceived to emanate from the administration in the form of encouragement and moral support. In addition, the administration supported the school improvement plan’s inclusion of lesson study among the learning community options for teachers. Leslie responded that she definitely sensed from the administration the “feeling that this is a positive thing and we’re encouraging you to do this. I think Mr. Thompkins encouraged us to do lesson study.” Deb reflected after two years of lesson study that “we definitely have to have administrative support, because if you don’t have that, then you fall on your face.” That none of the teachers were injured in the two years would indicate that this type of support was present at Creek Side. Yvonne’s extensive response to the question about support for lesson study praised Mr. Thompkins’ openness to lesson study. She concluded that, “we have his support with different things like that, but he’s also trying to make us do our jobs more effectively, having lesson study or having us be able to go and meet with each other to make it better.” Linda conditioned the success of lesson study “on how much the administration is backing it up.”
Interview data from Mr. Thompkins confirmed the teachers’ sense that the school was a supportive setting for lesson study, but also seemed to indicate that some of the impediments they perceived may not present much of a barrier to school-wide lesson study at Creek Side. He went beyond simple encouragement and focused on how the administration could help reduce some of the contextual barriers such as a lack of planning time. According to Mr. Thompkins, in order to continue to provide the necessary setting for successful lesson study, he needed to foster it from the sidelines. He described his role, “Well, first of all, I try to make it as non-threatening as possible. Why we’re there is to try to help and to adjust, not to criticize. It’s like a team effort. We’re in there to help each other.” Using the collective “we” as an indication of his investment in the process, he explained,

We can look at what we were teaching, modify it to better serve the needs of particular students, and then make a… have a lesson that will be, not perfect but, as close to perfect as possible. Instead of just throwing it out, modify it, see what works and what doesn’t work, and then come up with a real package that will meet the needs of the students.

Meeting the needs of the students at the school seemed to be a recurring theme with Mr. Thompkins. During the interview, he made similar references four times. Wanting “what’s best for students” propelled his vision for school wide participation in lesson study. Mr. Thompkins also envisioned “an environment that stimulates a natural curiosity for learning with an emphasis on scientific and mathematic inquiry” which could be fostered by a lesson study community (Creek Side web site, n.d.).

During the interview with Mr. Thompkins, the issue of finding common planning time for teachers either within or across grade levels was discussed. He proposed several possibilities for allowing teachers the time they needed for collaboration. His willingness to be flexible with teachers’ schedules was an indication of his investment in the future of lesson study as a “process that we’re all using to make the best possible lesson that the children deserve.” He also alluded to the possibilities for lesson study elsewhere in the district by stating, “For Creek Side, and then maybe beyond.”
In response to a question about looking at how teachers’ time was allocated, he indicated that he was open to considering several options,

We can adjust things if we need to. I mean, we can get substitutes to help teachers out if they need to meet together. We do have common planning for the grade levels, but if it goes beyond the grade level, we don’t. In the past I’ve had substitutes for the science lesson study team and the language arts team and others, not necessarily lesson study, but just teams that we have here working together across grade levels which has been very helpful and the teachers love it. As long as I don’t go out of my budget, and so far I haven’t, but if we need to make some adjustments people covering here and there to release some teachers, we’ll do it.

Upon further probing about teachers’ time, specifically their responsibilities both before and after school, he implied that he was open to creating dedicated meeting times in the mornings when teachers usually would be required for duty. Teachers from different grade levels could meet in the mornings on a weekly basis for lesson study planning. He explained,

See, at Creek Side, what’s nice is not every teacher is on duty all at once, just certain ones. And I try to sometimes over-schedule so that just in case we miss somebody, instead of 5 people on duty we have 4 people on duty, which is adequate coverage. So we try to over-do it a little bit knowing that there’s going to be some time someone is not going to be on duty because of whatever.

Mr. Thompkins was open to enabling the teachers to engage in lesson study through a variety of means, from moral support and encouragement, to finding planning time in creative ways. He and his administration would “bend over backwards” according to Yvonne, in order to get the resources that the teachers need.

Stacey concurred with the need for a receptive and responsive administration, but she also recognized the need for “more people, people to help us facilitate or just knowing a bank of experts that we could call on. So I just think resource people are needed.” She specifically mentioned the role of the facilitators from the university
outreach office. The role of the facilitator was very important and ranged from content expert to lesson study expert. For this study, the role of the facilitator comprised a little of both, but primarily as a guide to the lesson study process.

The value the teachers placed on the facilitator was unmistakable, as there were numerous early references to not “knowing what we were doing.” Six of the teachers with various levels of lesson study experience appreciated my presence to guide them through the process. Gayle succinctly stated that “I think if you don’t know the process you need to realize that you will need guidance.” Lois and Deb spoke of the “tangents” that the teachers were prone to taking and Deb lightly explained that “to be a facilitator, that’s a big deal because you have to keep everyone focused on the task at hand, and we’re silly. We know we are.” Leslie also spoke about the focus provided by the facilitator, but eventually acknowledged that with time the teachers could practice lesson study on their own. She explained,

I think that you helped keep us focused, especially in that first one we did. Kelly and I and Lois have done it two times now. I think that, for the most part, I think we have the idea down and we could do it on our own. I mean … not to take anything away from what you’re doing, but obviously not the first time doing it.

As the facilitator, I had concerns about teachers not fully engaging and thinking deeply in the process. In the first few cycles of lesson study, the teachers’ initial planning sessions were sporadic and the collaborative benefits were tentative, at best. At the time I attributed this to the teachers inexperience with lesson study and worried that instead of growing their collaboration skills, the teachers would make this lax form of planning a regular pattern. In the current study, my fears did not play out, in large part because teachers like Deb and Linda truly valued the collaborative nature of lesson study. They recognized that the primary barrier to lesson study was a shortage of time, but they were open to finding ways to overcome this and other barriers.

In the next chapter, a full discussion of the findings for each research question is presented. The benefits of lesson study are related to existing research on lesson study and professional development. The contextual influences on lesson study also are related
to lesson study research, and to the work on psychological empowerment in relation to the intrinsic barriers uncovered. The presence of the principles of empowerment evaluation in the lesson study process are related primarily to Fetterman’s own writings on the evaluation approach, with empowerment theory research substantially supporting them.
CHAPTER SIX

Discussion

The qualitative interview, document, and field data gathered in this study of teachers engaged in Japanese lesson study offered insights into the practice’s potential as a form of professional development that could empower teachers to determine the course of their own professional growth through an ongoing, collaborative, student-centered approach. The eight teachers in the two lesson study groups in this case study all expressed positive perceptions of their experiences engaging in the collaborative planning and teaching process at the core of lesson study. The lesson study process exemplifies the type of professional development advocated by research on effective professional development (Garet et al., 2001; Porter et al., 2003) in that it is long-term, collaborative within a school, and oriented toward standards-based reform. Lesson study also is focused on the teachers’ content knowledge, actively involves teachers, and is consistent with teachers’ ongoing improvement efforts.

In addition, lesson study meets many of the standards for staff development. Contextually, it is a learning community because it “organizes adults into learning communities whose goals are aligned with those of the school and district” and it provides the resources and guidance to support collaboration and improvement (NSDC, 2001, para. 1). The NSDC process standards for evaluation and collaboration are met by providing “multiple sources of information to guide improvement” and “the knowledge and skills to collaborate,” (NSDC, 2001, para. 2) respectively. Teachers research an issue or problem of instruction, design strategies to address the issue, and collect data to determine the appropriateness of those strategies. In the process, they learn new instructional skills. Lesson study also “deepens educators’ content knowledge” and “provides them with research-based instructional strategies to assist students in meeting rigorous standards” as recommended by the NSDC content standards (NSDC, 2001, para.
3). It helps teachers understand how students learn so they can create appropriate learning environments to promote better student learning.

In seeking answers to the three research questions, themes that emerged especially during the interviews included the positive perceptions of lesson study as a collaborative, teacher-led process for improving practice; the insight that the factors that enable or inhibit lesson study may be intrinsic to individual teachers; and the understanding that lesson study can instill a sense of empowerment and professionalism to those who engage in the endeavor. Although these themes are consistent with the research on lesson study in Japan and elsewhere in the United States (Fernandez et al., 2003; Fernandez & Chokshi, 2002; Lewis, 2002; Rock & Wilson, 2005; Stigler & Hiebert, 1999), they also extend the research on empowerment evaluation (Keener et al., 2005; Levin, 1996).

The study found that while the teachers in the two lesson study groups seemed to reap the same benefits, the group composition introduced variables that affected the degree to which these benefits were gained. All of the teachers explicitly stated that this teacher-led, collaborative experience was a meaningful process to them as learners. As a learning community form of professional development, lesson study helped teachers improve their teaching practices by collaborating to examine the impact of collaboratively planned lessons on the student learning occurring in their classrooms. Lesson study gave them the “eyes to see students with” (Lewis, 2002, p. 36). This collaboration began with a determination of the learning goals the teachers wanted their students to reach, continued through the careful planning of lessons, and culminated with observations of the unfolding lesson in order to collect evidence of student learning. Throughout the process, teachers were able to reflect on what they were learning about their professional and content knowledge and its influence on their students’ learning. The teachers’ experiences lend support to the premise by Stigler & Hiebert (1999) that the most effective place to begin improving teaching is in a classroom context where student learning occupies the heart of the process.

Research Question 1

The evidence of the extent to which lesson study empowered the teachers was not unambiguous, but there was an indication that lesson study did have empowering effects
on some of the teachers. Their talk about opening up to the process as they gained more experience with it, not being afraid to try this new form of collaborative planning, and gaining confidence from colleagues during the process are intriguing outcomes worth deeper examination. These conceptions are consistent with Fetterman’s (1995) finding that collaboration, participation and empowerment were related strategies in a community-based empowerment evaluation and with Smylie’s (1994; Smylie et al., 1996) theoretical framework built using evidence that motivated behavior could lead to self-determination and autonomy.

Although the two groups in this study were led by the same facilitator and guided through the same processes over the same span of time, the teachers in the second grade group, with more lesson study and teaching experiences, reflected the characteristics of psychological empowerment more strongly in their interviews than did those in the first grade group. Much of the difference could be attributed to the more experienced teachers’ higher level of appreciation for observing colleagues, being open to trying something new, or their positive attitude about the process. Whether these findings can be attributed to more years of teaching experience or more lesson study experience is debatable, but research by Foster-Fishman and Keys (1997) points to the important role of a group’s subculture in creating empowered outcomes. Empowerment varies across people and across contexts, two of the critical assumptions of empowerment theory (Foster-Fishman et al., 1998; Zimmerman, 1995). The veteran teachers valued the opportunity to observe colleagues teaching because this practice was uncommon; beginning teachers observed each other frequently in their education and induction programs. On the other hand, the teachers with more lesson study experience were more knowledgeable about the process and more invested in adhering to the complete cycle. This equivocal finding merits further investigation of lesson study groups with both novice and veteran teachers who are collaborating and learning from one another (Rock & Wilson, 2005).

These outcomes also demonstrate the intrapersonal and interactional facets of psychological empowerment and support Zimmerman’s findings (1990) that psychological empowerment at the most basic level was characterized by participation, a sense of efficacy, and efforts to gain control. The teachers’ optimistic visions about the
future use of lesson study, and the “culture of lesson study” they hoped to promote in the school and district was not exactly a full demonstration of the behavioral facet; however, Deb and Gayle’s discussion with the new principal at the beginning of the following school year definitely revealed behavior to achieved an empowered outcome.

Fetterman (1995) found that collaboration, participation, and empowerment were common strategies in community psychology research and evaluation projects to assist people to voice their concerns to decision-makers. The success of lesson study hinges on open and active participation by all members of the group in improving classroom practices by collaboratively reforming a lesson. To paraphrase Fetterman’s (1996) advocacy of empowerment evaluation, lesson study is an appropriate process for any group of teachers who seek to build their capability to determine where and how improvement in teaching is needed. Smylie’s work on teacher work redesign (1994) indicated that teachers who directly participated in decision-making activities that were directly related to their primary goal of student learning did experience empowered outcomes. However, as stated above, there does appear to be a difference in the degree to which member of the different groups may have been empowered by the lesson study process.

Applying the same criticisms Patton (1997) and Scriven (1997) had for empowerment evaluation to lesson study, it is apparent that lesson study as a form of professional development lies along a continuum of participation, from expert led to fully teacher led, though obviously more towards the latter end of the spectrum. As teachers build their capacity to engage in lesson study, the role of the facilitator decreases and the role of the teacher increases. Fetterman’s (2001) five facets, or building blocks, of empowerment evaluation (training, facilitation, advocacy, illumination, and liberation), can then be applied to lesson study. Following teacher training and facilitation in the lesson study process by a facilitator, teachers can then advocate for it use in the school. The Creek Side teachers, when they began to plan to develop a culture of lesson study to recruit more teachers, had reached this stage. Deb and Gayle had reached the point of illumination, provided not only by more lesson study experience, but also by their attendance at lesson study conferences where they participated in several in depth conversations about the process. Despite the evidence that the ten principles of
empowerment evaluation were in force to some degree in lesson study, none of the teachers appeared to have reached the stage of liberation. This finding is consistent with the findings of from the interview and reflective journal data that the degree of empowerment varied from teacher to teacher and seemed to be influenced by experience with the process or with teaching in general.

Like the empowerment approach to evaluation, lesson study practice in the United States is still undergoing polishing and clarification. Scriven was (1997) concerned that empowerment evaluation appeared to be successful simply because staff members were enthusiastic about the process because it focused on their needs and abilities, not that it truly brought about program improvement. This question could be asked of the teachers at Creek Side and their general support and level of enthusiasm for lesson study. The evidence that lesson study improves teaching practices in Japan, however, provides optimism that with more polishing and clarification, lesson study will prove to be successful precisely because it does lead to improvement and that, in the process, teachers will be empowered to direct this improvement towards the areas of need.

Research Question 2

Other benefits uncovered by this study were related to improving practice and gaining a sense of professionalism about their growth as educators. Although lesson study research by Rock & Wilson (2005) in North Carolina found a similar effect in that lesson study was beneficial in improving practice and increasing the professional confidence of the participating teachers, this study exposes the qualification that all teachers may not experience these benefits to the same extent.

The finding that lesson study leads to improvement in practice has been well researched (Fernandez et al., 2003; Perry & Lewis, 2003; Rock & Wilson, 2005). This study found that improving practice included enabling teachers to reflect on teaching and learning, engage in more careful planning, focus on learning instead of coverage, improve content knowledge, observe students more carefully, change overall practice, and target more effective teaching strategies. Although the teachers in both groups were nearly universal in their perceptions of most of these areas, there were slight differences in some. More teachers in first grade mentioned the opportunity to reflect, but perhaps
with their limited teaching experience, this had a greater impact on them than on more experienced teachers for whom reflection was more common. On the other hand, the veteran second grade teachers were more cognizant of the impact of lesson study on content knowledge and on observing students. Veteran teachers often have not had content related courses or professional development in years and have not spent time observing colleagues or their students since early in their career. The five teachers interviewed as negative cases also expressed an appreciation of the collaborative efforts afforded them to improve teaching. Their level of experience with lesson study was low, but teaching experience varied from seven to over twenty years. That they declined to participate in further cycles of lesson study points to the possibility that this benefit was not realized fully.

One of the goals of lesson study is to share practically-derived knowledge to improve teaching and learning in a collaborative environment (Takahashi, 2005). Experience level notwithstanding, it appeared that the benefits of lesson study that all of the teachers valued most for the sense of professionalism they perceived—observing colleagues, collaboration, being open, support by and for colleagues, dedication, positive attitudes—are descriptive of the characteristics of a learning community. The National Staff Development Council (2001) urges professional development strategies that incorporate the formation of learning communities for the purpose of collaboration. Learning communities meet to plan and problem solve on a regular basis. Members take a collaborative approach to responsibility for student learning, similar to the shift in teaching focus from content coverage to student learning experienced by Deb. Learning communities will reduce teacher isolation and increase teachers’ sense of professionalism, and practice will improve.

As with the findings above concerning the extent to which teachers are empowered by lesson study, however, the teachers appeared to gain other benefits from lesson study to differing degrees. As mentioned above the study revealed that not only was the extent of lesson study experience an important consideration when attempting to determine the specific lesson study benefits, but the teachers’ level of teaching experience seemed to be an important influence. The teachers who had been teaching for a greater length of time generally experienced more benefits and to a greater degree than
teachers with less experience. For example, veteran teachers may have had more professional development experience with reflective practice than less experienced teachers.

Future lesson study activity at Creek Side should endeavor to engage teachers in groups that “necessitate interacting verbally and require that they communicate often with both novices and experts in their field of study” (Rock & Wilson, 2005, p. 79) to consistently provide the full benefits of lesson study. However, because the findings were similar regarding the benefits realized by the two lesson study groups, lesson study appears to be an appropriate professional development practice for a range of contexts.

**Research Question 3**

Evidence of the teachers’ sense of empowerment and professionalism as a result of engaging in lesson study was found both explicitly in their interview comments on these issues, and implicitly in the ways they discussed both their teaching practices and the lesson study process. The teachers were aware that the direction that the lesson study process took, in terms of teaching strategies, content, and assessment, was entirely at their discretion.

As the teachers collaborated in lesson study, the data suggest that they developed a greater sense of self-determination to seek ways to improve their individual practice, as well as teaching and learning throughout the school, using lesson study. There also is evidence that each of the principles of empowerment evaluation was indeed “in force” (Fetterman, 2005a, p. 9) to some degree in lesson study and that the process provided a tool for directing their own improvement, which also is the goal of empowerment evaluation (Fetterman, 2001). Although the second grade group expressed the principles twice as frequently as the first grade group, the relative frequency, or the degree to which each principle was expressed within each group was nearly identical. Fetterman (1996) advocates the empowerment approach for any group seeking to build their own capacity to improve by determining for themselves where and how to improve.

Fetterman (2005) stated that “there is no absolute order to the principles,” (p. 209) but a logical order does exist that “helps to elucidate the process and to guide practitioners in the field” (p. 210). His sequence begins with improvement, since that is
the practical reason people engage in evaluation, and ends with accountability. Improvement is followed by community ownership in Fetterman’s sequence, followed by inclusion, democratic participation, and social justice. Fetterman purports, that “social justice could be considered the first step as easily as the fifth” as “it is the guiding light that reminds us of the purpose of our efforts” (p. 210). Completing his list are community knowledge, evidence-based strategies, capacity building, organizational learning, and accountability. The sequence in which the principles were expressed in the lesson study was not radically different from Fetterman’s sequence and has a similar logic as well. Social justice and improvement are primary concerns of teachers seeking ways to improve practice and student learning. Accountability, while often a primary concern of facilitators and administrators, was not a major concern of the teachers.

Since the relative frequency with which each principle appeared to be influencing the two lesson study groups was similar, the results for the two groups will be discussed collectively. The sequence in which the principles of empowerment evaluation were in evidence in the interview data was social justice, improvement, democratic participation, capacity building, community knowledge, evidence-based strategies and organizational learning, inclusion, community ownership, and accountability. Social justice addressed the educational inequity that occurs in classrooms and schools such as Creek Side, where the student population was socioeconomically diverse. Teachers at Creek Side were focused on helping all students learn; when they spoke of observing students and student learning versus covering content they were valuing social justice. As Fetterman predicted (2005), social justice figured prominently with the purpose of the Creek Side lesson study. One teacher acknowledged the shift she experienced toward a greater focus on student learning over content coverage, which reflects the impact of social justice.

Student learning is often a casualty in a climate of high-stakes testing, when covering content becomes a central focus of teachers pressured to produce high student test scores. Improvement, which “reflects the pragmatic and utilitarian nature of empowerment evaluation,” (Fetterman, 2005, p. 210) is also the goal of lesson study. Improvement in practice is one reason teachers engage in lesson study as a form of professional development (Lewis, 2002).
In Fetterman’s view (2005), community ownership and inclusion would come into play next, because ownership generates commitment to the process and inclusion is required to achieve ownership. In the case at Creek Side, several of the teachers with more experience with the process were already committed to it and participation in the spring 2007 lesson study was voluntary. Community ownership and inclusion were perhaps given qualities at Creek Side. Democratic participation, which Fetterman states “follows logically from inclusion” (p. 210) was the next logical step to emerge in the two lesson study groups, insuring that all teachers contributed to the process. All eight teachers exemplified democratic participation in lesson study through the collaborative planning, discussion, and revision stages of the process. When they spoke or wrote in their reflective journals about collaborating with colleagues and being open to the discussion and revisions, they were exemplifying democratic participation. Fetterman described democratic participation as the “place for thoughtful inquiry, debate, and decisive action” (p. 210).

With the purpose and structure of the lesson study groups in place, capacity building was the next principle to emerge in the process. The teachers varied in their level of lesson study experience, from three prior cycles for two teachers to the first cycle for one teacher. Building the capacity to engage fully in authentic lesson study was important for several teachers. Fetterman (2005) stated that “capacity building is the product of engaging in the evaluation as a community of learners with the aim of improving practice, valuing community knowledge, and experimenting with evidence-based strategies. Individuals and groups learn new skills. They learn how to conduct their own evaluations” (p. 211). Their desire to learn more about lesson study, learn from each other and the facilitator, and assume more control and direction over the process were indicators of capacity building. The value of capacity building emerged from their interviews and reflective journals through references to being dedicated to improvement, collaborating with colleagues, being receptive to the process, and effective teaching strategies.

Community knowledge and evidence-based strategies were the next principles to emerge from the Creek Side lesson study. As the groups learned the process and norms for lesson study, they were relying on the collective knowledge of their colleagues and
seeking appropriate resources to achieve the desired learning outcomes for their students. They were also increasing the level of empowerment of both the individuals and the whole group. They revealed the values of community knowledge and evidence-based strategies through their comments on collaborative planning and changes in their own practice, respectively. Research by Perkins and Zimmerman (1995) looked at empowering processes in organizations and found that an empowering process in an organization may contribute to empowered outcomes for the individual. For example, the collaborative work of teachers engaged in lesson study may engender decision-making, leadership, and other empowered outcomes in the group’s members. Decisions about appropriate strategies for instruction reflect Fetterman’s (2005) assertion that “community knowledge is required to determine what evidence-based strategies are appropriate for the community,” (p. 211), which for lesson study would be the students. Community knowledge in the lesson study process also recalls the Japanese proverb included in Lewis (2002) that “When you gather three people you have a genius” (p. 29), and Leslie’s comment about producing “better lessons when you have more… more brains” involved in the planning process.

For the Creek Side lesson study group, organizational learning was reflected in their receptiveness to sharing lesson study with more teachers and expand it to more schools. Such expansion would require a change in thinking for some school administrators, a change over which the teachers had no control. In order for the group to effect such changes outside of Creek Side, “requires the development of an evaluative capacity” (Fetterman, 2005, p. 211) which was not evident outside of the lesson study group. Organizational learning, or the growth of lesson study, seemed to be something for the future according to the teachers. Their openness to the process, however, points to the possibility that organizational learning may become a more prominent value in the future. Organizational learning requires evaluation capacity and the combined action of community knowledge and evidence-based strategies (Fetterman, 2005), so it is logical that it is less evident in the Creek Side lesson study than the principles discussed above.

As mentioned above, many of the teachers were experienced with the process by spring 2007 and participation in lesson study was voluntary, so community ownership and inclusion were essentially givens in this case. Fetterman (2005) asserted that it is
required that all stakeholders in an organization be given the chance to contribute in order for there to be enough commitment to the process to complete it and follow through on the results. For the Creek Side lesson study groups, the principles of inclusion and community ownership were not reflected to a large degree because the commitment was already assured. According to the research on empowerment theory (Zimmerman, 1990, 1995), all of the teachers must have possessed some degree of psychological empowerment that enabled them to participate in lesson study and become involved and committed to the process. They commented on collaboration and support for and by colleagues.

Self-selection indicated that the teachers already had some prior positive perceptions or experiences with lesson study or other teacher-led forms of professional development, or with engaging in any opportunity to improve practice. The teachers also may have possessed those intrapersonal characteristics that the literature (Zimmerman et al, 1992) revealed could promote psychological empowerment—a sense of self-efficacy, belief in their capability to gain control, and an awareness of the choices that existed within their school—that influenced them to self-select for the study. The benefits of lesson study, which have been acknowledged to accrue in the long term, may be more evident in some of these teachers than in others. This variable level of lesson study experience may also be confounded by years of teaching experience, which might have influenced their professional outlook.

The research on psychological empowerment (Zimmerman, 1995; Zimmerman et al., 1992) suggests that these teachers had a sense of self-efficacy and believed their efforts would lead to their goals of improved practice and student learning, reflective of the interpersonal component of psychological empowerment. They also valued these outcomes enough to work within the confines of the school setting to participate, reflecting the interactional component. The actions in which the teachers engaged during lesson study, scheduling their time, helping obtain materials and resources, writing and revising lessons, reflected the behavioral component. The negative case teachers who agreed to be interviewed indicated that they would participate in lesson study in the future if time was available, indicating that perhaps all but the behavioral component
were in effect. The four teachers who were not interviewed for whatever reason were perhaps lacking all three.

Accountability is the final principle to be reflected in an empowerment evaluation, and it was this way for the Creek Side lesson study groups. Accountability emerged because all the other principles were evident to some degree. For the teachers, accountability was in force as the teachers upheld their responsibilities to each other and to the group. The goals of improved practice and student learning guided them as a form of external accountability. Fetterman (2005) explained that, “accountability becomes meaningful when most of these principles are in force. These principles foster a sense of internal accountability… A social justice agenda also provides both an internal and external framework for accountability” (p. 212).

It is unmistakable that each of the principles of empowerment evaluation was indeed “in force” (Fetterman, 2005a, p. 9) to some degree in lesson study. As the teachers endeavored to improve their teaching, they engaged in a process to direct themselves as they deemed most appropriate. The improvement and self-determination goals of empowerment evaluation are closely aligned with the goals of lesson study. The teachers’ subsequent effort at an empowerment evaluation allowed them to seek ways to improve their lesson study practice as appropriate for their school context.

The empowerment evaluation was conducted three weeks after the last cycle of lesson study as a formative evaluation of their group efforts. If lesson study fostered the principles of empowerment evaluation, then the principles would already be “in force” (Fetterman, 2005a, p. 9) in the empowerment evaluation. The discussions of the teachers during the steps of the evaluation suggested that the principles of empowerment evaluation in effect in lesson study were realized by the teachers. The teachers wholeheartedly engaged in each step of the evaluation, making a sincere effort to fashion a mission statement that incorporated their collective values for teaching and learning. The mission statement reflected six of the principles, including community ownership and inclusion, which is interesting as they were two of the least evident principles in the interview data. The teachers recognized that the inclusion of more teachers and their commitment to the process were critical to their mission to improve lesson study at the school.
The activities and goals they deemed as important for ensuring successful lesson study in planning for the future likewise expressed the groups’ values regarding shaping lesson study for their setting and including more teachers from the school. Developing norms for discussions to create a more non-threatening setting was one of the goals for providing a supportive environment for lesson study. This goal was an important one for several other lesson study groups in the literature (Perry & Lewis, 2003; Rock & Wilson, 2005), but it also spoke to the teachers’ desire to create an empowering organization within lesson study. Empowering organizations provide an environment that is conducive for individuals to achieve psychological empowerment through the development of decision-making skills (Schulz et al., 1995). A lesson study group with supportive and committed teachers engaged in collaborative efforts to improve practice provides the setting for the development of empowerment. Research by Peterson and Speer (2000) investigated the relationship between psychological empowerment and the characteristics of empowering organizations, which included leadership, role structure, social support, and shared beliefs. They found that “the unique characteristics of voluntary settings may be important for the actual development of empowerment” (p. 52). The voluntary nature of the Creek Side lesson study experience is supportive of that research.

The goal to support developing a school-wide culture of lesson study was an exciting step for the teachers to take. The culture of lesson study, in which lesson study equated with professionalism and belonging to an important group of teachers, is reflective of the work by Speer et al. (2001) on the role of social cohesion in empowerment. They found that a sense of community, which lesson study attempted to foster, was gained through participation in empowering organizations. They concluded that “a focus on participation within organizational and community contexts allows not only for opportunities to enhance empowerment but to support a sense of community or the connections between individuals so that a collective sense of trust, investment, and action can be developed” (p. 729). Trust, investment, and action are descriptive of a supportive lesson study group committed to improving practice.

As the teachers began to undertake some of their strategies during the following school year, the impact of the empowerment evaluation in fostering “self-
determination...capabilities ...such as the ability to identify and express needs, establish goals or expectations and a plan of action to achieve them, identify resources, make rational choices from various alternative courses of action, take appropriate steps to pursue objectives, [and] evaluate short- and long-term results” (Fetterman, 1996, p.8) was clear. The values of empowerment evaluation evident in lesson study were directed, using the process of empowerment evaluation itself, toward improving the lesson study practice at Creek Side.

**Research Question 4**

In searching for those contextual variables that influence the practice of lesson study, a novel finding emerged concerning the basis of some barriers and enabling factors. The contextual elements that inhibit lesson study are well documented (Chokshi & Fernandez, 2004; Fernandez & Chokshi, 2002; Fernandez et al., 2001; Lewis, 2002; Takahashi & Yoshida, 2004). Chokshi and Fernandez (2004) cite time constraints, accountability testing, lack of content knowledge, and threats to classroom autonomy as common concerns to launching lesson study, and offered practical advice for overcoming them (Fernandez & Chokshi, 2002; Fernandez, et al., 2001). Likewise in her handbook outlining the process for implementing lesson study, Lewis (2002) described common barriers such as lack of time, content knowledge, and supportive administrators, and laid out a map for successfully navigating through these obstacles. For this study, many of these barriers were surmounted from the outset due to the administrative support the teachers received. It is critical to note that this support came freely and without strings attached. The school principal neither interfered with the teacher-led process, nor set accountability criteria for the teachers. The serendipity of this support was fortuitous in making this study possible, but is also severely limits the generalizability of the findings regarding enabling and inhibiting factors.

In addition to these commonly cited contextual barriers, the pressures of standardized testing compounded the effects of the lack of time. For the foreseeable future, this barrier will always exist for Creek Side lesson study efforts. It is anticipated that lesson study will always be scheduled to accommodate the district testing calendar.
However, this study revealed a number of other barriers that were intrinsic to individuals that could inhibit a teacher from participating in the process.

Many of the teachers in the second grade group had been accustomed to complete autonomy in their classrooms for many years. These veteran teachers related that it was often difficult for them to open up their classrooms for fear of relinquishing control and having their teaching criticized. Where lesson study was concerned, this fear was tinged with a dose of discomfort. Stacey shared that engaging in lesson study with teachers from other grade levels was easier than with teachers from the same grade level because they wouldn’t have “to look at each other, you know, every single day,” as though there would be something embarrassing or uncomfortable about interacting with other teachers who may be critical of her practice. One of the teachers in the negative case group concurred that the process could be intimidating. The teachers who declined to participate varied in their level of teaching experience and without their voice, it is not possible to provide further evidence on this barrier. A finding by Foster-Fishman et al. (1998) that veteran employees were resistant to participating in empowerment initiatives due to countless earlier experiences with failed efforts was not consistent with the findings in this particular context.

The autonomy teachers experience in the classroom should not be confused with any true power in their environment. The research on psychological empowerment has found that participation, efforts to achieve control, and a sense of efficacy are characteristics of the construct (Zimmerman, 1990). Lesson study provided these teachers the opportunity for professional growth in these characteristics toward achieving empowerment. On the other hand, teachers who refrained from participating in lesson study may not have perceived the capacity to become empowered and were not likely to have achieved it in any setting (Zimmerman & Perkins, 1995). It is also possible that non-participating teachers had no decision-making role or sense of community within their school, indicating lack of any initial sense of psychological empowerment (Perkins & Zimmerman, 1995).

Other intrinsic barriers stemmed from a lack of dedication to teaching and motivation to improve one’s practice, a negative attitude, and a reticent personality. All of these barriers indicate a possible lack of psychological empowerment (Zimmerman,
1990). Although the teachers in both lesson study groups did not exhibit any of these intrinsic barriers, the fact that four of the teachers who did not engage in further lesson study after their first experience did not agree to be interviewed raises the question whether some of these barriers might have been a factor in their decision. Diane, one of the negative case teachers who did agree to an interview, related that some teachers in her first experience with lesson study did not make many contributions to the collaborative planning sessions, which added further support to this supposition. This finding suggested that future lesson study efforts make concerted attempts to include these teachers and guide them through the process as supportively as possible.

Enabling factors must outweigh the barriers in order for more teachers to participate and allow the practice to grow. The teacher-directed nature and classroom relevance of the process generated a supportive atmosphere among members. The context of lesson study, including the group structure and the school setting, is critical for facilitating successful lesson study. The group structure, as mentioned above, should be diverse in the level of experience of each member. The dedication of each teacher to engaging in the full lesson study cycle enabled both groups to experience the deep conversations about student learning, which the process was designed to foster. However, recognizing the intrinsic barriers from the outset of the process is critical in order to alleviate their detrimental effects on full engagement in the process.

Equally critical is a supportive administration to ease the burden on teachers’ time and encourage the teachers to overcome their own concerns about lesson study. Mr. Thompkins’ receptiveness to changing the school’s use of time is an example of an action a supportive administrator could take to increase teacher participation. The experiences at KIPP school in Baltimore indicated that there are a number of options. Professional development there was site-based and teacher-led. Grade-level teams met daily at KIPP “to discuss specific implementation and revisions needed to meet state standards” and conducted bi-weekly peer evaluations with feedback (Abell Foundation, 2006, p. 12). At Crossroads school the students were released early every Wednesday for learning community opportunities “in which teachers come together to solve problems and create action plans” (p. 12). If this study is an indication, the level of support and encouragement needed to guide the teachers through the process will depend on those
teacher leaders, like Linda and Gayle, upon whom Mr. Thompkins seemed to place much of his hopes for the future of lesson study.

For this lesson study, the school context was substantially influenced by the attitude of the administration. The support of the administration at Creek Side was one of the contributors to the sense of professionalism experienced by the teachers. This support was given both publicly in the presentation by the first year’s group at the district principals’ meeting, and at the school through the release time granted for learning and engaging in lesson study. From the beginning of the process when the teachers decided to try lesson study to the end of the fourth cycle two years later, the principal provided both logistical support and motivational encouragement to the teachers.

The supportive administration at Creek Side provided an environment that was conducive for teachers to achieve psychological empowerment through the development of decision-making skills (Schulz et al., 1995). Such an empowering organization exhibits certain preconditions surrounding power/control and trust/inclusion that allow individuals to achieve empowered outcomes (Foster-Fishman & Keys, 1997; Foster-Fishman et al., 1998). Mr. Thompkins was open to allowing the teachers to lead the process, which is one of the most important characteristics of lesson study. In order to continue to provide the necessary environment for successful lesson study, he saw his leadership as supportive and encouraging rather than authoritarian. The Creek Side administration offered all interested teachers the freedom to control their own professional development activities and trusted all teachers would engage fully in the process. The combination of the participatory setting and teacher decision-making focused on curriculum and instruction (Marks & Louis, 1997) provided the empowering environment that is conducive for individuals to achieve psychological empowerment through the development of decision-making skills (Schulz et al., 1995).

The principal also provided stipends for an hour per week after school for planning and full-day substitute teachers for the days the study lessons were conducted, a total of twelve substitute days (two days for each of six teachers) in fall 2005 and twelve in spring 2006. In addition to this tangible support from the administration, another contextual element that needed to be in place for lesson study to become embedded in this educational setting was adequate time for collaborative planning. Time is widely
seen as a barrier to many forms of teacher-led professional development, even for those such as lesson study that are embedded in the school context (Darling-Hammond, 1996, Fernandez & Chokshi, 2002). The structure of the school day is typically rigid, with little flexibility for teachers to meet and collaborate. The willingness of the principal to be flexible with teachers’ schedules was an indication of his investment in the future of lesson study by removing what is commonly perceived to be a barrier to any type collaborative teacher work. This finding also affirmed the research that contextual factors are part of the person-environment interaction and can act in various ways to either encourage or inhibit personal empowerment (Foster-Fishman & Keys, 1997; Schulz, et al., 1995).

Creek Side, as an empowering organization, provided for the “development of active leadership, numerous opportunities for members to take on a variety of participatory roles, social support among group members, and a shared set of beliefs that provides a rationale for the group’s actions” (Speer et al., 2001, p. 729). Lowering the barriers to participation in lesson study, therefore, appeared to involve the constructs of organizational and psychological empowerment. According to Speer et al. (2001), there is a strong relationship between participation and the intrapersonal facet of psychological empowerment. Participation and social cohesion, as would develop in a long-term learning community setting, contributes to the development of the intrapersonal and interactional components of empowerment, respectively (Speer et al., 2001). This relationship suggests that teachers who are reluctant to participate in lesson study be encouraged and guided through the process in a supportive environment to create a sense of community and the associated empowered outcomes.

In the end, this study supported some of the findings of Zimmerman (1995) and Foster-Fishman and her associates (Foster-Fishman et al., 1998). As explained in the literature review, Zimmerman concluded that psychological empowerment is different for different people, in different places and at different times. These assumptions of dynamism and multiplicity were instrumental in selecting a constructivist framework to guide this research (Foster-Fishman et al., 1998). The interactions between individuals, organizations, and communities that were observed during the lesson study project confirm that these three cannot be separated but are best examined as a whole. Foster-
Fishman examined this assumption in the context of a human services provider using a constructivist inquiry approach, they analyzed interview and observational data and found that “empowerment emerged as a dynamic, highly individualistic, contextually-layered process” (p. 507).

**Conclusions**

Interpretation of the findings is by no means complete, and there is much fertile ground to be explored in the experiences of teachers at Creek Side as they engage in lesson study in the coming years. However, this study did indicate that lesson study has the potential to unite teachers as a community of learners to deeply explore the core functions of teaching and learning at their school and to do so in a context of professionalism and empowerment. Lessons from this study on the perceived empowerment benefits for teachers and the contextual elements that support it should help schools implement lesson study process without creating additional and undue burdens on teachers’ limited amount of unscheduled time.

Although lesson study seemed to foster self-determination and improvement in most of the teachers, it appeared that those results were not universal. Teachers who were more receptive to lesson study, either because the steps were not threatening to them or because they were generally psychologically empowered to begin, seemed to reflect more of the principles of empowerment evaluation in their interviews. Kelly and Yvonne were used to being observed and critiqued, so teaching a study lesson was not a threatening prospect. As teachers gained more experience with lesson study they also seemed to gain more of the benefits of empowerment. Deb, Linda, and Gayle had more experience with lesson study, both at the school and through conferences. Their complete receptivity to lesson study was well documented in the data. Stacey shifted the most, from unwilling participant to receptive member of the lesson study group. The empowerment evaluation served to make her more receptive to the process. It appeared that the empowerment evaluation was critical for Stacey to come to the point of self-determination that the other teachers in her group had reached during lesson study. Participating in lesson study appears to be related to the individual’s sense of self-efficacy and control (Zimmerman, 1995), while the success of lesson study appears to be
related to the characteristics of the lesson study group (Peterson & Speer, 2000). For the
teachers at Creek Side, lesson study provided the means for self-determination and
improvement and fostered the same guiding principles developed for empowerment
evaluation. This study of lesson study further corroborated current understanding of
empowerment theory.

Implications
Districts are continuously searching for effective and efficient forms of
professional development that will directly improve student achievement scores.
Although the research on lesson study has yet to make that link, it does provide many of
the experiences that the literature on high-quality professional development has
identified. It also can provide the organizational context for engendering empowerment
through a collaborative process similar to empowerment evaluation. From this study it is
apparent that teachers who are collaboratively involved in a supportive setting can
become empowered to determine the activities which will best lead to improvement.
Another lesson from Baltimore indicates that lesson study can provide the structure and
processes for successful professional development (Abell Foundation, 2006). At Creek
Side, as in Baltimore, the school administration facilitated lesson study without
mandating participation.

The supportive setting seems to be critical so it is recommended that lesson study
groups be carefully constructed to include teachers with a wide variety of experiences in
both the teaching field and lesson study itself. The teachers should straight away develop
the norms for interacting and supporting one another in their activities. Discussions
should be positive yet constructive. The supportive setting should also extend to the
administrative level of the school and teachers should make every effort to educate and
include the administration in the process as much as possible.

Many of the intrinsic barriers to participating were expressed as being unreceptive
to or uncomfortable with the experience. Whether a teacher is timid, negative,
undirected; protective of her classroom autonomy; or even fresh off an unsatisfactory
first experience, there was the likelihood that he or she would not be open to participating
in lesson study in the future. Reluctant teachers should be given the opportunity to
participate in as limited a capacity as they desire. These reluctant teachers perhaps lack the sense of self-efficacy and control that are necessary to take the first steps. Mentoring teachers should be provided who are enthusiastic and understanding. Small steps should be encouraged and rewarded when taken.

Further Research

Although seeking answers to the specific questions in this study several other questions arose regarding the benefits of lesson study and the empowered outcomes it engenders. First, a shift in focus from covering the required content for standardized testing, to teaching for student understanding was described by one of the teachers. This shift is difficult in a climate of high-stakes testing where the curriculum lacks depth. Teachers engaged in lesson study must be familiar with this conflict and it would be worthwhile to explore this in specific cases where it is occurring.

Second, psychological empowerment has been acknowledge to be comprised of three components: the interpersonal, interactional, and behavioral. All three must be present in an individual before they can achieve empowered outcomes (Zimmerman, 1995). Teachers who refused to participate a second time in lesson study and declined to be interviewed left a large gap in understanding the interpersonal barriers to participating in lesson study and are worth further investigation, either qualitatively or quantitatively.

Third, corroborating studies on the principles of empowerment evaluation and the degree to which they are “in force” (Fetterman, 2005a, p. 9) in lesson study are necessary. A study of other lesson study groups’ efforts to improve their teaching practice and their practice of lesson study could examine further the extent to which this process can empower teachers and the factors that influence empowerment.

Finally, studies that provide solid evidence that lesson study improves teaching practice and leads to better student learning outcomes would be welcomed by those in the educational community who work to promote lesson study precisely for these outcomes. Of course, this type of evidence would be welcomed by advocates of any form of professional development. The fact that few such studies exist speaks to the complexity of any human endeavor, in which the number of variables are to numerous to control or
even identify. However, this evidence needs to be revealed before any claims can be made for one approach or another.
APPENDIX A

Interview Protocol
Lesson Study: Effective Teacher Professional Development and Empowerment
Evaluation for Improving Classroom Practices

1. How did the process of lesson study improve your ability to think about how all of your students think and learn? If it did, can you give an example? If it did not, please explain why not.

2. What are some specific instructional strategies you can see using that are based on something you learned as a result of your participation in lesson study?

3. How do you think lesson study process can or did help you improve your overall teaching practice, if at all?

4. To what extent do you think that you and the other teachers had a sense of ownership over the process, from planning through revision and reteaching the lesson?

5. What is your impression of the opportunity to collaboratively plan with other teachers during lesson study?

6. Do you feel that you were able to contribute to the process as well and as much as you could? Explain why or why not.

7. How do you feel that lesson study provided your group with the capacity or ability to improve teaching and learning at the school?

8. How appropriate was the lesson study process for enabling you to grow professionally?

9. What are your thoughts or opinions for using lesson study as an authentic professional development activity, in terms of district policy for certification?

10. What kinds of school supports or resources are necessary for doing lesson study?

11. Can you describe your vision for the future of lesson study at the school or district?
APPENDIX B

Creek Side Lesson Study Evaluation:
Goals and Strategies for Improvement

By Stacey, Linda, Deb, Gayle, Leslie, Kelly, Yvonne, and Lois
Facilitated by Robin Smith

Introduction

The teachers at Creek Side Elementary School are part of an elite group. There are over 2000 teachers in the district, and just 26 teachers have engaged in lesson study, 19 of them at Creek Side. Nationwide, there are thousands of teachers, mostly in urban districts like Chicago, San Francisco, New York practicing lesson study to improve not only their teaching but student learning in their schools. Currently in Florida, only a few schools have engaged in lesson study, but these efforts were spread across schools and the teachers in the lesson study group had little daily contact with each other. As many of you stated in your interviews, too often planning for instruction is focused on covering the mandated standards, while concern for student learning is forgotten. Lesson study helps re-center that focus on students, while placing teachers in the driver’s seat for this improvement.

The first exercise for the lesson study group was to generate a formal mission statement for guiding the plans for future action and improvement of the lesson study process as it is conducted at the school. To do this the teachers engaged in a type of evaluation study, called empowerment evaluation, that was originally developed in the early 1990s to help community based organizations improve their programs. While most educators engage in professional development activities designed at the state or district level, these teachers conducted a multi-pronged campaign for improvement at the classroom level where student learning was the focus of the effort. Lesson study offered the teachers a chance to conduct a meaningful method of professional growth, and the empowerment
evaluation activity offered the opportunity to mold lesson study into a process that is attuned to the circumstances—the needs, resources, skills, talents, and overall context—of the Creek Side teaching and learning environment.

An empowerment evaluation has three major steps: mission, taking stock, and planning for the future. Each step helped focus the goals of lesson study and provided a foundation for the next step.

**Mission**
The first step was to generate a mission statement for lesson study that will serve to focus the group on specific needs and strengths within the school context. They began by brainstorming key phrases that captured the goals of lesson study. From the key phrases, a mission statement was drafted that was refined throughout the rest of the evaluation process. The statement reflects the values of the group and represents the foundation for the next steps in the evaluation.

Creek Side Lesson Study Group Mission Statement:

Lesson study is a true, site-based process for teachers to collaboratively set goals for student learning and to engage in deeper conversations about teaching and learning. This process will result in more effectively-structured lessons that both increase teachers’ knowledge and improve student learning.

**Taking Stock**
The second step was composed of several substeps, but again began with generating a list of key activities that are crucial to the functioning of lesson study. The list comprised what the teachers believed to be the most significant features or activities of lesson study. After this list was generated, the most important activities that the group collectively determines warrant closer evaluation were prioritized. Each member of the group voted on the items in the list, identifying those activities they believed deserved more focus during the next phase of the evaluation. Those activities that received the most votes
became the prioritized list of activities meriting closer evaluation. This voting process serves to limit the scope of the evaluation. The last part of Taking Stock involved rating the prioritized activities. Each participant rated the activity according to how well they thought that activity was being conducted by the lesson study group, with 10 being the highest rating and 1 being the lowest. Each teacher was required to explain their ratings so that individual thought processes were made clear to everyone in the group. Sharing and discussing ratings served to open a dialogue about the entire lesson study process and help reveal the collective and individual perceptions about the process and its role at the school. In addition, definitions for each activity being rated were clarified and misconceptions were resolved through this process.

The prioritized list of activities:

- Arranging time for teachers to meet for collaborative planning and discussions of lessons.
- Choosing a topic for lesson study from among a suite of topics that either create difficulties for student understanding or for instruction.
- Focusing on realistic expectations for students based on developmental appropriateness, time constraints, resources, and standards.
- Simplifying activities within the lesson to achieve the greatest depth of understanding and clarity in instruction.
- Providing a supportive environment within individual lesson study groups and across all lesson study groups at the school to increase the comfort level of participants.
- Developing a “culture of lesson study” among the school community to increase participation and improve the professional outlook among participating teachers.
- Providing incentives for teachers participating in lesson study, whether tangible or intangible.
- Writing the lesson plans.
The final rating of each activity on a scale of 1 to 10, with 10 being the highest, was:

<table>
<thead>
<tr>
<th>Activity</th>
<th>Rating</th>
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<tbody>
<tr>
<td>Arranging meeting time</td>
<td>4.9</td>
</tr>
<tr>
<td>Choosing a topic</td>
<td>6.3</td>
</tr>
<tr>
<td>Focusing expectations</td>
<td>4.9</td>
</tr>
<tr>
<td>Simplifying activities</td>
<td>3.8</td>
</tr>
<tr>
<td>Proving supportive environment</td>
<td>7.0</td>
</tr>
<tr>
<td>Creating a lesson study culture</td>
<td>5.1</td>
</tr>
<tr>
<td>Providing teacher incentives</td>
<td>7.8</td>
</tr>
<tr>
<td>Writing the lesson plans</td>
<td>3.5</td>
</tr>
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</table>

The lower the rating, the more the teachers believed in the need for improvement in this area. The next phase of the activity addressed setting improvement goals, devising strategies to meet these goals, and developing measures to determine whether the strategies worked.

**Planning for the Future**

Taking Stock set the stage for the final phase of the evaluation, Planning for the Future. This phase allowed the group to ask “where do we want to go from here with lesson study?” The list of activities rated in Taking Stock guided planning for the future. A thread of coherence exists from the mission statement, through taking stock, to the plans for the future. Each participant set specific goals for each activity, based on the results from taking stock, then shared and worked collaboratively to reach a consensus on these goals. The group developed their strategies and identified the resources within the school and within their own practice for achieving these goals. Each strategy generates its own evidence that will help monitor the progress toward each goal. The resulting goals are within the lesson study group’s talents, resources, and scope of capability.
Planning for the Future: Goals, strategies, and evidence of achievement for Lesson Study

| Key Activity | 
|---|---|
| **Arranging time for teachers to meet for collaborative planning and discussions of lessons.** |

| Goals | 
|---|---|
| All day grade level planning meetings |
| All day curriculum planning |
| Split-day teaching for first and second teaching of lesson. |

| Strategies | 
|---|---|
| With administrative support, explore reinstituting “Wacky Wednesdays” for grade-level and curriculum planning meetings. |
| Explore using substitute teachers in “split-days” between 2 grade levels for teaching study lessons. |
| Explore using staff from Office of Science Teaching Activities as who are qualified substitute teachers. |

| Evidence | 
|---|---|
| Scheduling lesson study becomes systematic as the use of substitutes become more flexible to accommodate teaching. |

| Goals | 
|---|---|
| **Choosing a topic for lesson study from among a suite of topics that either create difficulties for student understanding or for instruction.** |

| Strategies | 
|---|---|
| Develop a step-by-step procedure that incorporates test scores, teachers’ professional goals, and state (age-appropriate) benchmarks to select a topic. |
| Provide SSS benchmarks to all teachers (again) and encourage their use. |
| Compile FCAT data for grade-level areas of weakness. |
| Develop a teacher self-assessment of practices and subject-area knowledge. |
| Use an email list for each lesson study group to communicate group wide about topic selection ideas. |
| Evidence | The steps of the procedure are logical and are used such that topic selection is accomplished electronically before the group meets for its first planning meeting, thereby saving time for more planning.

Teachers report feeling more confident in their ability to determine both their students’ needs as well as their own. |
<table>
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<tr>
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<tbody>
<tr>
<td>Goals</td>
<td>Focusing on realistic expectations for students based on developmental appropriateness, time constraints, resources, and standards.</td>
</tr>
<tr>
<td>Strategies</td>
<td>Develop study lessons that have realistic goals for student learning.</td>
</tr>
<tr>
<td>Strategies</td>
<td>Use SSS, National Science Education Standards, Atlas for Science Literacy, and Making Sense of Secondary Science to conduct a curriculum topic study (CTS) at the beginning of each lesson study cycle. Develop a teacher self-assessment of practices and subject-area knowledge.</td>
</tr>
<tr>
<td>Evidence</td>
<td>Lessons are age-appropriate and do not try to accomplish too much, too early. Through lesson study observation it is apparent that students are less frustrated during science activities. Teachers report feeling more confident teaching in front of their peers.</td>
</tr>
<tr>
<td>Goals</td>
<td>Study lessons are clear and focused with a simplicity that reveals the learning goals, not crowded with activities that obscure the underlying goals and frustrate students. Student understanding become the focus of instruction, not “coverage” of a large number of standards.</td>
</tr>
<tr>
<td>Strategies</td>
<td>Focus on a single concept or skill during lesson planning. Develop a lesson plan template based on Excel that is easy to use. Use more existing lessons so as not to “reinvent the wheel.”</td>
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<tr>
<td>Evidence</td>
<td></td>
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<tr>
<td>Limit the number of major standards to teach during each lesson.</td>
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<td>Evidence</td>
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<tr>
<td>Student engagement and enjoyment in the lesson increases.</td>
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<td>Student assessments, embedded within the lesson, reveal an increase in student understanding.</td>
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<tr>
<td>Lessons run on time.</td>
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<td>Potty breaks, usually indicating boredom or frustration, decrease.</td>
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<th>Goals</th>
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<tbody>
<tr>
<td>Providing a supportive environment within individual lesson study groups and across all lesson study groups at the school to increase the comfort level of participants.</td>
</tr>
<tr>
<td>Strategies</td>
</tr>
<tr>
<td>New members are encouraged to be observers only for several lessons until they feel comfortable to participate more fully.</td>
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<tr>
<td>Mentor relationships emerge between new members and old members.</td>
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<tr>
<td>Survey each teacher at the end of a cycle to uncover their perceptions of the lesson study environment.</td>
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<tr>
<td>Evidence</td>
</tr>
<tr>
<td>Survey reveals a growing comfort level among new group members.</td>
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<tr>
<td>New members volunteer to teach the study lessons.</td>
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<table>
<thead>
<tr>
<th>Goals</th>
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<tbody>
<tr>
<td>Developing a school-wide “culture of lesson study” among the teachers to increase participation and improve the professional outlook among participating teachers.</td>
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<tr>
<td>Goals</td>
</tr>
<tr>
<td>Increase the number of teachers who choose to participate in lesson study as part of their individual professional development plan.</td>
</tr>
<tr>
<td>Being a lesson study group participant becomes a symbol of dedication and motivation to teaching and improvement.</td>
</tr>
</tbody>
</table>
| Strategies | Offer screenings of lesson study videos to interested teachers.  
|            | Invite other teachers to observe with no other obligation to participate.  
|            | Engage in positive “water cooler” talk about lesson study around the school (teacher work room, mail room, parent pick up, etc.) |
| Evidence  | More teachers choose to participate, resulting in more lesson study groups.  
|           | More teachers report feeling comfortable with the idea of teaching a lesson in front of their colleagues. |
| **Goals** | Teachers become self-motivated to participate in lesson study and are dedicated to seeing the process through to the end. |
| Strategies | Provide meeting time within the contracted time.  
|           | Negotiate with Leon County TEC to provide a set amount of in-service points for each cycle of lesson study (e.g., 8 hours worth of points regardless of the number of planning meetings) composed of planning, teaching, discussing and revising, reteaching, and discussing.  
|           | Use mentor relationships to encourage new members to continue.  
|           | Engage in positive “water cooler” talk about lesson study around the school (teacher work room, mail room, parent pick up, etc.)  
|           | Develop a teacher self-assessment of practices and subject-area knowledge. |
| Evidence  | Total the number of in-service points earned by lesson study members.  
|           | Teachers report the intangible benefits of lesson study (e.g., professional growth) are just as worthwhile as the tangible benefits. |
| **Goals** | The process of writing lesson plans becomes more systematic and accessible, increasing in ease as a result of electronic templates and a |
A school lesson plan library on the Creek Side web site.

| Strategies | Create a lesson study resources page on the Creek Side web site and provide links to national groups, the state standards, and a lesson plan template based on Excel. Collect lesson plans from both past groups at Creek Side, and grade-level appropriate plans from other groups and link them to the site. |
| Evidence | Lesson plans increase in detail by providing more background information on learning goals and prior learning of the students and decrease in the number of steps/activities (increase in simplicity). All teachers can and do access and use the template. |
APPENDIX C

Creek Side Lesson Study Group
Inaugural Meeting
November 1, 2005
Agenda

9:00    Introductions

9:05    Video Can You Lift 100 Kg? and reactions
        Video Clips To Open a Cube and reactions
        Video clips Three Perspectives on Lesson Study and reactions

10:20   Break

10:30   Ask teachers to think about how they want to improve their own practice?
        Lesson plans:  Can you lift 100kg? and To Open a Cube
        Lesson plans:  First grade Math and Grade 3 science
        In which content area/standard is there room for improvement in student
        learning?

12:00   Lunch

1:00    Introduce the phases of lesson study using lesson study cycle overheads (p. 4, 5, 9, 13, 17) and lesson plan templates, and sample lesson plans. Begin
        with the plans from 100 kg and Cube.

        Begin to look at learning gaps and select the grade, teacher and date for the
        first research lesson.  Introduce teachers to bulletin board at
        http://phpbb.bio.fsu.edu/ and register them.

3:00    Conclusion and assignments for the month.
Creek Side Lesson Study Group
Introduction to Lesson Study

**Invitation:** View videos, Can You Lift 100 kg? and How Many Seats?, and solicit reactions from the teachers.

**Exploration:** Initiate discussion about how they would like to improve their own practice, and ask whether they think that understanding how their students think during instruction would help them achieve this. Provide examples of study lesson plans and point out the research goal, the lesson goals, and the points of observation that will provide the data on whether the goals are being achieved through the lesson. Ask teachers to think a few minutes on where they can see room for improvement on student performance in one of the areas/standards in science.

**Concept Introduction:** Introduce the phases of lesson study, with the comment that looking at gaps in student achievement is most often the first phase of a lesson study cycle. Describe carefully the focus on student learning in the context of the classroom, not on the teacher. Explain that the collaborative/group effort nature of lesson study cultivates this practice and creates a climate of collegiality among the group. Also explain that translating the findings into practice is facilitated since the findings were generated in through classroom practice. Provide a second viewing of one of the videos to reinforce the concepts.

**Application:** Have teachers turn to the gaps in science learning (in SSS benchmarks?) and begin to select a lesson and grade level for planning. Select teachers for the first and second teaching. Provide planning time for about 2 hours, with breaks, then introduce the bulletin board for sharing ideas and lesson plans and asking questions of us and each other. Decide on a time line for the main teachers to share the lesson with the whole group, and for the group to provide feedback.

Conclude with ideas for the lesson study cycle: In the first week of December, the group will meet one morning to go over study lesson one final time, then teach it right after that. Group and partners will observe and take data. Meet for post lesson discussion right after first teaching to discuss revisions. May want to have a lunch break first. Revisions are accepted by the group and the main teacher, and a day is set later that week for the second teacher to reteach the lesson, with partners and any of the group who are free as observers. Select a date in January for a wrap up discussion and to develop their presentation to the faculty.
Creek Side Elementary School Lesson Study

Guide to Plan Learning for the Lesson taught on Dec. 5, 2005
Second Grade Science

1. Title of the Unit: The Movement of the Earth, and Moon around the Sun
   Lesson 1: Observing the Moon for Ten Nights
   Lesson 2: (This lesson) Day and Night
   Lesson 3: The Moon moves around the Earth

2. Title of the Lesson: What causes day and night to occur on the earth?

3. Goal of the Unit [Related to SSS 2\textsuperscript{nd} gr. GLEs for earth/space]: By the end of the unit students should be able to
   • know that each time the Earth completes one rotation, one day has passed and that this takes 24 hours
   • use models to show how the moon moves around the earth and the earth moves around the sun.
   • recognize that the moon appears to change shape, called phases, as it moves around the earth

4. Relationship of local standards to the lesson:
   According to the Sunshine State Standards Grade Level Expectations, second graders are expected to know that the Moon moves around the Earth, the Earth moves around the Sun, and the Moon is visible when it reflects light from the Sun.

   Prior Learning Standards [Related to light]: Students will have completed a unit on light and will have learned that light, including light from the sun, travels in a straight line, but can be reflected, or bounced, off objects such as mirrors, the surface of water, or the surface of the Moon.
4. Instruction of the lesson: The first lesson of this unit picks up where the unit on light left off with observations of the moon. In the first lesson, students observed the Moon every night for ten nights, recording its shape each night in a Moon log book. Using students’ work, the teacher will guide the students through the discovery that the light from the Moon is really light reflected from the Sun. Students will be taught that their drawings of the Moon represent a “model” of the Moon during different phases. In this second lesson, students use three-dimensional models. A centrally located light bulb will model the Sun, and the student’s head is a model of the earth. Working pairs, one student will turn in place, while the other student observes how a different part of their partner’s head is lit up. The pairs will switch so each student has the opportunity to observe day and night on earth.

5. Plan of the Lesson

<table>
<thead>
<tr>
<th>Steps, Learning Activities, Teacher’s questions, expected responses, and time frame</th>
<th>Teacher’s Support</th>
<th>Points of Evaluation</th>
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</thead>
</table>
| **1. Introduction-Part I (10 minutes)**
What causes day and night to occur on the earth?

Ask students for their ideas on the question.

Possible responses:
The Sun rises and sets to bring night.
The Sun Moves across the sky and disappears.
The Earth turns around.

| Do any of the students indicate that they may already know what causes day and night? How do they indicate it?
| Do the students seem to understand what a model is? How do they indicate their understanding or lack of understanding? |
“We are going to make a model of the Earth and Sun to help us understand night and day. Explain that a model is not the real thing but it helps us explain the real thing.

Place students in pairs and have them form a circle around the room.

You may use a Hot Wheels car and ask how it is like a real car and how it is not like a real car.

Students work in pairs. Give each pair of students a tag (“Earth” and Change Detective). They will switch tags during the exercise.

Students work in pairs. Give each pair of students a tag (“Earth” and Change Detective). They will switch tags during the exercise.

### 2. Posing the Problem- Part I (10 min.)

What causes day and night to occur on the earth?

Ask Change Detective to watch which part of the “Earth” is lit up. How much of the “Earth” is lit up?

Place the light bulb just above head height for the students.

Ask “Earth” to begin slowly turning around in place to the left.

Make sure students understand that the Earth slowly turns in one place. Students who spin quickly should be made to sit down for a few minutes.

Are the students rotating on their axis properly? How many students have problems with the concept of rotation?

Ask Change Detective if the same part of “Earth” stays lit? How much of the “Earth” is
always lit up?

While “Earth” is turning, ask Change Detective, “If a tiny person was on “Earth’s” Mt. Nose, tell me when that person is in the daylight? Night?”

Have the students switch places and repeat the exercise.

<table>
<thead>
<tr>
<th>3. Solving the Problem (10 minutes)</th>
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<tbody>
<tr>
<td>“Now I want you to try it on your own several times. Make sure each of you can explain day and night to the other.”</td>
</tr>
</tbody>
</table>

Possible responses:
- The side of the Earth facing the Sun is day and the other side is night. When the Earth turns, the light hits another part and brings day.
- As the Earth turns, the light moves around

The Change Detective needs to explain to “Earth” what is happening while he/she turns. How is the light changing?

Circulate around the groups and provide guidance.

Are the students taking turns?

Do student’s explanations indicate understanding?

Do both students “see” day and night is caused by which part of the “Earth” is facing the Sun?
the Earth.

<table>
<thead>
<tr>
<th>4. Comparing and Discussing Students’ Solutions (15 minutes)</th>
<th>5. Summing Up the Lesson</th>
</tr>
</thead>
<tbody>
<tr>
<td>Have several groups share their ideas, comparing how they are alike and different. Have the students be seated. Ask a pair that best explained the reason for day and night to stand up and demonstrate and explain day and night to the whole class.</td>
<td>Ask students to tell you what a model is. Ask another student to tell you how the light bulb is like the Sun or not like the Sun. What about the Earth model? Turn around like the Earth and ask students to</td>
</tr>
<tr>
<td>Select several correct and incorrect answers and call on them to share. Record their answers on board, chart paper, or overhead and discuss merits of each. May take vote to select. Have space near front where pairs can stand and demonstrate their solution to each problem.</td>
<td>Summarize all responses.</td>
</tr>
<tr>
<td>Do other students seem to recognize which explanations are more valid?</td>
<td>What is the level of understanding about a model? Do students have good examples? Are the students responding with confidence or do they seem to wait for clues from others?</td>
</tr>
</tbody>
</table>
6. Evaluation

1. Were the students able to explain and demonstrate day and night?
2. Did the students understand that the sun does not move, but the earth and moon do?
3. What issues did the students struggle with the most? Based on their discussions with each other, why was each issue difficult?
Creek Side Elementary School Lesson Study

Guide to Plan Learning for the Lesson taught on May 2, 2006
Fourth Grade Science

1. Title of the Unit: Living Things and Environments
   Lesson 1: Earth’s Biomes
   Lesson 2: (This lesson) Animal Food Webs and Niches
   Lesson 3: Owl Pellet Dissection

2. Title of the Lesson: What kinds of animals live in a specific habitat and how can they be included in a food web?

3. Goal of the Unit [Related to SSS 4th gr. GLEs for earth/space]: By the end of the unit students should be able to
   • know how all animals depend on plants
   • know how plants, animals, and protests interact
   • knows that animals eat plants or other animals the acquire the energy they need for survival

4. Relationship of local standards to the lesson:
   According to the Sunshine State Standards Grade Level Expectations, fourth graders are expected to describe the patterns of structure and function of living things.
   Prior Learning Standards [Related to ecosystems]: Students will have completed a unit on Earth’s biomes. They will know about the climate, animals and plants, and physical description of both land and water biomes.

5. Instruction of the lesson: The first lesson of this unit picks up where the unit on light left off with Earth’s biomes. In the first lesson, students were placed in groups. Each of the groups was assigned to a specific water or land biome. They were required to research the physical description, plants and animals, and climate of their biome. They were also required to create a poster of their biome. Then, they presented their report and poster to the rest of the class in order for all of the groups to learn about each biome.
Students will be taught further about habitats. In this second lesson, students are placed in pairs and chose an organism and 5 essential factors that the organism needs to survive. They will examine the animals and try to organize them into a food web.

6. Plan of the Lesson

<table>
<thead>
<tr>
<th>Steps, Learning Activities, Teacher’s questions, expected responses, and time frame</th>
<th>Teacher’s Support</th>
<th>Points of Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Invitation (10 minutes)</strong></td>
<td></td>
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<tr>
<td>“What is an organism?”</td>
<td></td>
<td>Do any of the students indicate that they may already know what an organism is? How do they indicate it?</td>
</tr>
<tr>
<td>Ask students for their ideas on the question.</td>
<td></td>
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</tr>
<tr>
<td>Possible responses:</td>
<td></td>
<td>Do the students seem to understand what a deciduous forest is? How do they indicate their understanding or lack of understanding?</td>
</tr>
<tr>
<td>An animal.</td>
<td>Make a list of the animals on the board. Do not include animals that cannot be found in a deciduous forest. Circulate around the room and</td>
<td>Do the students seem to understand what kinds of animals live in a deciduous forest?</td>
</tr>
<tr>
<td>A human.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A plant.</td>
<td></td>
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<tr>
<td>Ask “What kind of biome do we live in Tallahassee?”</td>
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<td></td>
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<tr>
<td>Response: Deciduous Forest</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Now ask “What kinds of animals live in Tallahassee in our deciduous forests?”</td>
<td></td>
<td></td>
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<tr>
<td>Place students in pairs.</td>
<td>provide assistance.</td>
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<tr>
<td>Students work in pairs. Give each pair of students a piece of chart paper and a marker.</td>
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**2. Exploration (15 min.)**

Ask each pair to pick an organism from the list on the board, determine where it might live, and make a list on paper of 4 or 5 things that they think this organism would need to survive. Ask one group to pick a plant.

When the groups have finished, ask one person from each group to bring their chart paper up to the board and use a magnet to display it.

Have an example of an organism and 5 things it needs to survive and put it on the board.

Example: **Squirrel**
Lives in trees, needs nuts to eat, air to breathe, water to drink, a nest, and a mate to reproduce

Do the students understand all of the factors that each animal needs to survive?
### 3. Concept Introduction (15-20 minutes)
Examine the lists together.

Take a special look at the plant list. Ask “How do plants get their food?”

**Possible responses:**
- They use the sun
- Photosynthesis

Ask Does anyone know the scientific word that means “a place where an organism lives” (*Habitat*)

**Possible responses:**
- Biome
- Ecosystem
- Habitat

Ask the students to take a look at the lists again. Ask if they can find any organisms that are eaten by another animal. Add the predators to that organisms list.

Ask if anyone knows another word for “the eater” and “the eaten” (*predator* and *prey*).

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<tbody>
<tr>
<td>Ask “Do plants have mouths they can open to eat or legs to run and hunt? No. So think of another way they can get food. Explain photosynthesis.</td>
<td>If the word comes out early, ask if everyone has heard of this word. Ask a student to explain the word habitat in their own words.</td>
</tr>
<tr>
<td>Do the students see any similarities?</td>
<td>Do student’s explanations indicate understanding?</td>
</tr>
<tr>
<td>If there is not animal there that eats another animal on the board, make a list of the predator together.</td>
<td>Are the students accurately picking the animals that might eat other animals? Are the students including that animals eat plants as well?</td>
</tr>
<tr>
<td>Prey will “pray” not to be eaten.</td>
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</tbody>
</table>
Ask if any of the lists are exactly alike (are they any 2 organisms that depends on the same food, live in the same place, and are eaten by the same thing)

Tell the class that you want to reorganize this list. Ask if anyone knows a way that we can reorganize the list?

Does anyone know a scientific way to say how we grouped our animals. *(food chain)*

Tell students that every single one of these organisms has a certain job to do where it lives. Another word for their job is called its **niche** and NO two organisms can have the same exact niche.

Organize it and draw arrows from plant, to animal that eats plants, to animal that eats that animal and so on.

Example: In a deciduous forest, a Florida panthers job is to hunt a white tailed deer. Then it will eat MOST of it. When the panther leaves, the turkey vulture will then arrive and do his job to finish off the rest. When the vulture is finished, bacteria will then do its job and form on the dead deer and eat it to the bone.

Are the students accurately placing the animals in order?

Do the students understand that a niche is just like a job of the animal?
4. Application (15 minutes)
Ask the students to remind you of the various biomes that they have been studying.
   Possible responses:
   - Rain forest
   - Lake
   - Ocean
   - Shore
   - Wetland
   - Pond
   - Taiga
   - Tundra
   - Coral reef
   - River

Tell the students to pick a water biome and an organism that lives in that biome.

Pass out blank pieces of paper and have students pick another organism and draw a food chain where that animal is involved. The food chain must include at least 3 organisms.

Circulate the room and give assistance when needed.

Did the students name most of the biomes?

5. Summing Up the Lesson
Ask students to share their food webs.

Say “I want you to guess the animal I’m thinking on based on its niche. This animal lives in a deciduous forest and comes out only at night to search for food. It will eat anything.

What is the level of understanding about a food web?
Do students have good examples?
including garbage out of a garbage can. It climbs and lives in trees. What animal am I thinking of? (Racoon)

Ask the students to name a predator and its prey.

Ask the students to name an animal and the habitat it lives in.

Are the students responding with confidence or do they seem to wait for clues from others?

<table>
<thead>
<tr>
<th>7. Evaluation</th>
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</thead>
<tbody>
<tr>
<td>4. Were the students able to explain and demonstrate a food web?</td>
</tr>
<tr>
<td>5. Did the students understand that no animal may occupy the same niche in a habitat?</td>
</tr>
<tr>
<td>6. What issues did the students struggle with the most? Based on their discussions with each other, why was each issue difficult?</td>
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</tbody>
</table>
Creek Side Elementary School Lesson Study

Title of Lesson: Life Cycles of Daisy & Pine Tree  Date: May 7, 2007

1. Title of the Unit: Life cycles
   Lesson 1: Frog & butterfly
   Lesson 2: Daisy & Pine Tree (this lesson)

2. Title of the Study Lesson: Life Cycles of Daisy and Pine Tree

3. Goal of the Unit: After this lesson students should know the ways that organisms change and grow as they mature and know that living things grow and change in different ways and in different lengths of time.

4. Relationship of local standards to the lesson:
   Prior Learning Standards: Kindergartners should have learned some ways that living things change and grow over time, such as seed to flowering plant, and tadpole to frog. This lesson will prepare the students for second grade, when they must learn some of the factors that influence the growth of living things (amount of water or light, amount and type of food, type of soil), understand that structures or living things are adapted to their function in specific environments, and knows the main parts of plants.

5. Instruction of the lesson: The students are required to know that all living things change as they mature. They will learn that the ways organisms change can be different and take different amounts of time. Students know that adult humans grow from babies, and many know that frogs come from tadpoles and butterflies from caterpillars. What might be new to them is that flowers grow on plants that come from seeds, and that these seeds were produced in the flower. Also, trees such as pines that do not make flowers still have structures that produce seeds that in turn produce new pines. The unit comes from Chapter 4 of the Scott Foresman first grade Science book. The first lesson will be about frogs and butterflies. This study lesson is from the lessons on the daisy and pine tree life cycles. Students will be invited into the lesson by collecting a pine cone from the school grounds on the day before the study lesson. On the day of the lesson, the students will be invited to recall collecting their pine cones. The they will be divided into groups of 3 or 4 and given a bag with the stages of the pine in it (seed, small seedling, pine needles from large tree) to which they will add their pine cone.
The students will be given the opportunity to explore the items before the teacher directs their attention to the board where the students will be guided through the cycle of the pine. A word list for the pine will be generated. Next, the process will be repeated with a daisy, with a seed, seedling, and daisy in the bags. For the application, students will be given cut outs of the stages of both plants mixed together. On a sheet of paper they will sort the stages of the two plants separately.

6. Plan of the Lesson

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<tr>
<td><strong>Invitation</strong></td>
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<tr>
<td>Ask,</td>
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<tr>
<td>• Do you remember seeing the pine cones on the playground?</td>
<td>Group students in 3s and 4s. Have pine cone bags and bags of seeds and seedlings ready to distribute.</td>
<td></td>
</tr>
<tr>
<td>• What is a pine cone?</td>
<td>Have a stack of newspaper handy.</td>
<td>What are the students’ ideas about pine cones?</td>
</tr>
<tr>
<td>Students may respond: flowers from pine trees, something that grows on pine trees.</td>
<td>Accept all ideas.</td>
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<tr>
<td>Ask students to remember the pine trees outside where the collected their cones.</td>
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<tr>
<td>Ask,</td>
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<tr>
<td>• Where do you think the pine trees come from? How do they grow?</td>
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</tbody>
</table>
**Exploration-Pine Tree**

Tell the students to spread out the newspaper so we don’t get the desks dirty.

Tell the one student to open the bags and put the items on the table between everyone.

Let the students examine the materials for 2-3 minutes.

Hold up a seed and ask,

- What is this?

Students may respond: a seed, a bean.

- What grows from a seed?

Tell the students to look at the seedling.

Does anyone know what this is called?

<table>
<thead>
<tr>
<th>Pass out newspaper to each group.</th>
<th>Pass out the bags with pine seeds and seedlings. Assign one student to open and dump out the contents.</th>
<th>Put everything back in the bag and then pull out just the seeds.</th>
</tr>
</thead>
<tbody>
<tr>
<td>What are the students’ ideas about the seeds?</td>
<td>Pull out the seedling.</td>
<td></td>
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</tbody>
</table>

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If students don’t say pine tree, tell them you think it looks a lot like a small pine tree. Point out the roots.

Ask,

- Doesn’t the seed look like it fits inside the cone?

Encourage the students to try it.

Explain that it is a pine seed from the cone. The pine cone holds the seeds until they are ready to fall to the ground.

Pull out the pine cone. Let the students pull it apart.

Hold up a cone and slip a seed in between the bracts.

Do the students connect the seed and the seedling?

**Concept Introduction—Pine Tree life cycle**

Direct the students’ attention to the board.

Ask,

- What does a small pine tree grow into?

If students don’t respond with “big pine tree,” ask what some other familiar baby organism grows into.

Have pine tree life cycle cuts out available.

Write the vocabulary on the board next to the cycle: pine tree, pine cone, pine seed, seedling.
Place the pine tree cut out on the board.

Ask,

- What do you think comes next in the pine tree life cycle?

If students respond “seed” remind them that the seed is held inside something else.

Place the cone cut out on the board and draw an arrow from the tree to the cone.

Say,

- The pine cone is part of a living thing.

Ask the students what comes next until the cycle is complete.

Tell the students that a cycle is like a circle and they can remember that because a bicycle has two wheels, which are circles.

Ask what would happen to the life cycle if one part was “taken away?”

Did the students remember that the seed came out of the cone?

Do the students realize that pine cones are part of a living tree?

Ask the last student in the group to collect the seeds and seedlings and return them to the bag.

Have the bags of daisy, seeds,
| Have you ever helped someone plant a garden? What were your favorite flowers? | and seedlings ready to distribute. |
| Tell the one student to open the bag and put the items on the table between everyone. | Pass out bags and assign one student to open and dump out the contents. |
| Let the students examine the materials for 2-3 minutes. | Put everything back in the bag, then pull out the seeds. |
| Hold up the seed ask, | Do students know that the flower comes from a plant? |
| • What is this? | If students do know “produce” say “made.” |
| • What grows from a seed? | What are the students’ ideas about flowers? |
| Tell the students to pull out the seedling. | |
| Next hold up a seedling. | |
| Say, | |
| • This plant is a daisy seedling. | |
| Hold up the potted plant. | |
Say,

- The seedling will grow into a plant like this. What do you see growing on it?
- Let’s look at a flower.
- Now pull out your flower.

Remind the students by asking:

- Do you remember where pine seeds came from?

Next tell the students to look closely at the daisy and the daisy seeds for a minute, then ask,

- Where are the daisy seeds made?

If the students do not know, draw their attention to the center of the flower.

Tell them that when the daisy is ready, the small bumps in the center become seeds.

<p>| Concept Introduction-Daisy | Have daisy life cycle cut outs | Cut off a flower. |</p>
<table>
<thead>
<tr>
<th>Direct the students’ attention to the board.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ask,</td>
</tr>
<tr>
<td>• What does a daisy seed grow into?</td>
</tr>
<tr>
<td>Place the daisy seed cut out on the board.</td>
</tr>
<tr>
<td>Ask,</td>
</tr>
<tr>
<td>• What do you think comes next in the daisy life cycle?</td>
</tr>
<tr>
<td>If students respond “daisy” remind them that the flower needs to grow on something first.</td>
</tr>
<tr>
<td>Place the seedling cut out on the board and draw an arrow from the seed to the seedling.</td>
</tr>
<tr>
<td>Ask the students what comes next until the cycle is complete.</td>
</tr>
<tr>
<td>Tell the students that a cycle is like a circle and they can remember that because a bicycle has two wheels, which are circles.</td>
</tr>
<tr>
<td>How are the daisy and pine life cycles alike and how are they different.</td>
</tr>
<tr>
<td>available.</td>
</tr>
<tr>
<td>Be sure to align the daisy seed in the same place on a circle as the pine seed so that the 4 stages of each will line up.</td>
</tr>
<tr>
<td>Write the vocabulary on the board next to the cycle: seed, seedling, flower, plant.</td>
</tr>
<tr>
<td>Did the students remember that the flower grows on a plant?</td>
</tr>
<tr>
<td>Ask the last student in the group to collect the seeds and seedlings and return them to the bag.</td>
</tr>
</tbody>
</table>
**Application - Make life cycles**

Tell the students that you are going to check that they can make the life cycles of the two living things they explored today.

Pass out the envelopes and paper and instruct the students to pour the contents out onto their paper.

Then instruct the students to,

If the picture is of the pine tree life cycle, put it on the “Pine” side of the paper and if it is from the daisy life cycle, put it on the “Daisy” side.

Tell the students to arrange the pieces into a cycle like you did on the board and glue them to make the daisy and pine life cycles.

Ask,

- How are the pine tree life cycle and daisy life cycle alike?

| Have envelopes with life cycles stages for each student, a glue stick, and hand out with “Pine” and “Daisy.” |
| Circulate making note of the students who worked confidently and those who needed prompting. |
| Are the students having difficulty or is the task easy? If it is difficult, is it with the concepts, or with the gluing? |
| Do the students understand how the cycles are alike? |
7. Evaluation related to overarching research goal (Developing happy, independent learners who are organized and confident in their thoughts and ways)

Do the students share their ideas and observations in their group and the whole class willingly and confidently? Does the teacher accept all reasonable responses to open ended questions?

Do the students enjoy the lesson and are they motivated to engage in all parts of the activity?

Are the students’ life cycles neat and organized? Did they arrange the stages in a circle?

Do the students understand that the life cycles are similar, from seed to adult plant?

Do the students understand that the seeds, flowers, and pine cones are parts of living things?

Do the students understand that the cycle is not complete if all stages are not there?
Title of Study Lesson:  Adding and observing mosquito larvae   Date:  May 8, 2007

1. Title of the Unit:  Aquatic Habitats
   Lesson 1:  Creating the Aquatic Habitat with snails
   Lesson 2:  Adding and observing worms and fish
   Lesson 3:  Adding and observing mosquito larvae (this lesson)

2. Title of the Study Lesson:  Adding and observing mosquito larvae

3. Goal of the Unit:  Lesson 1 - Benchmark SC.G.2.1.1:  The student knows that if living things do not get food, water, shelter, and space they will die.  Lesson 2 and 3 - Benchmark SC.G.1.1.2:  The student knows that plants and animals are dependent upon each other for survival.  For the grade level expectation at second grade, students must understand that there is a dependency between plants and animals that can be shown in a food web.

4. Relationship of local standards to this lesson (Lesson 3):
   Prior Learning Standards:  For this Benchmark, kindergarteners are expected to understand that animals obtain food from plants and other animals and first graders should understand that plants produce oxygen and food for animals, animals can be grouped according to what they eat, and living things are part of a food chain.  This unit prepares the students for higher grades, when they must know how plants and animals interact with one another in an ecosystem, and understand the relationship among organisms in aquatic and terrestrial food chains.

5. Instruction of the lesson:  The students are required to know how different living things depend on each other for survival.  Many students have heard of food chains.  Food webs are more complex and students may not realize that a living thing can have a dependence on more than one other organism.  Also, the fact that death is part of food webs is not readily apparent because they do not know of the existence and role of decomposers.  The lesson is the third in a three-lesson unit from the GEMS series called Aquatic Habitats.  The GEMS guide has been reduced from four activities to three by combining part of Activity 2 with Activity 1 and the rest
of Activity 2 with Activity 3; Activity 4 remains unchanged and is the focus of this study lesson. The study lesson is the fourth one in the GEMS guide, Mosquitoes. Students have spent the prior two lessons creating their aquatic habitats in a 1 ½ gallon tank, adding sand, gravel, structure, plants, and snails (Lesson 1); and adding and observing Tubifex worms and fish (Lesson 2). In the first lesson, the students will see that the basic requirements of life of food, water, sunlight, and shelter are met in their aquatic habitat. They will see that they already have a simple food chain (plant→snail), and learn that there are living things they can’t see in the water called bacteria. In lesson 2 they will have the opportunity to add Tubifex worms and fish to their food chains. They will add and observe each organism and record their observations in drawings and writing. They will add to their food chains, and even begin to see branching. The third lesson will cement the learning through the addition of one more organism. In the study lesson, students will observe and share before adding mosquito larvae to their tanks. After adding, observing, and journaling, they will create a food web and share and discuss as a class. Their food webs will serve as an assessment of their understanding of the interdependence of living things.

6. Plan of the Lesson

<table>
<thead>
<tr>
<th>Steps, Learning Activities, Teacher’s questions, expected responses, and time frame</th>
<th>Teacher’s Support</th>
<th>Points of Evaluation</th>
</tr>
</thead>
</table>
| **Sharing observations of changing habitats** *(approx. 6 minutes)* | **Habitats are on student desks.**  
**Sentence strips are handy.**  
Give a sentence strip to students with a class questions and post it (students may need help completing the question). | **Are students observing the organisms’ interactions and behaviors or are they noticing superficial things?** |
| Observe tanks for 2-3 minutes.  
• Share with your group anything that you see different about your pond habitat.  
Call on a volunteer from each group to share one thing with the whole class. | | |
If no one mentions dead things, ask
- Has anything sunk to the bottom?
- What happens to decaying waste?

Look at class list of questions to see if any can be answered.

<table>
<thead>
<tr>
<th><strong>Observing mosquito larvae and pupae in cups</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Raise your hand if you have ever been bitten by a mosquito.</td>
</tr>
<tr>
<td>• Before they become adults and fly around, mosquitoes start out life in an aquatic habitat like a pond.</td>
</tr>
<tr>
<td>• Each of you will get a cup with young mosquitoes in it. Compare yours to others in your group.</td>
</tr>
</tbody>
</table>

Ask for volunteers to describe and compare their mosquitoes.

Ask

| Prepare cups with 3-4 larvae and pupae in each student’s cup (4 cups per tank). |
| Do not allow stories, but calm the class quickly. |

Use a tray to pass out cups quickly. Allow about 5 minutes for students to observe, then regain their attention.

Do students make connections mosquito movement and its survival?
- How do your mosquitoes move?
- How do you think this helps them survive?

Students may respond: to catch food, to keep from sinking, to get away from something trying to eat it.

Introduce the wiggling ones as larvae, and the tumbling ones are pupae.

Briefly explain the life cycle, using the chart.

Females lay eggs on the surface of still water, larvae hatch out of the eggs, the larvae change into pupae (like caterpillars change into a chrysalis), and the pupae change into an adult (like the chrysalis changes into a butterfly).

| Adding mosquito larvae and pupae to aquatic habitats (approx. 15 minutes) | Write “larvae” on board. |
| Do not allow students to | Write “pupae” on board. |
| | Post the life cycle on chart paper. |
| Are the students familiar with insects that start out in water, similar to the frog life cycle? |
Ask for volunteers to predict what will happen when they add mosquitoes to the aquatic habitat.

Students may respond: they will hide like the worms, the fish will try to eat them, the larvae will swim away and the pupae will flip around.

Ask one student from each group to carefully remove the lid from their tank.

Ask each student one at a time to slowly pour their cup into the tank while everyone observes.

Ask one student in the group to replace the lid on the tank.

Have the students continue to observe their tanks. While they are observing, they should draw their tanks on a new journal page with their mosquito larvae and pupae in them, and write down what they observed and what they predict will happen next.

Remind them to be quiet and take out their observation journals.

Give each student a number (1 through 4) and call them by number. After each cup is added, have the students observe for about 30 seconds.

Listen to the quality of the students’ comments as they observe their tanks.
<table>
<thead>
<tr>
<th>Have each group organize the organisms into a food web or chain. Then have them write the web (using just the names) in their journal.</th>
<th>Pass out organisms cut-outs. Circulate to find groups that have different webs to share later.</th>
<th>Do the groups arrange the organisms easily, or do they have difficulty determining the relationships? Do they know the difference between chain and web?</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Discussing observations and introducing food webs. (approx. 15 minutes)</strong></td>
<td>Have the students gather near the board for a discussion. Later collect the tanks and put them in the place you have prepared for them.</td>
<td>Have the food chain charts and cut outs handy.</td>
</tr>
<tr>
<td>Ask students to quickly and quietly gather for a class discussion, bringing their journals with them.</td>
<td>Ask for two or three groups of students to attach and explain their food “webs” on the board, using the cut outs of the organisms.</td>
<td>How many students make statements about a specific food chain?</td>
</tr>
<tr>
<td>If students draw chains, point out that more than one can be correct.</td>
<td>Show how several chains can be linked into a branch, or web.</td>
<td>o all of the students understand the direction of the arrow?</td>
</tr>
<tr>
<td>Ask,</td>
<td></td>
<td>Do students understand that animals can eat plants</td>
</tr>
<tr>
<td>Why is it important to have a plant in the tank?</td>
<td>cut outs to show the relationship. Draw arrows from the food to the animal.</td>
<td>or other animals, or both?</td>
</tr>
<tr>
<td>What does each living thing in the tank eat?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Ask,

- What eats the fish in your habitat?

Students may respond that nothing eats the fish, or that the mosquitoes will bite the fish when they become adults.

Explain that

- If the fish dies, the tiny bacteria in the water and the worms will help decompose the fish to release nutrients that plants can use. Livings things that do this are called decomposers.

Ask,

- What eats the snails in your habitat?

Students may respond that the worms and bacteria will eat the snails if they die. If not, Add an arrow from the fish to the worm.

Add an arrow from the snail to the worm.

Do the students understand that something that decomposes is called a decomposer?

- or other animals, or both?
| point out that it works the same way as the fish. |
| Show how the arrows are beginning to form a web. Explain that, |
| • A food web shows how the living things in a habitat are interdependent and rely on each other for survival. It is very important to make sure that the web is not broken. |
| Ask, |
| • What could happen if some of the parts of a food web are removed? |
| Students may respond: it will fall apart, some other animals may die, the animals might have to find something else to eat. |

**Assessment: transfer knowledge to other organisms (approx. 5 minutes)**

Allow students to fix their webs if they want.

Do students see the “interdependence” of organisms? That there is a plant (producer), consumer (animal that eats plants and/or animals), and decomposers (breaks down dead organisms and animal by-products)?

Use the students’ food webs constructed using the cut out organism to determine whether students understand that there is a dependency between plants and animals that can be shown in a food web.
7. Evaluation related to overarching research goal (Developing happy, independent learners who are organized and confident in their thoughts and ways)

Do the students keep their observation journals organized? Do they draw their tanks with details? Are their written observations thorough?

Do the students share their ideas and observations in their group and the whole class willingly and confidently? Does the teacher accept all reasonable responses to open ended questions?

Do the students enjoy the lesson and are they motivated to engage in all parts of the activity?

Do students understand the difference between a food chain and a food web?

Do students understand that a food web has plants and animals, and organisms that can decompose dead or non-living material?
APPENDIX E

2006-2007 Introductory Workshop Agenda

Sealey Lesson Study Group
August 30, 2006
Agenda

3:30 Introductions

3:35 Ask teachers to think about how they want to improve their own practice? In which content area/standard is there room for improvement in student learning?

3:40 Introduce the phases of lesson study using lesson study cycle overheads (p. 4, 5, 9, 13, 17) and lesson plan templates, and sample lesson plans. Begin with the plans from 100 kg and Night & Day.

4:10 Introduce teachers to bulletin board at http://phpbb.bio.fsu.edu/ and register them. Show the video Can You Lift 100 Kg? while teachers are registering.

4:25 Set meeting times for each group

4:30 Adjorn
APPENDIX F

Fall 2006 Interview Guide

1. To what extent has the lesson study process helped your ability to decide how to more effectively teach children in your class? Please give an example.

2. Did the process of lesson study improve your ability to assess how much students understood during the lesson? If it did, can you give an example? If it did not, please explain why not.

3. Have you developed any new instructional strategies as a result of your participation in lesson study? If so, please describe them.

4. To what extent did lesson study empower you to assess your students’ learning informally and determine their areas of weakness?

5. To what extent has lesson study empowered you to make the necessary improvements in your teaching to improve student learning in your classroom?

6. Was lesson study an effective form of professional development?

7. Was the lesson study process appropriate for enabling you to grow professionally?

8. To what extent do you feel it necessary to improve or adapt on the lesson study process to make it more appropriate for your school, classroom, and personal context?

9. What do you see as the main values for engaging in teacher-led professional development?

10. To what extent do you feel more or less empowered to determine the course of your own professional growth as a result of lesson study?
APPENDIX G

Office of the Vice President For Research
Human Subjects Committee
Tallahassee, Florida 32306-2742
(850) 644-8633 • FAX (850) 644-4392

APPROVAL MEMORANDUM

Date: 10/6/2006

To:
Robin Smith
MC 1100

Dept.: BIOLOGICAL SCIENCE

From: Thomas L. Jacobson, Chair

Re: Use of Human Subjects in Research
Lesson Study: Effective Teacher Professional Development and Empowerment
Evaluation for Improving Classroom Practices

The forms that you submitted to this office in regard to the use of human subjects in the proposal referenced above have been reviewed by the Human Subjects Committee at its meeting on 9/13/2006. Your project was approved by the Committee.

The Human Subjects Committee has not evaluated your proposal for scientific merit, except to weigh the risk to the human participants and the aspects of the proposal related to potential risk and benefit. This approval does not replace any departmental or other approvals which may be required.

If the project has not been completed by 9/12/2007 you must request renewed approval for continuation of the project.

You are advised that any change in protocol in this project must be approved by resubmission of the project to the Committee for approval. The principal investigator must promptly report, in writing, any unexpected problems causing risks to research subjects or others.

By copy of this memorandum, the chairman of your department and/or your major professor is reminded that he/she is responsible for being informed concerning research projects involving human subjects in the department, and should review protocols of such investigations as often as needed to insure that the project is being conducted in compliance with our institution and with DHHS regulations.

This institution has an Assurance on file with the Office for Protection from Research Risks. The Assurance Number is IRB00000446.

cc: Peter Easton
HSC No. 2006.0792
Office of the Vice President For Research
Human Subjects Committee
Tallahassee, Florida 32306-2742
(850) 644-8633  FAX (850) 644-4392

REAPPROVAL MEMORANDUM

Date: 9/7/2007

To:
Robin Smith
MC 1100

Dept.: BIOLOGICAL SCIENCE

From: Thomas L. Jacobson, Chair

Re: Reapproval of Use of Human subjects in Research:
Lesson Study: Effective Teacher Professional Development and Empowerment
Evaluation for Improving Classroom Practices

Your request to continue the research project listed above involving human subjects has been approved by the Human Subjects Committee. If your project has not been completed by 8/14/2008 please request renewed approval.

You are reminded that a change in protocol in this project must be approved by resubmission of the project to the Committee for approval. Also, the principal investigator must report to the Chair promptly, and in writing, any unanticipated problems involving risks to subjects or others.

By copy of this memorandum, the Chairman of your department and/or your major professor are reminded of their responsibility for being informed concerning research projects involving human subjects in their department. They are advised to review the protocols of such investigations as often as necessary to insure that the project is being conducted in compliance with our institution and with DHH regulations.

Cc: Peter Easton
HSC No. 2007-622-R
Lesson Study: Effective Teacher Professional Development Research Project

Dear Teacher,

I am a graduate student in Program Evaluation and Policy Studies in the Florida State University's Department of Educational Leadership and Policy Studies in the College of Education. I am conducting a research project in conjunction with my dissertation. The goal of the project is to determine the effectiveness of Japanese Lesson Study as teacher professional development and in empowering teachers to determine their own methods to improve classroom practice. Results of the research may be used as justification to disseminate Lesson Study to other schools in Leon County. You have been asked to participate in the study because of your recent experience with Lesson Study at [redacted].

Your participation in the research project involves the completion of one or two 30 to 60 minute audio taped interviews, video taped observations of Lesson Study research lessons in which you participate, and participation in one two-day workshop in June 2007. Your participation in the study is completely voluntary; you may continue to engage in Lesson Study whether you participate in the study or not. You may withdraw from the study at any time. The research results may be published, but your real name will not be used. There are no foreseeable risks if you agree to participate in the research.

All audio and video tapes will be transcribed for the purpose of analysis of the effectiveness of Lesson Study as professional development. They will remain confidential to the extent allowed by law and kept in a locked cabinet in my office. The tapes will be destroyed one year after the results of the study have been analyzed, or by April 30, 2009. Data attributable to you will only be identified using a pseudonym.

Although there may be no direct benefit to you, the possible benefit to your participation is contributing to the body of knowledge on the use of Japanese Lesson Study in the United States, and [redacted] in particular. Any questions you have about the research can be addressed to me at smith@bio.fsu.edu, or 850-644-1142, or to Dr. Linda Schrader, lschrade@mailer.fsu.edu or 850-644-8780.

Sincerely,

Robin R. Smith

I ______________________ have read the above informed consent. I understand that I will be tape recorded and/or videotaped by the researcher. I understand that these tapes will be kept in a locked cabinet, only the researcher will have access to them, and they will be destroyed by April 30, 2009. I understand that I may withdraw my consent and discontinue participation at any time without penalty. In signing this consent form, I am not waiving any legal claims, rights or remedies. A copy of this consent form will be given to me.

Subject’s Signature ______________________ Date ______________________

If you have any questions about your rights as a participant in this study, contact the Chair of the Human Subjects Committee, Institutional Review Board, in the FSU Office of Research at (850) 644-8633.
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Guilford Press.


explorations in empowerment theory: An empirical analysis of psychological 
BIOGRAPHICAL SKETCH

Robin Rudd Smith

Personal Data

Address: 696 Litchfield Road, Tallahassee, Florida 32312
Married to Kenneth N. Smith since 1987; two sons, Drew (16) and Reed (11)

Education

   Major Professor: Dr. Kenneth Tobin, Professor, Department of Curriculum and Instruction

Professional Interests

K-12 Science Curriculum and Instruction
Science Teacher Education
Program Evaluation

Professional Experience

Assistant Director, Office of Science Teaching Activities, 1999-present. Supervisor: Ellen Granger, Department of Biological Science, FSU.

Coordinator of Academic Programs, February 1993-1999. Supervisor: Ellen Granger, Department of Biological Science, FSU.
Presentations


Professional Service


Professional Memberships

American Evaluation Association
Southeast Evaluation Association
National Science Teachers Association

Community Service

Boy Scouts of America, Suwannee River Area Council, Den Leader, Pack 1 Sealey Elementary School. 2003-present.


References

Dr. Ellen Granger, Director, Office of Science Teaching Activities, FSU.
Dr. William Herrnkind, Professor, Department of Biological Science, FSU.
Dr. Joseph Travis, Dean, College of Arts & Sciences, FSU.