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Examining Reflective Practice Through Lesson Study

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ABSTRACT

EXAMINING REFLECTIVE PRACTICE THROUGH LESSON STUDY

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Northern Illinois University, 2020
Mary Beth Henning and William Pitney, Co-Chairs

The purpose of this qualitative study was to examine a team of elementary teachers' reflective practice through lesson study. The study focused on how three first-grade teachers described their reflective practice during and after lesson study and how they reflected-in, -on, and -for-action during three lesson studies. The teachers each participated in four individual interviews, three stimulated recall interviews, and observations during the lesson studies when they taught research lessons and engaged in post-lesson discussions.

Data from the interviews and lesson study observations were analyzed using qualitative methods and through the lens of Schön's theory of reflection. Ten sub-themes were collapsed to identify four major themes: 1) the power of peers during lesson study, 2) reflecting on unexpected classroom events during lesson study, 3) initiating action steps after lesson study, and 4) questions drive reflections during and after lesson study.

Five key findings emerged from the study: 1) Teachers' reflective practice is supported through participation in a series of lesson studies that include the critical components of Japanese lesson study. 2) Peers serve as models of reflective practitioners in lesson study. 3) Teachers' reflective practice is facilitated by questions that are both the same and different than those asked in lesson study debriefs. 4) Teachers reflect-in and -for-action when they observe surprises in the

midst of instruction during the research lessons. 5) Teachers reflect-on and -for-action when they study the effects of planned instructional strategies and adjustments made in the midst of instruction. Limitations include the size of the case, possible response bias, the make-up of the population, the dynamic of the group of participants, and the skillset of the facilitator and knowledgeable other. Recommendations for the field and for future research are also presented.

NORTHERN ILLINOIS UNIVERSITY
DEKALB, ILLINOIS

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EXAMINING REFLECTIVE PRACTICE THROUGH LESSON STUDY

BY

AMANDA WOJCIK
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Doctoral Co-Directors:
Mary Beth Henning and William Pitney

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DEDICATION

For my husband, Lance, and my children: Carson, Lila, and Stone

Live and lead with honesty, integrity, and drive

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CHAPTER 1

INTRODUCTION

Reflection is a powerful tool for enhancing the instructional practice of teachers, and since the 1990s, research continues to support the notion that teachers who reflect on their practice are more likely to change practice to better meet the needs of the students in front of them (Loughran, 2002; Osterman & Kottkamp, 2004; Reagan, Case, & Brubacher, 2000). There are many skills and dispositions deemed necessary for teachers to provide effective instruction; however, according to Hall & Simeral (2008), “The skill of self-reflection transcends all other skills, strategies, and teaching approaches because it can grow over the course of a teacher’s career and enable the teacher to cultivate and solidify all of his or her professional learning” (p.38).

There are many professional learning designs aimed to ultimately improve student achievement through the development of reflective practice. One learning model is known as lesson study, and it exemplifies qualities Darling-Hammond and McLoughlin (2011) described to define effective professional development. These qualities include 1) a foundation in inquiry and 2) reflection and experimentation.

Often called a lesson study cycle because of the ability to repeat the model over the course of time, it focuses on planning, observing, and reflecting on research lessons through discussion that centers around student evidence and determining implications for future teaching and learning experiences (Lewis, 2008). According to Chokshi and Fernandez (2004), when

teachers engage in the formal process of a lesson study cycle, they begin to carry an informal lesson study mentality into their daily practice. An informal lesson study mentality describes how teachers begin to view their lessons with a researcher lens, using student evidence to reflect upon the effectiveness of the instruction and to inform future action steps (Kriewaldt, 2012).

This research study aimed to uncover how teachers describe their reflective practice through engagement in a lesson study cycle. Lesson study provides a structured context in which to reflect -in, -on, and for-action. Teachers' reflective practice in lesson study was examined through the lens of the theoretical framework, detailed in the following section.

Theoretical Framework

The framework for this study is drawn from the theories of Schön (1983, 1987) and Killion and Todnem (1991). Together their work defines three types of reflection. Schön's theory of reflection focuses on reflection-in-action and reflection-on action. Killion and Todnem's theory uses Schön's work as its base and extends it to include reflection-for-action. The union of these two theories provides a context for discussion of elementary teachers' experiences with reflective practice through their engagement in lesson study cycles.

Schön

Schön's (1983, 1987) theory of reflection grew out of studying professionals such as doctors, architects, and lawyers, recognizing that reflection was embedded into their everyday practice as response to problematic situations. Schön's theory categorizes reflection in two ways: reflection-in-action and reflection-on action. On the occasion that a normally routine occurrence in practice elicits some kind of surprise, a practitioner could employ reflection-in-action,

reflection-on action, or simply ignore it. Reflecting-in-action occurs when a practitioner stops in the moment to think and reframe the problem that has presented itself in the form of surprise. In other words, knowledge gained from previous situations will not work in the current situation so the practitioner must reflect in the moment to determine what will work best for the unique event.

Conversely, should a practitioner wait until after the fact to think back to hypothesize about the unexpected action or response, she/he is engaging in reflecting-on action. Reflecting-in-action requires a constructivist view of the situation (Schön, 1987). Practitioners are positioned to construct both situations and personal theories. They construct situations when they reflect-in-action and frame and reframe problems. They construct personal theories when they design their actions based on the strategies, assumptions, and values that shape their behavior.

It is Schön's (1983, 1987) concepts of framing and reframing problems that serve as the foundation for practitioners' reflecting-in and -on action. When a problem of practice presents itself, practitioners frame the problem by determining a course of action. They will not know what the solution is at the time and will most likely discover more problematic situations while calling on personal theories and knowledge to solve the problem. It is this process of reflecting-in and -on practice that Schön believes results in improved practice. Schön (1983) refers to the reflective practitioner as a "researcher in the practice context" (p. 68). In this way, she/he calls on personal theories and constructs new theories as she/he responds to a puzzling situation with the intention of making a change. This continuous refinement of practice through responding to surprising situations by reflecting-in and -on action can become habitual (Schön, 1987).

Killion and Todnem

Killion and Todnem (1991) extended Schön's (1983, 1987) work by including a third type of reflection, known as reflection-for-action. While reflection-in and -on action are considered reactive in nature, reflection-for-action is considered proactive as it guides future actions (Reagan et al., 2000). Killion and Todnem (1991) consider reflection-for-action the desired outcome of reflection-in-action and reflection-on action. They contend the purpose of engaging in reflection is not merely to revisit past experiences or become aware of one's metacognitive processes, but more practically, to determine a course of action for upcoming events.

Merging Schön's and Killion and Todnem's theories of reflection allows for a discussion of teachers' experiences with reflective practice to span past, present, and future endeavors simultaneously. Opportunities for all three types of reflection exist within a lesson study, specifically during the research lessons and the lesson study debriefing sessions. For example, surprising situations can arise during the research lesson, affording the practitioner opportunities to enact reflection-in-action. Debriefing sessions occur after each research lesson is taught. During these reflection sessions, the team uses the data collected from observing the research lesson to reflect-on action. Subsequently, the team revises the research lesson in response to their reflections and in preparation for teaching it in another classroom. Thus, the team is reflecting-for-action.

Problem and Purpose Statements

Reflective practice is repeatedly linked to teacher effectiveness in the literature (Corcoran & Leahy, 2003; Disu, 2017; Leahy & Corcoran, 1996; Stronge, 2018). Effective teachers continually engage in self-reflection and analysis, viewing themselves as students of learning. They engage in intellectual curiosity about teaching, studying classroom experiences to improve practice (Stronge, 2018).

Reflective practice requires individuals to develop a critical lens. Although analysis may occur individually, there is greater power in reflection when practiced in a collegial setting where one's observations, assumptions, and interpretations are shared openly with the group (Osterman & Kottkamp, 2004). It is essential that educators continue to find ways to foster reflective practice individually and collaboratively to maintain effective instruction.

One learning model involving reflection as a major component is known as lesson study. Lesson study is a professional learning model that engages teachers in facilitated reflection. This design allows for a team of teachers to work together to observe a research lesson, take detailed notes to later use to reflect on the lesson, and provides opportunity for lesson adjustments before another teacher teaches the research lesson (Lewis, 2008).

Although there is a large body of case study research focused on teachers' content knowledge and beliefs while engaging in lesson study (Hart & Carriere, 2011; Lewis, Perry & Hurd, 2009; Meyer & Wilkerson, 2011; Moss, Hawes, Naqvi & Caswell, 2015; Olson, White & Sparrow, 2011; Takahashi, 2011; Tepylo & Moss, 2011), there is limited research linking reflection and lesson study.

The purpose of this study was to explore a team of elementary teachers' reflective practice through their engagement in lesson study. The lack of research on lesson study as a means of developing elementary teachers' reflective practice leaves a gap in understanding how teachers can become more reflective educators.

Research Questions

The research study was framed by these research questions:

1. How do elementary teachers describe their reflective practice while engaging in lesson study?
2. How do elementary teachers describe their reflective practice after engaging in lesson study?
3. How do elementary teachers reflect-in, -on, and -for action while engaging in lesson study?

Significance of the Study

Becoming a reflective practitioner is described as a long and difficult process, requiring time and experience. Judith Irwin (1987) describes the reflective practitioner in this way:

A reflective/analytic teacher is one who makes teaching decisions on the basis of a conscious awareness and careful consideration of 1) the assumptions on which the decisions are based and 2) the technical, educational, and ethical consequences of those decisions. These decisions are made before, during and after teaching actions. (p. 6)

Irwin's definition aligns with Schön's (1983, 1987) theory of reflection that includes reflection-in and -on action, as well as Killian and Todnem's (1991) reflection-for-action.

Reagan et al. (2000) contend every teacher at every stage of their career should aspire to become a reflective practitioner, as it is through making the effort to become reflective that one can be described as a good teacher. Strengthening the reflective practice of teachers has the potential to benefit both teachers and students. Engagement in reflective practice may empower teachers and serves as a tool for individual teachers to improve their practice on a path to becoming more proficient and thoughtful practitioners (Zeichner & Liston, 1996).

The lesson study model engages teachers in three types of reflection: -in, -on, and for-action and has the capacity to develop a lesson study mentality in daily classroom practice. A lesson study mentality refers to the application of components of the lesson study cycle within daily instruction. For example, a teacher with a lesson study mentality may spend more time anticipating student responses (Murray, 2014). When considering the components of lesson study, it is possible teachers may engage in the three types of reflection within daily practice to make decisions. When considering the depth and breadth of curriculum, students benefit when teachers utilize reflection to make decisions regarding how students will best access the curriculum, the best instructional strategies to use, and changes to make to the classroom environment and learning design. Ultimately, student learning improves through changed practice as a result of enhancing reflective practice.

This study aims to enhance teacher effectiveness across all domains by focusing on the instructional decision-making necessary to meet the needs of all students. Research (Dewey, 1933; Osterman & Kottkamp, 2004; Reagan et al, 2000; Zeichner & Liston, 1996) identifies the development of reflective practice as an essential component in the role of an educator. Therefore, understanding the role reflection plays within lesson study provides opportunities to inform professional development programs.

Delimitations

This study focused on one lesson study team comprised of three elementary classroom teachers, one learning facilitator, and one knowledgeable other from a single Illinois school district. The focus was limited to one lesson study team to allow for a comprehensive study of the teachers' experiences, the facilitation of the lesson study cycle, and the resulting outcomes related to teachers' reflective practice. To allow for this thorough investigation of teachers' experiences with reflective practice through engagement in a lesson study cycle, the study was limited to one trimester within one school year. Data were collected from semi-structured interviews, observations, and stimulated recall interviews. There is a possibility of errors resulting from teachers' recall of prior events.

Methodology

This study of how teachers describe their reflective practice during and after engagement in a lesson study was conducted through a qualitative case study. The case included the classroom teachers on the lesson study team: three elementary teachers who teach at the same school in a suburb of Chicago. Data were collected over the course of a trimester of an academic year. A trimester was chosen because it provided the time necessary for the team of teachers to engage in three lesson studies. These three lesson studies are referred to as the lesson study cycle. The cycle commenced at the start of the second trimester. Data were analyzed using open coding, axial coding, and selective coding (Mertens, 2015). Methodological procedures will be explained more explicitly in Chapter 3.

Definitions

The following terms are defined to bring clarity to ideas discussed in this study:

Knowledgeable Other: A specialist on the lesson study team with particular knowledge of the subject matter and serves as a commentator on the research lesson (Lewis, 2008). The knowledgeable other in this research study has an extensive literacy background. She worked as a primary staff developer for Teachers College Reading and Writing Project in New York for two years before becoming a K-5 Literacy Specialist for Chicago Public Schools in 2009. During that time, she also taught reading and writing institutes as part of the Teachers College Reading and Writing Project's professional development system as a literacy consultant. She came to District A (pseudonym) in 2014 to work as an instructional coach. For the past several years she served as an advisor for the Department of Curriculum and Instruction in District A on best literacy practices and played a major role in the creation and facilitation of District A's professional development in literacy.

Lesson Study: A cycle of instructional improvement focused on planning, observing, and discussing research lessons. Implications for teaching and learning are determined and applied to influence instructional practice in a broader sense (Lewis, 2008).

Lesson Study Facilitator: A designated facilitator who brings content expertise and support to the lesson study team. The facilitator is often someone who supports teams with materials and strategies to help the group make progress toward the lesson study goals they identified (Lesson Study Group at Mills College). The lesson study facilitator in this study was an instructional support coach in District A for two years. Previously she was a reading specialist in District A

for two years after serving in the same role for two years in a suburban district in Wisconsin.

Additionally, she earned her PhD in language and literacy development.

Reflection-for-action: The act of generating knowledge to inform future actions through examination of past and present actions (Killion & Todnem, 1991).

Reflection-in-action: Reflection that occurs in the midst of a surprising event when there is still time to make a difference in the situation at hand (Schön, 1983, 1987).

Reflection-on action: Thinking back on an event after the fact to discover how one's knowing-in-action contributed to an unexpected result (Schön, 1987).

Reflective Practice: A process of learning that engages individuals and groups in a critical analysis of problems and examines how individual and collective ideas and action patterns help to cause or maintain these patterns. Systematic observation of practice emphasizing thought, action, feelings, and consequences is integral to the process. Reflective practice depends on careful observation and data-based analysis of practice as well as experimentation with new ideas and new strategies (Osterman & Kottkamp, 2004).

Conclusion

This study is organized into five chapters. Chapter 1 provides an overview of the study and identifies a gap in the research concerning lesson study and teachers' reflective practice. Chapter 2 presents a review of the literature on reflection and lesson study, a professional learning model. An explanation of the research design is found in Chapter 3, and findings from the research are documented in Chapter 4. Chapter 5 concludes with a discussion of the findings and implications for lesson study as a professional learning model to contribute to teachers'

reflective practice. Additionally, recommendations for further research into reflection and lesson study are shared.

CHAPTER 2

LITERATURE REVIEW

The process of becoming a reflective practitioner is ongoing, requiring continuous commitment to growth, change, development, and improvement. Educators on their journey to becoming more reflective practitioners must constantly test the assumptions and inferences they have made about their work and engage in reflective conversations with colleagues, understanding that each individual's actions take place in a context in which other participants may have different interpretations (Reagan et al., 2000).

Lesson study is a professional development model that provides a context for reflective conversation among colleagues. Emanating from Japan, lesson study is a teacher-led process of continuous improvement that involves planning, instruction, observation, reflection, and revisions to the original research lesson based on the observations and reflections made by the lesson study team (Lewis, 2008). Figure 2.1 and the subsequent discussion illustrate the cyclical process of lesson study.

Figure 2.1 depicts the steps in the Japanese lesson study process, showing how a lesson study team works through a cycle of planning, observing, reflecting, and revising. After defining a problem, the team collaboratively plans a lesson to address the problem they have identified. The lesson is often referred to as a research lesson because of the team's intention to research how students respond to the instructional plan. After observing the lesson in action, the team evaluates and reflects on the lesson based on observational evidence collected while a teacher

from the team was teaching the research lesson. The team then plans revisions to the lesson, and another teacher on the team teaches the revised lesson while the others conduct research through observation. This cycle may continue multiple times.

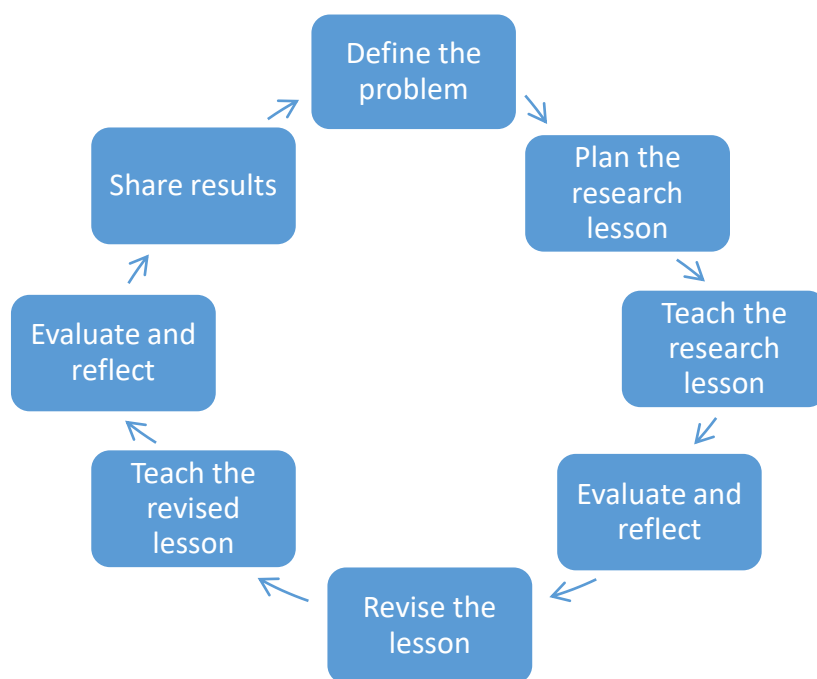


Figure 2.1: Steps in the lesson study process. (adapted from Stigler & Hiebert, 1999)

Lesson study has gained popularity in the US as a result of several published documents. One was the release of the Third International Mathematics and Science Study (TIMSS, 1996/1997 as cited by Stigler & Hiebert, 1999), the third in a series of international studies. Another was a dissertation written by Marikoto Yoshida (1999), whose study greatly informed Stigler and Hiebert's (1999) chapter devoted to lesson study in their book, *The Teaching Gap* (see also Groves, Doig, Garner, Widjaja, & Palmer, 2013). A few years later, the National Staff Development Council released a 2004 publication that contained powerful designs for

professional learning that included lesson study (Yoshida, 2012) as well as an entire publication dedicated to preparing teacher leaders to facilitate lesson study in US schools as a form of professional development (Richardson, 2004). The release of these publications resulted in another surge of lesson study popularity among teachers and administrators (Yoshida, 2012). Lesson study has since become a driving force for professional learning in not only the US but in countries such as the UK, Malaysia, Indonesia, and Australia (Groves et al, 2013).

A large body of case study research has focused on teachers' content knowledge and beliefs while engaging in lesson study (Hart & Carriere, 2011; Lewis et al., 2009; Meyer & Wilkerson, 2011; Moss et al., 2015; Olson et al., 2011; Takahashi, 2011; Tepylo & Moss, 2011). Reflection is an integral component of the lesson study process, although there is limited research linking reflection and lesson study. Therefore, this literature review will focus on the potential benefits of teachers' reflective practice through lesson study. This literature review will be broken into four sections: 1) reflective practice and school reform, 2) Schön's theory of reflection, 3) Schön's theory applied to lesson study, and 4) the history, background, and literature relating to lesson study.

Reflective Practice

The concept of reflective practice has been presented in educational literature for decades (Dewey, 1938; Holborn, 1988; Mezirow, 1990; Reagan et al., 2000; Schön, 1983, 1987; van Manen, 1977; Zeichner & Liston, 1996). Particularly, in the past two decades, educators have increasingly focused on the benefits of reflection. Educational writing expanded the understanding of reflection by trying to define it, situate it within professional learning contexts, and qualify it in different ways. A conceptual understanding of reflective practice is essential to

explore its place in school reform and professional development. Osterman and Kottkamp (2004) describe reflective practice as “a way for educators to search for ever-improved ways to facilitate student learning” (p. 1), based on the premise that change within an organization must begin with the individual teacher. As a result of decades of failed external reform, reflective practice has emerged as an educational reform aiming to approach change from the inside.

A sense of powerlessness among educators has been a result of the external approach to school reform (Fullan, 1993, 2007; Sarason, 1990). Educators are expected to follow through on the implementation of others’ supposed solutions to complex problems, being told what to do while excluding a deep understanding of the desired change and how to do it (Elmore, Peterson, & McCarthy, 1996; Osterman & Kottkamp, 2004). These efforts are deemed “limited and misguided” (Fullan & Hargreaves, 1996, p. 16) due to the ignorance of essential components of learning. Coupled with the rapid pace of continually changing mandates, educators succumb to a recognition that each of these external directives shall soon pass, failing to make lasting change (Cuban, 1984; Tyack & Tobin, 1994; Tyack & Cuban, 1995).

Where school reform, through mandates, accountability measures, and organizational change has failed due to its intention to fix problems through externally developed actions, reflective practice offers a different avenue to school reform. Reflective practice takes into account what external reform has failed to do; for schools to change, educators have to change (Brookfield, 2017; Hargreaves, 1994; Osterman & Kottkamp, 2004).

John Dewey’s (1933, 1962) ideas about reflective teaching sparked a number of educators and scholars to engage in this field of research throughout the 1970s and 80s (Feiman, 1979; Korthagen, 1985; Tom, 1985; Zeichner & Liston, 1987). Reflective teaching requires a teacher to engage in reflection as a series of phases rooted in scientific inquiry. According to

Dewey, the process of reflection includes observing an experience, making a spontaneous interpretation of the experience, identifying a question or problem as a result of the observation, generating possible explanations for the problem, developing a hypothesis, and taking action to test the selected hypothesis. He contends stopping one's thought process prior to generating possible explanation, developing hypotheses, and testing such hypotheses is irresponsible.

Not only does Dewey (1933) describe reflection as a series of phases of thought, but he also sees reflection as a set of attitudes. The attitudes or dispositions that a practitioner brings to reflection can either open up opportunities to learn or put up barriers. To engage in reflective teaching that includes all phases of reflection, teachers must commit to growth and bring an attitude of open-mindedness to their experiences, including what is observed in the classroom setting.

Parallel, but in contrast, to Dewey's ideas, during the 1970s and 80s, competency-based teacher education and performance-based teacher education movements were gaining traction (Clift, Houston, & Pugach, 1990). Advocates of these movements employed an operationalized rationalized thought process, conducted research, and implemented practice. Clift et al. noted Dewey's concept of reflective teaching was inquiry-based, a stark opposition to the positivist ideals of competency-based teacher education (CBTE) that came about in response to calls for accountability. CBTE assumes there is a set of correct behaviors that teachers should develop, whereas Dewey's (1904, 1933) ideals assume that professionals are thoughtful about their work as it relates to a set of principles. He does not prescribe to the belief that educators should follow particular methods deemed good and avoid those deemed bad. Instead he is more concerned with the development of intellectual curiosity within practitioners. Intellectual curiosity refers to the interest one takes in finding out for oneself answers to questions that arise due to interactions

with people and/or objects. Engaging in intellectual curiosity is in absolute contrast to following a set of prescribed behaviors.

Both competency-based teacher education and reflective teaching came about in part due to the types of predominant research going on at the time. In the mid-1970s, large-scale studies linked particular teaching behaviors with student learning. Gains on standardized achievement tests served as the basis for measuring the relationship between teaching behaviors and student learning. In the late 1970s, qualitative research methods became more widely accepted, providing opportunities for researchers to explore the teaching-learning process as they related to teachers' beliefs and understanding (Clift et al., 1990).

Donald Schön released his book, *The Reflective Practitioner*, in 1983, and his follow-up, *Educating the Reflective Practitioner*, in 1987, and subsequently, reflective practice became a popular topic in articles and education conferences. Schön provided an argument against the positivist ideals that produced CBTE, instead calling for an epistemology of practice that positioned educators to call on the intuition they brought to situations that were uncertain. This was a far cry from the ideas that a prescribed set of teaching behaviors could be developed and employed, thus causing gains in student learning.

Schön's Theory of Reflection

Schön's (1983, 1987) theory of reflection grew out of his rejection of technical rationality, the predominant model of professional knowledge in the first half of the 20th century. Technical rationality is a positivist epistemology of practice that contends professional knowledge, also called professional competence, results in the application of scientific theory and technique to solve identified problems of practice. Technical rationality emphasizes problem

solving grounded in systematic scientific knowledge and excludes the practice of problem setting inherent in real-world practice. The limitations of technical rationality center on the uncertainty, instability, complexity, and uniqueness of actual professional practice (Schön, 1983).

Schön (1983) believes the model of technical rationality is incomplete due to its failure to account for practical competence in divergent situations. According to Schön (1983), problems do not typically present themselves, but must be constructed from those situations that are uncertain or surprising. Even when problems are identified, they may defy categories of applied science due to their uniqueness. Instead, Schön argues for an epistemology of practice rooted in the artistic and intuitive processes practitioners bring to what he calls indeterminate zones of practice, or those problems of practice with ambiguous ends.

Instead of aligning with technical rationality, Schön (1983, 1987) uses the term “professional artistry” in reference to the competence professional practitioners bring to indeterminate zones of practice (p.22). He championed for a theory of practice that married intuition with cognitive processes to set and solve complex problems. Rather than relying on research-based theory to solve problems, practitioners who employ his theory of reflection make new models of a problematic situation as they see and learn by doing. The reflective practitioner steps into the situation to perform experiments in the moment to respond to surprises and challenges of which she/he has become aware (Schön, 1987).

Schön’s (1983) theory of reflection grew out of studying professionals such as doctors, architects, and lawyers. He recognized that they were reflective practitioners who embedded reflection in their everyday practice. Reflection was not necessarily an isolated activity, but it happened in response to problematic situations that occurred in practice. In other words, their practice and reflection were difficult to separate. Schön’s (1983, 1987) theory requires

practitioners to differentiate between what he calls “knowing-in-action” and “reflecting-in-action” (p. 25, 26). Knowledge-in-action is the professional knowledge that practitioners use and is grounded in Michael Polanyi’s (1966) phrase “tacit knowledge,” (p. 4) referring to practitioners’ abilities to know more than they can tell. The process of knowing happens so quickly and has become an unconscious or internalized process, making it difficult for one to articulate what it is he knows and how he knows it. These attempts to do so, also called constructions, refer to such activities that are continuous and dynamic (Schön, 1987). In other words, the knowing is in the action, void of a conscious decision to stop and think about what is happening, why it is happening, and hypothesizing about what would change the situation. On the occasion that something that is routine in practice elicits some kind of surprise, a practitioner may simply ignore, reflect-in-action, or reflect-on-action (Schön, 1987).

Should a practitioner wait until after the fact to think back to hypothesize about the unexpected action or response, she/he is engaging in reflecting-on-action (Schön, 1987). Conversely, reflecting-in-action causes a practitioner to stop and think in the moment to reframe the problem that has presented itself in the form of surprise. In an elementary classroom, a surprise may come in the form of a student discovering an alternate solution to an engineering design problem or conveying a misconception.

Where technical rationality is built on objective views, reflecting-in-action requires a constructivist view of the situation (Schön, 1987). Practitioners are positioned to construct both situations and personal theories. They construct situations when they reflect-in-action and frame and reframe problems. They construct personal theories when they design their actions based on the strategies, assumptions, and values that shape their behavior.

It is Schön's (1983, 1987) concepts of framing and reframing problems that serve as the foundation for practitioners' reflecting-in and -on action. When a problem of practice is set, practitioners frame the problem by determining a course of action. They will not know what the solution is at the time and will most likely discover more problematic situations while calling on personal theories and knowledge to solve the problem. It is this process of reflecting-in and -on practice that Schön believes results in improved practice. Schön (1983) refers to the reflective practitioner as a "researcher in the practice context" (p. 68). In this way, she/he calls on personal theories and constructs new theories as she/he responds to a puzzling situation with the intention of making a change.

Posing powerful questions supports the reflective practitioner to think in action. While responding to surprising situations, a practitioner may ask questions to reflect on their thinking while acting in the moment. This, according to Schön (1991), creates truly reflective practitioners. This continuous refinement of practice through questioning and responding to surprising situations can become habitual (Schön, 1987).

Schön's Theory Applied to Lesson Study

Schön (1987) contends that competent professional practitioners are not limited to generating new knowing-in-action from the professional knowledge taught in university-based professional schools. Instead, practitioners are able to generate new knowing-in-action through reflection-in-action that takes place in indeterminate zones of practice, or when surprising events are experienced. Drawing from Schön's theory of reflection, lesson study is a professional development model that provides a forum for teachers to engage in reflection-in-action themselves as well as observe fellow practitioners as they engage in reflection-in-action. Because

of the debrief sessions that follow the teaching experience, reflection-on-action is an embedded element of lesson study. The cyclical nature of lesson study requires the team of teachers to revise the lesson and teach it to a new group of students, essentially engaging in reflection-for-action, a phase of reflection Killion and Todnem (1991) describe as an extension of Schön's theory of reflection. Where reflection-in and -on action can be considered reactive in nature, reflection-for-action can be considered proactive as it guides future actions (Reagan et al., 2000). Killion and Todnem consider reflection-for-action the desired outcome of reflection-in-action and reflection-on-action. They contend the purpose of engaging in reflection is not merely to revisit past experiences or become aware of one's metacognitive processes, but more practically to determine a course of action for upcoming events.

When a team of teachers engages in lesson study, they first identify a problem prior to working through the four phases of implementation that make up lesson study. These include collaborative planning and goal setting, observations of lessons, reflection of the lesson utilizing observation notes and collected student evidence, and lesson revisions and goal setting for the next lesson study cycle (Doig & Groves, 2011). Once a problem is defined, a collaborative group of teachers plan the research lesson with the goal to understand both why and how the lesson has the potential to result in greater student learning (Stigler & Hiebert, 1999). The team of teachers then begins the process of teaching and reflecting, which results in revisions to the initial research lesson. Both the observation of the teaching of the research lesson as well as the reflection sessions that ensue serve as reflective practicums, where design is the focus, and relationships among the team of teachers matter.

Lesson study reflects fundamental themes of interdependence, emphasis on continuous effort, and practice of critical reflection inherent in the model. In its truest sense, it can be

thought of as a model that thrives in a reflective practicum. Teachers learn by designing and facilitating learning in actual classrooms. Then they make changes based on their reflections and collected student evidence.

Not only are classroom teachers part of the lesson study process, but so is a facilitator to support the team in participating in post-lesson discussions. Sometimes referred to as the “discussion chairperson” (Lesson Study Alliance), the facilitator’s role is to support the teachers’ free-flowing discussion using data collected during the research lesson. While not a discussant, the facilitator supports the team’s reflection-on-action by summarizing key points, connecting ideas, and posing questions.

A skilled facilitator will pose carefully constructed questions during the lesson study debrief, creating opportunities for teachers to reflect out loud. This allows colleagues to hear their peers’ reflections and respond in meaningful ways. At times, a peer may prompt another to elaborate on ideas through follow-up questions or the facilitator may do so, modeling this component of reflective questioning. The questions posed by the facilitator promote collegial dialogue and challenge individuals to consider different ideas and perspectives as they reflect on the lesson and its effectiveness (Costa & Garmston, 1992; Lee & Barnett, 1994).

Lesson Study

There are many facets of lesson study that must be unpacked to understand what it is, why educators have utilized it as a professional development model, and how it has been implemented. The following sections pertaining to lesson study will describe 1) the cultural origin, 2) the process for implementation, 3) critical components, 4) failures of implementation in the US, and 5) the body of research on its application.

Japanese Lesson Study: Cultural Context

Kounaikenshuu is the Japanese word used to describe the school-based teacher professional development at the heart of Japanese school reform (Stigler & Hiebert, 1999; Yoshida, 1999). While teachers engage in *kounaikenshuu*, they collaborate on different teams that serve various functions and fulfill various roles (Marzano, 2003). According to Yoshida (1999), *kounaikenshuu* is the setting in which lesson study takes place. The fundamental ideas that make up lesson study include an emphasis on teacher quality and a commitment to continuous improvement of practice as well as a focus on reflection, teacher collaboration, and student learning outcomes (Gero, 2015). Yoshida (2012) defined high quality and effective lesson study as that which “helps teachers enhance their content knowledge and pedagogical content knowledge to improve instruction in classrooms, develop good ‘eyes’ to see and analyze student learning, and ultimately to produce better student learning” (p. 141).

Lesson study was an integral component in the analysis and further action taken as a result of the 1996/1997 Third International Mathematics and Science Study (TIMSS). According to Stigler and Hiebert (1999), the TIMSS test was “by far the most comprehensive and methodologically sophisticated cross-national comparison of achievement ever completed” (p. 5). A total of 41 nations took part in this test, which investigated the math and science achievement of fourth, eighth, and twelfth graders. Not only did the TIMSS assessment collect data on the achievement of students, but it also collected qualitative data on actual teaching practices via video study. The goal was to learn more about the reasons the achievement scores came out the way they did. Since it would be impossible to videotape teachers in all 41 participating countries, three countries were chosen for comparison. Japan was chosen because

of the students' consistency in scoring high on international mathematics achievement tests (Peak, 1996; Stigler & Hiebert, 1999). Germany was chosen because of its status as an economic competitor with the US, and the US was included since the study was largely funded by the US government (Stigler & Hiebert, 1999).

Dramatic differences were found in the teaching practices of Japan and the United States (Stigler & Hiebert, 1999). The US pattern of mathematics instruction consisted of a review of the previous day's work, followed by a teacher demonstration of how to solve that day's problems and time for the completion of seatwork, and ended with correcting the assigned seatwork and assigning homework. Conversely, approaching mathematics instruction with a constructivist approach, Japanese teachers facilitated instruction in a drastically different manner. After beginning with a review of the previous day's lesson, a problem was then presented for the students to solve in which they worked either individually or in collaborative partnerships or groups. The teacher then facilitated a discussion of different solution methods, ending with a summary of the major points of the day's lesson (Becker, Silver, Kantowski, Travers, & Wilson, 1990; Shimizu, 1999; Stevenson & Stigler, 1992; Stigler & Hiebert, 1999). In the US lessons, an underlying belief that mathematics is a set of procedures was evident, whereas the focus of mathematics in Japan was on the relationships between mathematical ideas and the discovery of such ideas by students themselves.

Not only were differences in the actual lesson patterns and underlying beliefs examined, but so was each country's approach to reform efforts. Again, the US and Japan were compared as they displayed the greatest differences in approaches to reform (Stigler & Hiebert, 1999). After the release of *A Nation at Risk* in 1983, US reform had been based on recommendations from experts in the field after their review of research. After recommendations were made, teachers

were expected to implement changes and self-report on the subsequent implementation of the recommendations. However, when teachers were videotaped to connect reform recommendations with actual practice, what they had often interpreted was far from the intention of the experts' recommended practices (Stigler & Hiebert, 1999). Despite such reform efforts, little actual change in classroom instruction was identified (Stigler & Hiebert, 1997). Although there were scattered examples of teachers moving toward more reform-minded teaching in America, Stigler and Hiebert noted there was also a consensus that these teachers tended to be the exception rather than the rule. In contrast, Japanese reform efforts placed practicing teachers, not the experts in the field, in the driver's seat. Combined with the results demonstrated by Japanese mathematics students, it is not surprising that the leading model of professional learning in Japan would soon become a model adopted by countries outside of Japan.

Lesson Study Process

Stigler and Hiebert (1999) drew on what occurred at Tsuta Elementary School, the school Yoshida (1999) studied for his doctoral research, to outline the lesson study process a team of teachers engaged in to study first graders' understanding of subtraction with borrowing. During the first trimester, teachers met to determine the theme of the year's reform efforts and subsequently divided into smaller grade level teams to develop more specific goals that would guide the year's lesson studies. Each team consisted of five to seven teachers, and these teams continued to meet throughout the second trimester weekly for three or four hours at a time. During these weekly meetings, the teams of teachers developed a research lesson, called such because of the researcher lens educators take when developing and observing lessons.

Lesson study is considered a problem-solving process, so the initial step involves defining the problem that will focus the lesson study team. The problem may be general or specific and is massaged until it results in something that can be observable in a classroom (Stigler & Hiebert, 1999). The problem is usually one that teachers have identified from their own practice. This aligns with the intention of lesson study serving as a teacher-led professional development model. However, in some instances, such as Gero's (2015) quantitative study in Los Angeles, California, district officials may oversee the process to coerce teachers into implementing curriculum and instructional strategies as a district mandate. Another example comes from Akiba and Wilkinson's (2016) quantitative study in the state of Florida. The Florida Department of Education won \$700 million in Race to the Top funding and applied it to endorsing lesson study to implement Common Core State Standards. In these cases, the problem no longer stems from teachers' own problems of practice but from a top-down approach that centers on following the district's curriculum.

In authentic Japanese lesson study, after the problem is set, teams collaboratively plan the lesson that will serve as the research lesson. The team's objective is to understand why and how the lesson works to improve student understanding as well as produce an effective lesson. In the Japanese model, the team spends up to several months planning the research lesson, and prior to teaching it, the team presents it to fellow colleagues at a staff meeting for feedback and revisions, therefore deeming it ready to teach in classrooms (Stigler & Hiebert, 1999).

Although one teacher is selected to teach the research lesson first, all team members are involved in this step in some way. In Japanese schools, the rest of the team members leave their classrooms with two students in charge to monitor the class in the teachers' absence. As the teachers observe student learning in the classroom in which the research lesson is being taught,

they move around the classroom collecting observations relating to what the students are doing. These notes are used in the next step when the lesson is reflected on and revised. In the instance of Gero's (2015) study, because the focus was on implementation of the mandated curriculum, analysis of student learning and lesson revisions were left out of the process. However, the lesson revisions that follow the teachers' observations and reflection on student evidence are a critical element of the lesson study process (Gero, 2015).

When teachers convene to reflect on the lesson, generally after school, revisions to parts of the lesson such as teacher questions, materials, learning experiences, and problems posed to students may be altered in response to the misunderstandings demonstrated by the students. The process is then repeated as the revised lesson is taught a second time, usually by a different teacher. One main difference between the original teaching of the research lesson and this revised lesson is the invitation of the rest of the school faculty to observe the revised research lesson (Stigler & Hiebert, 1999).

It is also common to invite an expert outside of the school to fulfill the role of knowledgeable other (Takahashi, 2011; Yoshida, 1999). Members of the faculty and the knowledgeable other provide critique and recommend additional revisions. In his qualitative study of how knowledgeable others gain expertise to contribute effectively to the ongoing improvement of instruction, Takahashi (2014) found that observing lessons with experienced lesson study practitioners was the best way to develop expertise in giving final comments. He concluded that it would be hard to provide formalized training and highlighted the importance of knowledgeable others providing feedback at the conclusion of the lesson study cycle for it to be effective. The reflections by knowledgeable others, lesson study participants, and the entire faculty turn to more general learning about instruction as a result of the lesson study cycle. After

all, “Lesson study is not just about improving a single lesson. It’s about building pathways for ongoing improvement of instruction” (Lewis, Perry, & Hurd, 2004, p. 18).

Before the lesson study cycle officially concludes, the lesson study team determines how to share the findings with the larger school faculty. This is an important part of the Japanese lesson study process. It is believed that the learning that took place in the context of the lesson study cycle is not only relevant for the team, but for all educators in the school; therefore, a report is often written by the lesson study team and placed in a central location so it can be read and referred to by all staff members. If the team chooses to share the findings in another way, it is typically via a “lesson fair” (Stigler & Hiebert, 1999, p. 116) to which teachers from other schools are invited to attend, allowing them to observe the actual teaching of final research lessons.

Critical Components of Japanese Lesson Study

In Japanese lesson study, the design includes participation by experts in the field, often referred to as knowledgeable others. The knowledgeable other is typically a university professor or district curriculum specialists who are recruited as members of the lesson study team due to their deep content knowledge in the field under study (Richardson, 2004). Not only do they provide a different perspective, they also approach the professional learning with a learning mindset, expecting to not only share their expertise but to learn from participation in the lesson study experience.

It is well-known among practitioners of lesson study that having a knowledgeable other who can provide insightful final comments is critical to implementing effective lesson study. However, until Takahashi’s (2014) examination of experienced lesson study practitioners, the

structure of the final comments and the expertise required had not been made definitive. His case study revealed that knowledgeable others develop expertise through their participation in years of lesson studies. All three participants in Takahashi's study recognized the importance of observation of others delivering final comments rather than any kind of formal training.

Excluding a knowledgeable other in the lesson study process is a modification that has been made as lesson study has made its way into other countries. Takahashi (2014) argues that the need for valuable final comments from knowledgeable others is greater outside of Japan than within, perhaps because other countries such as the US are implementing the very practice to replicate what has been an effective professional learning model in Japan. Because the need for improvement is greater, the need for knowledgeable others who can provide influential comments is greater.

Not only is the knowledgeable other an essential and often overlooked hallmark of authentic lesson study, so is the careful examination of the content under study and teaching materials, known as *kyouzai kenkyuu* in Japan (Watanabe, Takahashi & Yoshida, 2008). The idea is for teachers to engage in this deep examination of the content and materials, anticipating student responses, and making connections among lessons to provide coherence in the learning experiences, not just in the lesson study process but also in their approach to designing daily lessons.

During the planning phase of lesson study, teachers spend a lot of time designing tasks for students, considered by Fujii (2016) to be a critical part of lesson study. Fujii's article serves as an attempt to make visible the often invisible process of lesson design – the beginning phase of lesson study. In fact, in his study of three schools implementing lesson study, teams of teachers spent between 165 and 353 minutes engaged in collaborative planning prior to teaching

the research lesson. Meyer and Wilkerson's (2011) case study illuminated the importance of careful planning prior to teaching the research lesson. They found changes in teachers' knowledge through lesson study was linked to their ability to anticipate students' questions and responses prior to teaching the research lesson. Lesson study groups that made significant changes to existing lessons were found to have improved their knowledge as opposed to lesson study groups that taught an existing lesson as is (Meyer & Wilkerson, 2011).

Both the inclusion of a knowledgeable other and the careful examination of curriculum materials during the planning phase are considered essential in Japanese lesson study, yet due to reasons that will be revealed in the following sections, they have been left out of the process when it has been implemented outside of Japan.

Lack of Understanding of Lesson Study in the US

In the early 2000s when US educators began implementing lesson study, it was a brand new professional development model. There were only a few educators in the US who had experience facilitating lesson study, severely limiting authentic opportunities from which to learn the model (Yoshida, 2012). Therefore, modified versions were put into practice instead and often these were lacking the fundamental ideals from which lesson study originated (Yoshida, 2012).

The beliefs that informed US lesson study were derived from just two examples of lesson studies that took place in Japanese elementary schools. One was Yoshida's (1999) research at Tsuta Elementary School that focused on first grade math, and the other was a science lesson study example focused on fifth grade simple machines (Lewis, Perry, & Murata, 2006). The science research lesson was captured on video in 1998 and was filmed at Komae School #7 in

Tokyo, Japan. The video showcased the planning meeting, the research lesson, and the faculty debrief at the conclusion of the research lesson.

Lesson study was introduced and implemented in hundreds of classrooms in the US within just a few years of gaining attention. This is cause for alarm. First of all, both of the examples depicted lesson study in a vastly different culture than our own, and secondly, both took place only in the context of elementary math and science teaching.

Research on Lesson Study

It is not surprising that because the TIMSS study and both examples that influenced the spread of lesson study had a math and science focus, much of the research that exists takes place within a mathematical context, both within and outside of the United States (Cady, Hopkins, & Hodges, 2008; Huang, Gong, & Han, 2016; Lim, Kor & Chia, 2016; Yoshida, 2012).

Mathematics lesson study supported teachers' connections of theory and practice (Huang et al, 2016), and the research overwhelmingly supported findings that teacher changes in mathematical teaching practices resulted from engagement in lesson study cycles (Cady et al, 2008; Lim et al, 2016).

Existing research on lesson study has mostly consisted of small-scale qualitative studies. In their compilation of lesson study research in mathematics education, Hart, Alston and Murata (2011) attested there have been substantial efforts to implement lesson study around the world, but actual research on lesson study is still in its early stages. Case studies have found a change in teachers' content knowledge and beliefs through participation in lesson study (Hart & Carriere, 2011; Lewis et al., 2009; Meyer & Wilkerson, 2011; Moss et al., 2015; Olson et al., 2011; Takahashi, 2011; Tepylo & Moss, 2011). Teachers reported changed perceptions of their

students' capabilities and recognized their own growth in understanding the beliefs of inquiry-based teaching. Reportedly, they were skeptical of how students would respond to an open-ended approach to sophisticated mathematics, but were surprised to see kindergartners responding positively to challenging tasks (Moss et al., 2015). This study also found the teachers noted the importance of flexibility in teaching, asking good questions, and responding to observations made within the instructional context.

The degree to which US teachers learn varies due to the amount and kind of support they receive through the lesson study cycle (Takahashi, 2011). Examples of support include a knowledgeable other to offer comments in the planning and debriefing sessions as well as a facilitator to provide a thorough explanation of the lesson study process and expedite the process.

Additional studies have found a relationship between teacher attitudes and effectiveness of lesson study (Gero, 2015; Mon, Dali & Sam, 2016). In top-down hierarchical approaches to lesson study, teachers feel disconnected from the process and therefore report dissatisfaction with their lesson study experiences (Gero, 2015). For example, in Gero's study, one district's approach to engaging teachers in lesson study was to begin with a pre-selected lesson modeled by a district expert. Rather than using student evidence to reflect on the effectiveness of the lesson, teachers were told not to modify the lesson and instead were encouraged to emulate the practice of the district expert. This is a far cry from the intentions of lesson study, where teachers collaboratively design, thoughtfully reflect, and suggest changes to the original lesson. When teachers have a deeper understanding of the lesson study design and how it works while receiving support during the process, lesson study contributes to improved teaching and learning (Hart & Carriere, 2011).

Sjostrom and Olson (2011) devoted two years to teacher preparation to engage in lesson study. This preparation consisted of summer institutes and the introduction of a problem-solving activity known as Thinker-Doer (Hart, Schultz, & Najee-ullah, 2004) aimed to promote flexible thinking and metacognition among teachers. Summer professional learning days were focused on the lesson study process, development of group norms, and a common vision for lesson study work prior to launching a study of how lesson study supported teachers' critical lenses: as a researcher, as a student, and as a curriculum developer (Hart & Carriere, 2011).

A greater sense of community and collaboration among teachers has also been an emerging theme in case study research on lesson study. In Olson et al.'s (2011) research, symbolic interactionism was used as the theoretical framework due to collaboration being a major characteristic of lesson study. Symbolic interactionism provided a perspective to interpret how team members' interactions created meaning through observations, experiences, and words (Kuwabara & Yamaguchi, 2007). Only two of the three lesson study teams who participated in this study completed the actual lesson study. These two teams were found to have gained new strength from each other due to the challenges they faced together in solving a problem of practice. These two teams wanted to collaborate and learn together.

Another case study was framed by sociocultural theory, which contends knowledge about teaching is socially constructed and theory and practice are connected through learning communities. Fernandez and Zilliox (2011) found the design of lesson study contributed to collaboration among teachers on the lesson study teams. The learning design supported teachers in learning from each other, continuing to improve, and developing connectedness among the team members.

Reflection has been found to be a critical factor in teachers' changes in practice (Olson et al, 2011). Personal insights that arose out of lesson study served as a catalyst to the examination of beliefs about teaching and learning supported by reflection. Olson et al (2011) noted that teachers who participated in their study experienced discomfort when initially reflecting on how their actions supported beliefs. Sjostrom and Olson (2011) used the Reflective Teaching Model (RTM) as a comparison to lesson study when examining methods for preparing teachers for lesson study. Engaging teachers in RTM prior to lesson study was intended to encourage their examination of teaching as a problem-solving experience. Both RTM and lesson study aim to improve teaching and learning; RTM focuses on the reflective practice of the teacher while lesson study focuses on student learning. At the conclusion of the initiative to prepare for lesson study implementation, opportunities to reflect on instructional practices were named a contributing factor to an increase in student achievement.

Gutierrez (2015) used a case study approach to study teachers' reflective practice in lesson study. Based in the Philippines, this study examined the types of reflective practice teachers had in different stages of the lesson study process: descriptive, analytical, and critical. The lesson study team was found to have demonstrated descriptive reflection most often during the planning and goal-setting phase. The study found lesson study served as a means for teachers to develop a "culture of reflection" (p. 324).

Challenges of implementing lesson study in the US were also found from case studies. Three challenges in particular stand out in terms of effective lesson study practice in the United States. The challenges include US teachers' 1) work schedules make it difficult to engage in continuous cycles of learning, 2) are unfamiliar with the authentic lesson study process, and 3) have difficulty facilitating the lesson study process themselves due to the lack of resources to

develop sufficient content and pedagogical knowledge (Chokshi & Fernandez, 2004; Fernandez, Cannon, & Chokshi, 2003; Hart, 2009; Murata, 2011; Perry & Lewis, 2009; Yoshida, 2012).

Additionally, case studies of US teachers' practice of lesson study (Fernandez et al, 2003; Hart, 2009; Yoshida, 2012) have demonstrated that US teachers experience difficulty utilizing a researcher lens. In Japan, three critical lenses were identified to guide both the development and discussion of research lessons. The researcher lens is what teachers use to question practice. The other lenses include the student lens and the curriculum development lens. The student lens requires teachers to anticipate student questions and responses within the lesson, while the curriculum development lens is used in the design of the research lesson (Hart & Carriere, 2011). US teachers have struggled to employ the research process to the professional learning model in developing a focus for the research, creating a research lesson plan to investigate the research focus, and using evidence gathered from the lesson study observations to make claims and draw conclusions (Fernandez & Yoshida, 2004).

Difficulty in utilizing a researcher lens may be due to the exclusion of observation and collection of student evidence in the lesson study process. Based on 12 years of experience studying, practicing, and educating others about lesson study, Yoshida (2012) likened the approach that should be taken to implement effective lesson study to the way the Japanese practice martial arts. Yoshida contended that practitioners should learn the fundamentals from the experts to attain and understand proper form and to further develop one's form. He argues that "without understanding the reasons behind this, as well as how lesson study is conducted effectively in Japan, any attempt to conduct lesson study will not be productive and will be difficult to sustain the practice" (p. 144). In other words, until one has practiced and mastered the

intended practice and rationale for lesson study, attempts to invent one's own refinements and modifications are futile.

To replicate this model into the US context, not only have knowledgeable others and careful examination of curriculum materials in the planning process been left out, but actual observations of and reflections on the research lesson have also been excluded. In their 2016 commentary paper, Stigler and Hiebert recalled a quotation from a teacher: "We are doing lesson study in our school. Except we don't do the part where we observe each other teaching" (p. 581).

Lewis and Perry (2014) conducted one of the only large-scale empirical studies that has taken place in the US and reported findings that elementary teachers significantly improved their knowledge of fractions. Lewis and Perry noted that the solving and discussion of mathematical tasks by the teachers themselves as part of the lesson study process contributed to the knowledge gains experienced by the teachers. This directly links to what Watanabe et al. (2008) consider a critical step for conducting effective lesson study. As part of the lesson planning, the team of teachers collaboratively plan for connections among previous, current, and future content; anticipated student thinking; and identified ways the data will be collected. Additionally, Meyer and Wilkerson (2011) argue that anticipating student responses, those that reflect conceptual understanding as well as misconceptions, is a crucial part of the process and serves as a potential factor in supporting teachers to gain knowledge through lesson study.

In their large-scale study, Lewis and Perry (2014) studied 39 teams of teachers made up of mostly elementary teachers. After completing a baseline assessment, the 39 teams – chosen on a first-come first-serve basis – were randomly assigned to one of three different professional learning conditions. The 13 lesson study groups were supported with a resource kit that consisted of fraction math tasks, eight common fraction representations, lesson plan template, and

guidelines for setting norms, creating agendas, and engaging in each step of the lesson study process (Lewis & Perry, 2014). The data from the pre- and post-tests indicated that teachers made improvements in their knowledge of fractions, as substantiated by qualitative data. Lewis and Perry noted that it was difficult to ascertain if the math resource kits alone would have produced the same results or if the lesson study process was an essential factor in teachers' knowledge gains.

In 2016, Akiba and Wilkinson conducted another large-scale study to analyze Florida's state and district avenues to promote lesson study, a model that was used throughout the state of Florida as a vehicle for Common Core State Standards implementation. A statewide district survey was utilized to understand how districts implemented the state policy. It aimed to extract information related to district requirements on lesson study, funding, support and training, additional professional development programs, and open-ended comments. The findings indicated that a small number of districts took approaches to the implementation of lesson study that align with its essential features. These districts used lesson study as the main form of professional development without mandating it, allocated funds to support the initiative, and connected with experts of lesson study. The findings support what has been discussed earlier, that effective lesson study implementation requires an understanding of the design by those who will be engaging in it and that the design must remain as it was intended: a teacher-driven research process (Akiba & Wilkinson, 2016).

Chapter Summary

It was my intention to investigate teachers' experiences with reflective practice by utilizing Schön's (1983, 1987) theory of reflection through engagement in a lesson study cycle.

Schön's theory of reflection positions educators within a problematic situation to see and learn by doing, thus stepping into the situation to examine what is happening in the moment and respond to that which bewilders and challenges within the educational context.

The lesson study design provides a facilitated structured context in which practitioners identify a problem, design a research lesson, teach and observe what happens in the instructional setting, reflect on such observations, and revise the research lesson in an effort to improve student learning. Much of the lesson study research has focused on teachers' content knowledge and beliefs, while relatively few studies have explored teachers' reflective practice. The few studies that have been conducted have shown promising results, indicating that opportunities to reflect on instructional practices through lesson study were a contributing factor to increases in student achievement (Olsen et al., 2011, Sjostrom & Olsen, 2011). Additionally, Gutierrez (2015) found lesson study serves as a means for teachers to develop a "culture of reflection" (p. 324) and that collaborative reflection with the knowledgeable other enhanced teachers' growth.

Therefore, this research addressed elementary teachers' experiences with reflective practice through lesson study cycles using the following questions: How do elementary teachers describe their reflective practice while engaging in lesson study? How do elementary teachers describe their reflective practice after engaging in lesson study? How do elementary teachers reflect-in, -on, and -for action while engaging in lesson study?

CHAPTER 3

METHODOLOGY

Purpose Statement and Research Questions

The purpose of this study was to explore a team of elementary teachers' reflective practices through their engagement in a lesson study cycle. The study was framed by these research questions:

1. How do elementary teachers describe their reflective practice while engaging in lesson study?
2. How do elementary teachers describe their reflective practice after engaging in lesson study?
3. How do elementary teachers reflect-in, -on, and -for action while engaging in lesson study?

Data were collected from one lesson study team, consisting of three elementary classroom teachers in a western suburb of Chicago. The data collection and analysis methods are explained. Finally, limitations of the study are discussed.

Research Design

Lesson study is a collaborative model for professional learning. According to Creswell (2009), qualitative research is conducted to understand the contexts in which the participants address the issue under exploration. Because it is difficult to separate what the participants say

from the setting in which it is said, it is best to study this in the setting where the lesson study takes place.

The research design used a qualitative method to study the teachers' experiences with reflective practice in lesson study. A goal of qualitative research is to understand how people make sense of their world and their experiences (Merriam, 2009). The design of the study invited teachers to share descriptions of their reflective practice. To verify these practices, personal contact with the participants was essential. Using a qualitative design allowed me to study the teachers in their authentic surroundings to better understand reflective practice through lesson study.

A case study design was used to explore and describe teachers' reflective practice within lesson study. The single case was a team of elementary teachers who engaged in a cycle of three lesson studies over the course of three months. The goal was to uncover a new and deeper understanding using multiple sources of evidence (Yin, 2009). Case studies should result in a rich, thick description of the phenomenon under study, characterizing it as descriptive. Thick description refers to the complete, literal description of what is being investigated. Each teacher's reflective practice was explored to uncover how teachers' experiences with reflection were described during and after the lesson study cycle.

Case study is defined as "an in-depth description and analysis of a bounded system" (Merriam, 2009, p. 40) and characterized by the delimitation of the case or the object of the study. The object of the study is a bounded system and is "fenced in" (p. 40) using a theoretical framework. A case could be a single person, a particular group of people, a program, a policy, or a particular place as long as it represents some kind of phenomenon to be studied (Merriam, 2009). Therefore, a case is a situation that takes place within identified boundaries. It is the

process of analysis that characterizes a case study rather than the topic itself. This designation sets a case study apart from other kinds of qualitative research. According to Merriam, qualitative researchers choose a case study design because they are interested in “insight, discovery, and interpretation rather than hypothesis testing” (p. 42). For these reasons, a case study design was chosen for this study. The following section provides details about the boundaries of this case.

Participants

This section provides a brief introduction to the participants and describes the sampling technique used for participant selection. Complete participant profiles are discussed in Chapter 4.

The participants in this study were a first grade team made up of three elementary teachers at one elementary school in a northwest suburb of Chicago. All three teachers were considered veteran teachers, each having at least 15 years of teaching experience. Each of the three teacher participants earned a Master’s degree and has previous experience as a member of their school’s building leadership team. In addition, all participants had experience with lesson study in some capacity, either as a previous participant or learning about the model through second-hand experience.

The participants were selected through a combination of purposeful and convenience sampling. Because it was important that participants had knowledge of lesson study and belonged to the same grade level team, possible teachers in District A who met these criteria were identified. After these teachers were identified, convenience sampling was utilized, a method that involves the selection of participants due to their availability (Patton, 2002).

Although Mertens (2015) describes this as the least desirable strategy, it was chosen because of

the contextual factors of the school site and to allow for accessibility to the participants through my position at the school site. It is possible the teachers were more likely to participate in the study because they knew me, which aided in gaining trust (Creswell, 2007).

Recruitment took place via individual conversations with each member of the first grade team (Appendix A). The participant consent letter for the pilot study (Appendix B) and participant consent letter (Appendix C) reviewed the details and time commitment for the participants. Since student voices were captured on audio and video, student assent was obtained (Appendix D). Confidentiality for the participants was assured through the use of pseudonyms for the district, school, and teachers. Because students were not a part of the study, they were referred to by letters such as Student A, when necessary, and only to provide context for teacher descriptions of their reflective practice.

In addition to the selected participants, a lesson study facilitator and a knowledgeable other made up the lesson study team. These two individuals were not included as participants in the study because their role on the team was outside the scope of this study yet essential for maintaining the integrity of the learning model. According to Takahashi (2013), one of the reasons lesson study is ineffective is due to a lack of effective support from outside the lesson study team. A skilled facilitator is an essential source of support for the lesson study team by supporting them in organizing comments so the team can consider the major themes that arise (Lewis, 2004). Research has shown that the involvement of a knowledgeable other with outside expertise is important for effectively implementing lesson study (Lewis, Perry, Hurd, & O'Connell, 2006; Lewis & Tsuchida, 1998; Takahashi, 2011; Takahashi & Yoshida, 2004; Yoshida, 1999).

Site Selection and Context

The participant school site, Prairie Elementary (pseudonym), is located in a suburb of Chicago with a student population of approximately 500 students and a teaching staff of 52. The school has an average class size of 25 and a 95% attendance rate; 51% of the students are ready for the next grade level as measured by the state Illinois Assessment of Readiness (IAR) assessment, which falls just above the state average.

Prairie Elementary underwent substantial changes to staff and leadership during the 2018-2019 school year. A new building principal was hired by district administrators to replace the former building principal who resigned after four years at Prairie Elementary. The building principal hired for the start of the 2018-2019 school year came with two years of principal experience and five years of experience as an instructional support coach in District A. The change was welcomed by the staff, and they voiced their excitement about her knowledge of elementary curriculum and instructional practice.

Not only was the building principal new that year, but Prairie Elementary welcomed several new staff members due to voluntary transfers resulting from the closing of one of the elementary schools in the district. This occurred in response to declining enrollment. One of the new teachers to Prairie Elementary transferred from Todd Elementary (pseudonym) where the newly-appointed building principal had previously worked. This demonstrates the respect teachers had for the new principal.

Prior to the arrival of a new building principal and several new teachers, the climate at Prairie Elementary was one in which mistrust prevailed and teachers felt powerless. As the 2018-2019 school year kicked off, this was replaced with a new sense of excitement and trust in

building leadership. In fact, the new building principal led an effort to establish a vision for the school that depicted a safe environment, a focus on celebration and growth, and empowerment of all learners.

Prairie Elementary was selected because of several factors. First, it is located in a school district that has employed full-time instructional support coaches for the last 12 years. The district values job-embedded professional learning through a variety of facilitated designs. Prairie Elementary is the only school in District A that has afforded every grade level team the opportunity to learn through the lesson study model. The purpose of this research project necessitates the teachers' descriptions of their reflective practice during and after lesson study. Because the teachers at Prairie Elementary were familiar with the professional learning model, the focus remained on their descriptions of their reflective practice rather than being clouded by learning the model.

Secondly, there was a pre-existing structure of learning cycles already in place that involved grade level teams of teachers at Prairie Elementary setting a learning goal for students; then, choosing a learning model to focus their own growth to better support students' achievement toward the goal. Participation in a lesson study aligned with the school's professional learning structures already in place.

Lastly, Prairie Elementary is the school at which I work full-time as an instructional support coach. This made the school accessible to me. I was able to schedule interviews and observations at times most convenient to the participants and avoid unnecessary disruption of the teachers' typical workday.

Timeframe of the Study

The study was conducted during the second trimester of the school year. The timing of the study during the academic year allowed the participants to get to know their new group of students and develop goals for their time together. Prior to the research study, a pilot lesson study was conducted during the first trimester to test the data collection instruments. IRB approval was obtained on September 27, 2018, prior to conducting the pilot study. Further information regarding the pilot testing process are included below.

Piloting Instruments and Strategies

The advantages of pilot testing are well documented (Creswell, 2007; Mertens, 2015; Yin, 2009). For this study, a pilot test was conducted to refine data collection tools, strategies, and plans. Data collection tools included interview protocols, an observation protocol, and the lesson study debriefing protocol. These tools were selected and designed to elicit data to answer the research questions. Conducting a pilot test of these instruments allowed me an opportunity to match the kind of data resulting from the use of the tools with the research questions. Since the same lesson study facilitator was used for both the pilot and full study, an additional advantage of the pilot test was it allowed the lesson study facilitator to pilot the lesson study protocol prior to the study taking place. The pilot test was conducted at another school in District A with a grade level team of elementary teachers and the lesson study facilitator.

The pilot test took place during the first semester of the school year and consisted of one lesson study. All three steps of the interview process were tested: 1) life history (prior to the lesson study), 2) details of the lesson study experience (conclusion of the lesson study), and 3)

the meaning of the experience (one week after the lesson study). In addition, the interview questions were tested with one member of the pilot test lesson study team. She was also given a pseudonym to maintain confidentiality.

Sarah (pseudonym) is a third grade teacher at Westside Elementary (pseudonym) in District A. Sarah and her grade level colleagues at Westside Elementary chose to voluntarily engage in a lesson study as a means of professional learning. The lesson study facilitator from the case study currently serves in the role of instructional support coach and planned to facilitate the team's lesson study as a normal aspect of her role. Because of these factors, Sarah's participation in the pilot study for this research study was welcomed.

During the pilot lesson study, I tested both the observation protocol and the lesson study debrief protocol to inform their use in the research study. We determined there were several guiding questions that were essential to the lesson study debriefing sessions, as they assisted in producing data that aligned with the research questions. During the pilot test, I used the observation protocol to determine how it supported me in capturing details of the research lesson and lesson debriefing sessions. Field notes were then used to test the stimulated recall questions with our participant, Sarah. After reviewing my observation notes, I chose two episodes of teaching to replay for Sarah as part of a stimulated recall interview. The data acquired from the pilot test gave me confidence in using the observation and interview protocols in the research study, as they produced data that aligned with the research questions.

In addition to pilot testing, Mertens (2015) recommends adhering to a timeline for the study that clearly outlines the timeframe for the completion of each of the research activities. Table 1 depicts the actions and timeline used for this research study. Each of the research activities are described in greater detail in upcoming sections of the chapter.

Table 1

Alignment of Research Questions with Data Collection Strategies and Instruments

Actions and Timeline	Research Question 1: How do elementary teachers describe their reflective practice while engaging in lesson study?	Research Question 2: How do elementary teachers describe their reflective practice after engaging in lesson study?	Research Question 3: How do elementary teachers reflect-in, -on, and -for action while engaging in lesson study?		
Pilot Testing: October <ul style="list-style-type: none"> Life history interview with one teacher Lesson study using facilitation protocol Stimulated Recall interview with one teacher Details of the experience interview with one teacher Meaning of the experience interview with one teacher 	X	X	X		
Semi-Structured Interview #1: Focused Life History: Late November		X	X		
Lesson Study 1: Observations of Research Lessons and Lesson Study Debriefing Sessions; Stimulated Recall Interview #1: Late November	X	X	X		
Semi-Structured Interview #2a: Details of the Experience: Late November				X	X
Lesson Study 2: Observation and Stimulated Recall Interview #2: Mid-December			X	X	X
Semi-Structured Interview #2b: Details of the Experience: Mid-December				X	X
Lesson Study 3: Observation and Stimulated Recall Interview #3: Early February			X	X	X
Semi-Structured Interview #3: Reflection on the Meaning: Early February				X	X

Data Collection

Semi-structured interviews and observations served as the data sources for the qualitative analysis. The following sections describe the procedures used for the development and implementation of each of the data collection strategies. Table 2 outlines the dates of the three lesson studies and when each data collection strategy was used with each participant.

Table 2
Timeline of Lesson Studies and Data Collection Strategies

	Brittney	Madeline	Rebecca
Life History Interview	11/20/18	11/6/18	11/20/18
Lesson Study #1 11/27/18			
Stimulated Recall Interview	11/29/18	11/28/18	11/30/18
Details of the Experience Interview	12/4/18	12/5/18	12/6/18
Lesson Study #2 12/18/18			
Stimulated Recall Interview	12/20/18	12/18/18	12/20/18
Details of the Experience Interview	12/21/18	12/20/18	12/21/18
Lesson Study #3 2/6/19			
Stimulated Recall Interview	2/8/19	2/8/19	2/8/19
Meaning of the Experience Interview	2/20/19	3/14/19	2/21/19

Data related to each participant's life history was collected prior to the first lesson study. Observations of research lessons and lesson study debriefing sessions were made on each lesson

study day. A schedule of the first lesson study shows how observations of three research lessons and three lesson study debriefing sessions were made on each lesson study day (Appendix E). Observations informed the stimulated recall interviews that took place within three days of each lesson study. Semi-structured interviews related to the details of the lesson study experience followed the first two lesson studies, and a semi-structured interview focused on the meaning of each participants' experience followed the final lesson study. Each data collection strategy is described in greater detail in the following sections.

Interviews

Locke (1989) argues that the adequacy of a research method is dependent on the research questions asked. Because I was interested in understanding the teachers' descriptions and perceptions of their own reflective practice, interviewing was an essential method for data collection.

In-depth interviewing develops an understanding of the lived experiences of each participant and how she/he makes meaning of those experiences. The focus of this study was how participants experienced reflective practice. It was not meant to directly answer questions or evaluate responses. Interviewing provides context to behavior to better understand one's actions (Seidman, 2006).

According to Kvale and Brinkmann (2009), interviewing is an active process in which knowledge is produced through conversation that takes place due to the relationship between myself and interviewee. The interaction between myself and the participants was complex. The interview process required me to take a non-judgmental, sensitive, and respectful stance in relating to the respondents (Merriam, 2009). It is my hope that my actions demonstrated a true

interest in the stories of each participant (Seidman, 2006). I attempted to portray interest by posing follow-up questions and paraphrasing participant responses to communicate active listening.

Utilizing Seidman's (2006) three-step interview and principles from Rubin and Rubin's (2005) responsive interviewing technique, main questions, follow-up questions, and probes were used to elicit data from each of the participants. This allowed me to draw out depth, detail, and richness from each participant while allowing for follow-up on pertinent ideas and to probe for specificity and examples (Rubin & Rubin). It is recommended that the largest part of the interview be guided by a list of issues to be explored, ensuring the relevant topics are addressed (Merriam, 2009; Mertens, 2015). This allowed me to follow each teacher's lead. An interview guide (Appendix F) with no more than six questions and topics was designed (Kvale & Brinkmann, 2009; Rubin & Rubin, 2005) to address reflection and lesson study. This also provided consistency among each of the interviews. Prior to beginning the interviews, practice interviews were conducted as part of the pilot test.

Using Seidman's (2006) three-step interview protocol as a basis for the interviewing procedure, I conducted a series of semi-structured in-depth interviews, each with a specific purpose. I chose a semi-structured approach to draw each of the participants more fully into the topic of reflective practice in lesson study. This allowed me to elicit data grounded in the experiences of each of the participants, each of which reconstructed in his/her own way (Galletta, 2013). Additionally, I was able to narrow down the conversation to areas of interest related to the research purpose without running the risk of conducting an unstructured interview that may not have uncovered themes that align with my research topics (Rabionet, 2011). Conversely, had the interviews been completely structured, I may not have had opportunities to hear each

participant's descriptions and reconstructions of the experiences with reflective practice through lesson study.

Typically, Seidman's (2006) three-step interview process is just that: a series of three interviews with each participant. However, Seidman does allow for some alternatives to the structure and process as long as the structure of interviews allows each participant to reconstruct the experiences within his/her context. He recommends spacing each interview between three and seven days apart, while allowing for some variation in both space between and duration of the interviews.

The first set of interviews took place prior to the first of the three lesson studies. The purpose of the interview was to allow each participant to share as much as possible about herself as it related to her professional experience and reflective practices up to the present time. This first interview was an important part of the process, as it supported building rapport with the participants and allowed me to note any growth that took place. The purpose of this initial interview was to establish the context of each participant's experiences (Seidman, 2006).

The second set of interviews was actually a series of two interviews with each participant, each after the conclusion of the first two lesson studies. Because the purpose of the second interview was to focus on the actual details of each of the participants' recent experiences with reflective practice in lesson study, it was important to gather data as they related to each of the lesson studies. During these sessions, participants were asked to reconstruct the details of their experiences with reflection-in, -on, and -for action through participation in the first two lesson studies.

The final interview took place after the conclusion of the third lesson study. I asked each participant to reflect on the meaning each made regarding her reflective practice after

participation in three lesson studies. This sense making refers to the participants' abilities to examine the factors in their experiences with reflective practice through lesson study to arrive at their present situation (Seidman, 2006).

Interviews were conducted in a mutually agreed-upon space to provide some level of comfort for each participant. Each interview lasted between 15-30 minutes and was structured to address the teachers' lesson study experiences related to reflective practice. Specific information regarding each teacher's reflective practice was essential, so the structured section of the interview addressed this topic. Interviews were recorded via audio technology for transcription (Mertens, 2015). I transcribed all of the interviews verbatim to ensure validity and get as familiar as I could with the data. Ethical concerns were addressed by turning over control of the interview to each teacher being interviewed. Examples of control of the interview include, but are not limited to, ending the interview at any time, choosing whether to answer specific questions, bringing up additional issues not on the interview guide, and/or reviewing interview transcriptions (Mertens, 2015).

An important aspect of the data collection process included the practice of critical reflexivity. Throughout the research study, I examined how my own subjectivity was challenged by reflecting on my interactions with each participant (Mertens, 2015). I followed Hesse-Biber's (2017) suggestion for keeping a research journal to write down reflections throughout the research process. This allowed me to determine how my own attitudes and beliefs were potentially entering into the research process. An entry from my research journal is included (Appendix G).

Observations

Observations of research lessons and lesson debriefing sessions served as the other primary source of data for the study. This allowed me to witness the teachers in the actual lesson study setting. Merriam (2009) advocates for this data collection strategy to gain firsthand information. Interviewing only allowed me to gather information about the teachers' own descriptions, but observations put me in the teachers' classrooms for the actual delivery of the research lessons. Additionally, I observed the teachers' reflections about research lessons during lesson debriefing sessions. Both of these activities allowed me to make observations related to the teachers' reflection-in, -on, and -for action and to ensure the integrity of the lesson study model was being upheld.

Observations took place in two settings to observe activities and participant behaviors (Mertens, 2015). First, observations took place in each teacher's classroom to observe each participant teaching the research lesson. To pay attention to teachers' behaviors as they related to reflective practice, I observed each lesson debriefing session where the teacher who taught the lesson reflected on what was experienced. During this time, all teachers on the lesson study team shared observations and reflections from the lesson. As a result, I witnessed the decisions teachers made to adjust instruction in response to their reflections.

Observations in each of the above settings involved the recording of field notes. These were used to inform the final data collection activity, stimulated recall interviews. Because the two data collection strategies are closely related, both are detailed in the following sections.

Stimulated recall was used to elicit data relevant to the thought processes associated with carrying out actions (Ryan & Gass, 2012). A kind of introspective research methodology,

stimulated recall is used to examine facets of cognition on which the participants' decisions and actions rest, particularly learner reflection and self-evaluation (Murray, 2010; Wagenheim, 2005). Stimulated recall served as an ideal methodology for studying elementary teachers' reflections -in, -on, and -for action, as it invited access to the thinking processes of the participants.

This methodology required a prompt to facilitate discussion. An excerpt of a video recording facilitated the teachers' descriptions of their reflective processes. This allowed the participants to relive their experience with a high degree of accuracy, as it was conducted within close range of the actual event (Bloom, 1954). Selection of video excerpts was informed by observations recorded on field notes. Stimulated recall interviews took place within three days of the lesson study experience and were conducted through a structured protocol (Appendix H).

In addition to the stimulated recall interviews, field notes were captured using an observation protocol. An entry from my field notes is included (Appendix I). The use of field notes allowed me to address the fidelity of the lesson study protocol while documenting segments to return to through the stimulated research protocol. According to Lewis (2004), there is no one right way to conduct lesson study; however, there are critical elements that include teacher interest, taking a learning stance, a willingness to collaborate, and administrative support. Part of taking a learning stance involves continuous reflection to see what can be improved, and use of a lesson study discussion guide (Appendix J) by a skilled facilitator supported this critical element.

My role was that of participant observer. This role allowed me to gain access to a wide array of information by assuming peripheral membership on the lesson study team. My participation in the group was secondary to my role of observer (Merriam, 2009). My primary

duty during research lessons and team discussions was taking field notes in the authentic setting (Creswell, 2013), which was made possible because I was not facilitating the lesson study.

Data Analysis

To provide validity to the findings, triangulation of data was used through the collection and analysis of three different data sources and included semi-structured interviews, field notes, and stimulated recall interviews. Evidence was located and verified in different sources of data to shed light on identified themes (Creswell, 2009). I conducted a total of 21 interviews that amounted to seven hours and 24 minutes of audio recorded data from the three participants. This totaled 128 pages of transcribed interviews. While observing research lessons and lesson study debriefing sessions, I recorded a total of 47 pages of field notes and 6 hours 45 minutes of video. In total, I analyzed 175 pages of data collected during the study. All electronic records and videos were saved on password protected computers and a password protected external hard drive. All paper records were stored in a locked file cabinet in my home.

The procedures for data analysis are outlined in the following subsections. Transcription procedures for each of the interviews are described, followed by the coding procedures for all three sources of data. Finally, strategies for trustworthiness are explained, limitations of the study are outlined, and a description of my own experiences are bracketed.

Transcription Procedures

Interviews conducted with each individual member of the lesson study team were recorded and transcribed verbatim. I followed Seidman's (2006) recommendation that in-depth interviews be audio recorded in order to work most reliably with the data gathered from the

respondent's own words. The recordings allowed for the transformation of words to a written text. Written text is preferable for repeat analysis. To transcribe the interviews most successfully, I recorded each interview using an iPhone and tested the microphone prior to beginning each interview. The microphone test informed me of how well the sound was being picked up and was essential for successful transcription.

Additionally, transcribing each of the interviews allowed me to get to know the data better. If some part of the data were unclear to me, the transcription became a tangible artifact from which to check for accuracy from the respondent. This record of their actual words also served to increase the confidence each of the participants had in the data (Seidman, 2006).

Coding Procedures

The data collected from the interviews and observations were coded for analysis using open, axial, and selective coding. Coding reduces the size of the data, making it more manageable for reporting purposes (Mertens, 2015). It also allows a conversation between the researcher and the data (Merriam, 2009) through the labeling of parts of the data that belong together (Mertens, 2015).

Data were first analyzed utilizing open coding, the part of analysis that pertains to phenomena being named and categorized through close examination of the data (Corbin & Strauss, 2008). It is the process of choosing words and phrases that capture the essence of the data (Saldana, 2013). In this process, it was important that I asked questions and made comparisons of the data to combine and separate ideas. In this way, the data were conceptualized by giving a name to something that stands for a larger idea (Corbin & Strauss, 2008). At this

stage, I was open to anything possible (Merriam, 2009). In all, codes were assigned to the data during the open coding process.

The second stage of the coding process was axial coding, also known as the transitional cycle between the initial open coding and the more focused selective coding. This type of coding is appropriate for studies that include a wide variety of data forms (Saldana, 2013). Because data were derived from interviews and observations, axial coding was a logical next step to follow the initial open coding. This stage of the coding process worked to continue the analytic work, reassembling the codes by crossing out synonyms, removing redundancies, and selecting codes that best represented the data (Saldana, 2013). The purpose was to reduce the number of initial codes by determining the dominant ideas (Boeije, 2010). At this stage, 156 codes were reduced to 45. The second stage concluded when saturation was achieved (Strauss & Corbin, 1998).

Finally, selective coding was utilized to determine primary themes of the research. At this stage, all codes from previous analysis were condensed into a phrase that depicted what the research was all about (Corbin & Strauss, 2008). In this way, selective coding served as an umbrella to account for all other codes determined thus far (Saldana, 2013). At this final stage, 45 codes were condensed to 29 and finally to ten.

I reviewed the 45 codes to select those that occurred at least 15 times throughout the data. 29 codes met these criteria. From the remaining codes, I combined similar codes and excluded those that did not help answer the research questions. Ten codes were selected and collapsed into sub-themes.

Trustworthiness

In qualitative research, methods of trustworthiness serve as an attempt to ensure the accuracy of the findings. Creswell (2009) considers the following methods a means to strengthen qualitative research: 1) the extensive amount of time spent in the field, 2) the thick description that may result, and 3) the proximity of the researcher to the participants in the study.

Triangulation is considered a principal strategy to ensure trustworthiness (Merriam, 2009). As stated earlier, multiple methods of data collection were utilized, and multiple opportunities for the collection of each data source took place. For example, multiple interviews and observations were collected from each member of the lesson study team.

Member checking was utilized to solicit feedback on data gathered from interviews and observations. Each participant of the research study was invited and encouraged to review the data after each interview was transcribed as well as when codes were assigned to the data. All participants initialed the final compilation of their transcribed interviews to indicate completion of their review. Having the opportunity to review each transcription aided in ensuring accuracy of the data. When all codes were compiled, each participant reviewed them as well.

Finally, a peer review of the field notes occurred after each observation and after codes were assigned to the data. The peer reviewer was an instructional support coach with a doctorate in Curriculum and Instruction Leadership who has a wealth of experience with collaborative learning designs and reflective practice. In addition, she is familiar with qualitative research methodology. After the conclusion of the lesson study cycle, I had a personal conversation with the peer reviewer to study the data and codes assigned.

Limitations

There are multiple limitations to this study. The population of this case is very small and the findings are not generalizable to other populations (Mertens, 2015). This case study may have been more successful due to the group dynamic of the team of participants and expertise of the lesson study facilitator and knowledgeable other. Other case studies may not produce the same results. Because I am the instructional coach at Prairie Elementary, it is possible that the teachers had response bias during interviews and observations. Unfortunately, the make-up of practicing teachers at the school site excludes racial ethnic minorities and non-tenured teachers from the population. Only tenured teachers who hold Master's degrees were included in the population.

Bracketing the Researcher's Experience

I am a long-time educator in District A, where I have spent the majority of my professional career as an elementary teacher and instructional support coach. My experiences over the last 20 years have influenced my assumptions, beliefs, and perspectives; therefore, it is essential that these are acknowledged.

There are 11 elementary schools in District A, and I have held a position as an educator in four of them. I began as a classroom teacher, teaching both third and fifth grades during my first eight years in District A. During that time, I continued my own education through both university-based programs as well as job-embedded professional learning. I earned a Master's degree in Curriculum and Instruction while emerging as a teacher leader in my own professional

setting. I worked with my own instructional coach to hone my craft, shared my practice with peers, and entered a co-teaching partnership with a reading specialist.

I have spent the last 12 years in District A as an instructional support coach at three different elementary schools. My role as instructional support coach includes facilitating learning experiences for all staff, supporting teachers in the classroom through planning, observing, co-teaching, reflecting, and providing non-evaluative feedback. I support educators at both the building level and the district level.

As part of my district-level work, I have facilitated dozens of professional courses as part of our extensive course curriculum for educators. I also serve as a lead teacher for the science curriculum and facilitate our district's academy for new and aspiring instructional support coaches. Additionally, all of the instructional support coaches, myself included, facilitate District A's new educator program, serving as mentors for educators new to the district.

This district-level work has afforded me opportunities to establish relationships with the majority of District A's elementary educators in some capacity over the last decade but never in a supervisory or administrative manner. Specifically, I have worked with all three of the participants of this research study in coaching partnerships. All have been participants in district courses I have previously facilitated. In addition, all of the participants have had membership on building leadership teams with me, and we have co-facilitated adult learning experiences for our staff.

Not only have my experiences in District A developed a breadth of relationships with colleagues over the years, but they have also greatly contributed to my own assumptions, beliefs, and perspectives on adult learning. Because my study centers on reflection, one of the major

themes of adult learning, and lesson study, a learning design for adult learners, it is essential to acknowledge and describe my assumptions, beliefs, and perspectives.

It is my belief that learning cannot take place without reflection. It is an integral part of the learning process for all learners. I believe that as instructional designers, educators must always consider how learners will reflect on their gained content knowledge and the processes that aided in learning. Of utmost importance is the reliance of evidence on which to base reflections. I hold the assumption that evidence, whether student work, descriptive observations, or videotaped portions of lessons, is the basis for reflecting on what has taken place in the instructional setting. My work as a coach has only strengthened my belief that reflection plays an integral role in learning, must be planned for, and is reliant on evidence.

My work as a coach also afforded me opportunities to develop expertise in reflective questioning. During my first two years as an instructional support coach I was trained in the art of questioning by leaders from the National Staff Development Council, now known as Learning Forward. For the past four years I have held the responsibility of providing the same training to new instructional coaches hired in District A. Over the years, I estimate that I have had hundreds of coaching conversations. Each of these experiences provided me an opportunity to hone my skills in questioning and paraphrasing, avoiding asking leading questions and instead posing those that are exploratory in nature. The expertise I have acquired also serves as a means to maintain credibility as a researcher.

Conclusion

This study was designed to explore a team of elementary teachers' descriptions of reflective practice through lesson study. Data were collected through multiple sources, including

semi-structured interviews, observations, and stimulated recall interviews. Once data were collected, it was analyzed using open coding, axial coding, and selective coding. Throughout the study, triangulation, member checking, and peer review helped to ensure trustworthiness and reliability of the data. The next chapter will provide the research findings.

CHAPTER 4

FINDINGS

As described in the data analysis procedures in Chapter 3, I examined the data through the lens of the research questions, selecting narrative references (codes) in which the participants either discussed or demonstrated evidence of reflective practice during and/or after lesson study. From the 156 total codes identified in the 175 pages of data, 45 codes were selected and collapsed into ten codes. From the selected codes, ten sub-themes were identified and collapsed to create four overarching themes. Due to the limited number of teachers in the study, the narrative references came from one, two, or all three of the participants and were found in one or more sources of data.

This chapter includes a participant profile and a discussion of the four major themes and the related sub-themes, using the participants' own words to support the findings. The major themes were 1) the power of peers during lesson study, 2) unexpected classroom events during lesson study, 3) action steps after lesson study, and 4) questions drive reflections during and after lesson study.

Participant Profiles

Prior to the first lesson study, I conducted life history interviews with each participant. Data gathered through these interviews was used to provide a descriptive profile of each teacher.

The following profiles are included to introduce each participant and pertinent information related to her classroom experience, reflective practice, and lesson study.

Madeline

I've always been a risk-taker. I'm that kind of teacher that I'm not afraid to jump two feet in without all the details and kind-of figure it out as I'm swimming around in there. I mean, I like the details, but if the planning and the details take too long for me to get to the point where I do it, I'm just going to jump in and figure it out, and then reflect on it, improve it, shift it, shape it, try it again and figure it out from there. (Madeline, Life History Interview, November 2018)

With a recognizable laugh that carries down the corridor, Madeline is a teacher whose passion is evident and whose emotions are real and raw. As a teacher who views her classroom community as a family, she experiences the emotions that accompany the love and care one has for close family members. Kleenex was always at the ready during our interviews, as worry about particular students she felt she was not reaching in the most effective ways would sometimes bring her to tears. Additionally, her contagious laugh was heard throughout each of our interviews as she recalled particular memories of her own past experiences as well as classroom vignettes from earlier that day.

Above all else, Madeline is a teacher who oozes child-centeredness and will always seek ways to grow as an educator. It is evident that she relies heavily on current research as well as observations of her own students as integral sources of professional learning. Seemingly an oxymoron, the term “confident vulnerability” probably best describes Madeline. She is not afraid to abandon a plan to follow her students’ leads, recognizing that there will be opportunity to reflect on and learn from what happens as a result of her actions in the moment. Her greatest fear

is becoming complacent, and she recognizes how much school and life have changed for little people over the span of her 30-year career.

Just two years ago, after 20 years at the smallest school in the district, Madeline made the move to one of the largest elementary schools in the district. Feeling a calling to make a difference on a new team and in a new school, Madeline became the newest member of the first grade team at Prairie Elementary. In her own words, Madeline looked back on her teaching career: “There’s been a lot of change - there’s been a lot of learning through all of that, but that has been my history. It’s been a long one” (Madeline, Life History Interview, November 6, 2018).

Madeline’s classroom experience has always been at the primary level. She began her teaching career in an inner-city school in central Illinois. After a couple of years, she moved to a suburban district where she experienced a top-down controlled environment in a large elementary school. A few years later, she accepted a position at a small K-5 school in her current district where her experiences at the primary level were varied and included team teaching, half-day kindergarten, first grade, and second grade classrooms. During two years of team-teaching with a valued colleague, Madeline experienced what she described as a magical pillar experience that has since been unmatched. Together, she and her colleague continually reflected together and pushed each other’s thinking due to the trust they had in each other and the high commitment level they both shared when it came to students and instruction. In describing the pillar experience that most shaped her reflective practice, Madeline said,

We were pretty atypical in that we would spend hours sometimes on the phone just talking ourselves all the way through things. We were coming to conclusions about things that would either leave us perplexed, celebrating, or asking more questions and wanting to seek more. It was magical. (Madeline, Life History Interview, November 2018)

Madeline clearly values reflection with colleagues as well as self-reflection. During our interviews, she often highlighted the decisions she made both in the moment and as a result of reflection-on action, surmising that reflection involves an analysis of the choice-making in which teachers are engaged. For Madeline, reflection requires a comparison between what was planned and what actually happened as well as between what actually happened and what research and best practices suggest. Madeline often spoke of the ongoing nature of reflection and characterized her own on a continuum from simple to complex and informal to formal.

Although Madeline had not had any prior first-hand experience with lesson study, she described the process accurately. Colleagues from her previous school had participated in lesson studies and shared their experiences with Madeline. In describing her feelings about engaging in the lesson study process, she shared, “I’m excited but nervous, too. I’m excited to be in a place with my new colleagues where we can dive into this together” (Madeline, Life History Interview, November 2018).

Brittney

I think my personality makes me reflect because I always want to make things better. Nothing necessarily stops me in my tracks, but I think it’s just become kind of a habit, always looking for a better way to do things or a more effective way. (Brittney, Life History Interview, November 2018)

Standing just five feet tall, Brittney is a ball of fire, a force to be reckoned with! Her brown bob, accessorized with a brightly colored headband, sways with her boisterous laugh. Always dressed in bright colors, her stylish clothes match her personality. She walks at a brisk pace, is constantly on the go, and is an expert multi-tasker. She is known by her fellow leadership team members to organize a schedule for peer observations before the conversation

about it has even concluded. Brittney is the type of teacher who takes initiative and always strives to be better than yesterday.

At 40 years old, Brittney has been teaching for 19 years. A December 2001 Bachelor of Arts graduate, Brittney immediately began substitute teaching in the district in which she graduated high school. Within weeks, an emergency long-term substitute position became available. Even without an interview, the principal had confidence in her teaching abilities and placed her in the open first-grade classroom for the remainder of the school year. She was rehired the following year for the same position. In 2003, when a brand new school, Prairie Elementary, was being built in the district, Brittney did not think twice about taking a position there, without even knowing the grade level in which she would be placed. As a young teacher, she relied on her intuition. She turned down jobs that did not feel quite right and put her faith in an unknown grade level position at a brand new school in the district in which she had grown up, substitute taught, and started her teaching career. Brittney was placed in a first grade classroom at Prairie Elementary, where she has remained ever since. Now on a newly formed team, Brittney is the constant, having taught in the same classroom in the same school for the past 17 years.

When she first started teaching, Brittney found herself in survival mode and commented that she did not give herself permission to devote time to reflection. Had it not been for her close colleagues, she may have developed different beliefs about reflection. Maintaining positive models of reflective practitioners has been an influential factor in the development of her own reflective practice; she commented, “Regardless of where I’ve been or who the leaders have been, I feel like there have always been people who promote and really are enthusiastic about the reflection process. I feel like that helps to have the models around you” (Brittney, Life History

Interview, November 2018). She relied on colleagues' suggestions that they reflect together to come to understand the importance of reflection in teaching. In her own words, Brittney described her beliefs about how reflection develops:

I don't think you do it [reflect] innately; people have to teach you how to do it. And once you see the way a group works together with reflection and how you feel afterward, I think it just becomes part of your practice - it becomes more of a habit, but I think you have to have people around you at first - kind of helping push you toward doing that [reflecting]. (Brittney, Life History Interview, November 2018)

Brittney describes her previous lesson study experiences as less than ideal. She was involved in two different lesson studies over the past 10 years and characterizes them as "haphazard" (Brittney, Life History Interview, November 2018). She was not part of the planning of the lessons, and as a result, felt a lack of ownership in the process. In describing her level of ownership, she commented, "It wasn't much of anything. I don't think I had a lot to do with it except that I was teaching the lesson" (Brittney, Life History Interview, November 2018). Additionally, she felt that decisions were made by observers on the team that were too far removed from practical classroom experience and did not feel that the experiences were of any help to her in her professional practice. In fact, she felt that other people involved, namely the building principal, had an agenda for the lesson studies outside of improving her instruction. In looking ahead to a new lesson study experience, Brittney revealed, "I'm looking forward to a different experience, I guess, because I know it's supposed to be valuable and good for teaching practice, but I just don't know that I've been in the right situations with it" (Brittney, Life History Interview, November 2018).

Rebecca

I love that collaborative piece. Being by myself, kind-of isolated last year, I was missing that team approach. When I was teaching reading before I was with another teacher, when I was teaching writing I was with another teacher, so then it was two heads talking about what worked/what didn't work. (Rebecca, Life History Interview, November 2018)

While her colleagues are verbose and often spoke animatedly, Rebecca's responses during our interviews were more succinct. As time went on, she began to elaborate more, even anticipating my follow-up probes for specificity, adding more detail to her comments before I could ask the question. More stoic than her teammates, Rebecca operates at a more cautious pace, both in her movements as well as in her thinking. Rebecca draws on research and previous practice in her role as a reading specialist to aid in her instructional decisions.

At times expressing feelings of self-doubt, Rebecca seeks out trusted colleagues to affirm her thinking and to share student concerns and celebrations of growth. She keeps this circle small and tight, consisting of her grade level teammates, both reading and math specialists that work in the building, and myself. She has grown closest to Madeline who is new to the building and shares the same number of years of teaching experience.

Often acknowledging small steps forward, Rebecca recognizes and honors the gains her students make. The Mickey Mouse leggings she wears serve as a symbol of all things good, the dreams she has for herself, her students, and her new team. Rebecca returned to the classroom three years ago after practicing 18 years as a reading specialist. During this time of transition, Rebecca admits she experienced a deep learning curve and felt isolated on her team. That was before this new team – consisting of Rebecca, Madeline, and Brittney – formed last school year.

While Rebecca currently teaches first grade, and has since 2017, all of her prior experience was in upper elementary, middle school, and as a reading specialist. Teaching a self-contained first grade class was new to Rebecca 26 years into her 30-year teaching career. When she first started as a classroom teacher, Rebecca resided in Colorado and taught fifth grade and middle school at a private school. A couple years later, still in Colorado, Rebecca taught upper elementary multi-age classes in two different districts. With six years of teaching experience, Rebecca moved to Illinois and began her tenure as a reading specialist. This would take her to three different districts, eventually landing in District A in 2003. After serving as one of Prairie Elementary's reading specialists for 10 years, one of the positions was cut to allow for the placement of math specialists in all elementary buildings in the current district. Rebecca chose to stay at Prairie Elementary as a classroom teacher, even though it meant taking on the challenge of a grade level in which she had no prior classroom teaching experience.

The value Rebecca places on collaboration is evident when describing her definition of reflective practice. Rebecca believes talking with colleagues to gain insight into what has worked for them is a main characteristic of reflective practice. She describes the purpose of reflection as identifying what worked for students and what did not so she can adjust her instruction to help them be most successful. She is the only one of her colleagues to describe reflection this way: "It's thinking about your practice, about what you know has worked, talking to colleagues to figure out what has worked for them, and then taking those ideas with a coach's help to move it all together" (Rebecca, Life History Interview, November 2018).

Rebecca's previous role in lesson studies was that of facilitator. She described two instances at a different school in District A where she and several colleagues participated in lesson studies related to writing instruction. However, she recalled it took a year or more for

teachers to become comfortable observing in each other's classrooms as part of the lesson study process. She shared that prior to facilitating an actual lesson study, she and her colleagues spent an entire school year observing students in another classroom for a short period of time while also practicing sharing non-evaluative feedback related to the experience. This was put in place to support the teachers in gaining comfort with some components of lesson study. The lesson study she engaged in at Prairie Elementary was her first in a non-facilitative role.

Power of Peers during Lesson Study

By analyzing the data gathered through teacher interviews, field notes recorded during observation of the lesson studies, and stimulated recall interviews, the power of peers during lesson study was referenced 214 times, indicating it was an essential factor in the teachers' perceptions of their reflective practice during lesson study. All three teachers referred to the following sub-themes as factors that contribute to the power of peers during lesson study: 1) openness to peers and lesson study process, 2) peers foster deep thinking, 3) learning from and applying peer examples, and 4) peers reflect-on and -for-action together. These four sub-themes are examined through the words and observations of the participants. The overarching themes and accompanying sub-themes are presented in Table 3.

Openness to Peers and the Lesson Study Process

Teachers' willingness to be vulnerable and open up their classrooms as well as their own thoughts and ideas were referenced 78 times in the data. The sub-theme refers to the teachers' willingness to share their classroom practices as well as reflections on these practices with each other during lesson study. When teachers engage in lesson study, they have to be open to

colleagues observing behaviors related to teaching and learning in their classrooms. The lesson debriefing sessions, as part of the lesson study design, also involved teachers sharing observations and suggesting changes, requiring lesson study team members to be open to others' ideas.

For example, prior to teaching a revised research lesson, Brittney revealed her own vulnerability that led to the team's ability to experiment with a different teaching practice when she shared "I have no idea what text to use" with her teammates (Observation Field Notes, February 2019). In a follow-up interview focused on her meaning of the experience, she went on to describe the experimentation that resulted from her expression of vulnerability to her team. They were able to make changes to each research lesson, focusing on strategies to actively engage students each time. Their willingness to experiment with different strategies and redesign after each research lesson demonstrated their openness to each other and the lesson study process.

Table 3

Major Themes, Sub-themes, Codes, and Code Frequency

Theme	Sub-theme	Code	Code Frequency	Total
The power of peers during lesson study	Openness to peers and lesson study process	Open	78	214
	Peers foster deep thinking	Thinking deeply	59	
	Learning from and applying peer examples	Peer examples	49	
	Peers reflect-on and -for-action together	Collaborative reflection	28	
Reflecting on unexpected classroom events during lesson study	Peers studying responses to unexpected classroom events	Responsiveness	99	141
	Disequilibrium of classroom events	Disequilibrium	42	
Initiating action steps after lesson study	New thinking after lesson study	New thinking	61	144
	Reflecting to improve teaching and learning	Change	48	
Questions drive reflections during and after lesson study	Teacher-initiated questioning -in, -on and -for-action	Self-questioning	65	102
	Teachers asking the why questions	Why	37	

Note. Code frequency refers to the number of codes used across all data.

Madeline was the only teacher on the team to experience lesson study for the first time during this study. She spoke about the openness required of the lesson study process and how her own comfort level changed over time. During her reflection on the process after the first lesson study, Madeline openly shared, “I’m glad the first one is over because now I feel safe” (Observation Field Notes, November 2018). In a follow-up interview, she described her own feelings about opening up her practice to new colleagues: “I was just feeling anxious about not performing. Being in front of my peers, actively teaching, was not natural with this new team because we haven’t done it before” (Madeline, Details of the Experience Interview, November 2018). After the second lesson study, Madeline observed a change:

I felt that vulnerability was decreased this time because of the familiarity of the process and the people that were involved. I sensed that we each were more relaxed, and so because of that, we were able to be more open with our conversation, more honest. (Madeline, Details of the Experience, December 2018)

Describing the importance of feeling safe with peers, Madeline discussed her team’s growing trust and the effect it had on their actions: “We’re starting to ask those questions, and I think it’s because we’re getting more comfortable with each other. That’s just because we’re committed to what we’re doing. There is trust there” (Madeline, Details of the Experience Interview, December 2018).

Finally, Madeline described her team’s willingness to “approximate.” In District A, this term is used to describe students’ initial attempts at a new skill, demonstrating what they can do approximately but not yet securely. Madeline now uses this term to describe her own learning, recognizing that approximating is an essential step in acquiring new skills. She celebrated her team’s enthusiasm to jump into teaching retelling, a literacy comprehension skill, in a new way. She shared that she expected to experience some missteps that will eventually lead them closer to

teaching the skill securely. This demonstrated their openness to each other and the lesson study process. Building on a comment that Melissa (pseudonym), the lesson study team's knowledgeable other, made about students beginning to demonstrate comprehension of text through their own approximations, Madeline likened it to her team's instruction: "We're approximating, and it's okay to approximate. We're trying things out. You don't have to master it in one lesson" (Madeline, Meaning of the Experience Interview, March 2019).

Both Madeline and Rebecca commented on the team's growing trust throughout the process and found it worthy of celebration. Unlike Madeline, Rebecca had participated in lesson studies in the past and recalled a previous lesson study at a different school, noting "how guarded people were in that experience" (Rebecca, Meaning of the Experience Interview, February 2019). In contrast, she described the comfort level and openness that existed with her current team: "As a team, we work so well together and we're comfortable with each other, which as I said last time, is just odd because we've only been a team since August" (Rebecca, Details of the Experience Interview, December 2018). Rebecca named openness and trust as factors that contributed to her team's ability to reflect together and push each other's thinking in a lesson study cycle. She particularly recognized that judgment and criticism of each other's practice was never present during their lesson studies. This created a comfortable environment for sharing ideas as reflection-for-action. However, Rebecca yearned for more reflection and open conversation centered on what was not working in the lessons. "I just think everybody was okay with being vulnerable, open to listening to what others had to say. I wish we could even get to another level of being even more nitty-gritty" (Rebecca, Details of the Experience Interview, December 2018). Rebecca frequently discussed how much she valued her teammates' opinions and wanted them to be more open with feedback to each other to support reflection-for-action.

Similarly, Rebecca noticed a change in the team's comfort level over time. Rebecca experienced her team beginning to challenge ideas and to reflect not only on the successes experienced in the research lesson but also the barriers to student learning. After the final lesson study, Rebecca noted that "we felt comfortable to share not only the positive, but areas that were maybe not as awesome that day, and I think that's huge" (Rebecca, Meaning of the Experience Interview, February 2019).

All three teachers recognized the presence of vulnerability in their lesson study experience. Both Brittney and Rebecca specifically referenced moments within their lesson study experience in which they observed openness to each other and the lesson study process in the form of vulnerability. Brittney openly admitted to not knowing what changes to make to the lesson in response to the difficulty they observed students having in meeting the lesson goals. Rebecca described the reflection-on action that took place in the debriefing sessions between observing lessons. She and her colleagues not only shared what they deemed successes of the lesson but reflections on what did not go well in each of their lessons. Madeline and Rebecca described the change that took place over the course of the three-month lesson study cycle throughout their interviews, noting a desire to challenge ideas and observing that it happened by the end of the cycle. By being open with each other and to the lesson study process, the teachers experienced the power of peers during lesson study.

Peers Foster Deep Thinking

The teachers' ability to think deeply in the midst of a lesson study cycle was referenced 59 times in the data. The sub-theme of peers foster deep thinking refers to the prolonged time the participants spent discussing and reflecting on pertinent content and pedagogy as well as the

quality of their discussions within the lesson study process. For example, Madeline referenced the role that facilitated reflection played in her own depth of thinking multiple times in her interviews: “But I really felt that the guided facilitated conversation in between each of the lessons took my thinking deeper than I ever would have gone” (Madeline, Details of the Experience Interview, November 2018). Madeline further discussed this idea while specifically addressing the role of the knowledgeable other:

With the facilitation portion, and then of course having Melissa, that knowledgeable other, encapsulating my thinking to give it some structure and to name parts of it - that’s where I felt my reflection went deeper because it not only made me think about my practice, but it also helped me tighten up some of my understanding. (Madeline, Details of the Experience Interview, November 2018)

As part of the facilitated debrief in the lesson study cycle, Brittney reflected-on and -for-action in the presence of her peers after teaching the research lesson, illuminating an example of her own deep thinking: “The more I think about it, I want my students to want to talk about books with their partners. How can we make partner conversations more interesting?” (Observation Field Notes, February 2019). While Brittney posed a question to spur deeper thinking with her peers, Madeline expressed the value she placed on deeper collaborative conversations.

She described how Brittney challenged her thinking during a facilitated debrief session of lesson study, commenting on how the challenge served as an example of deeper thinking:

I remember Brittney commenting about something that I had been thinking of, but she was almost challenging it, but in a very respectful way. It took that conversation deeper. I thought, ‘Alright, let’s really push each other’s thinking here’. Because that’s ultimately going to make us better practitioners. (Madeline, Details of the Experience Interview, December 2018)

Madeline further discussed what she experienced during the lesson study cycle: “The content piece of the lesson, the instructional language part of the lesson, what’s transferable

piece that always came out through our discussions is so much bigger and deeper than how I had viewed my reflective practice” (Madeline, Meaning of the Experience Interview, March 2019). Madeline recognized a change in the depth of her reflections because of the collaborative discussions she had with her peers during lesson study. She and her colleagues consistently planned for and reflected on how the teachers’ instructional language either supported or posed a barrier to achieving literacy goals. Their reflections-on action in the lesson debriefing sessions often centered on how they communicated the importance and relevance of lesson objectives to students.

Rebecca also reflected on the depth of thinking she experienced in the lesson study cycle: “I think we’re honing in a lot tighter and with a lot more depth of thinking than the prior lesson studies I’ve been in which were more of a one-shot wonder and this is a sequence” (Rebecca, Details of the Experience Interview, December 2018). Rebecca recognized a difference in the team’s thinking and reflections due to their participation in a lesson study cycle. Because the process and protocols were familiar, the teachers could focus their attention on their observations of the research lesson and the reflections each shared in an effort to best identify what actions were supporting student learning and which were posing barriers.

Finally, both Madeline and Rebecca made connections between the depth of thinking they experienced and the lesson study process. Madeline reflected, “Wow ... it’s amazing. In one day! It’s exhausting, but it’s amazing - the thinking and the depth that comes from that, and it makes you wish that you could engage in lesson study for every part of what we do” (Madeline, Details of the Experience Interview, December 2018). She further described how the shared experiences she and her colleagues had within the lesson study cycle were unmatched when compared to other experiences:

When I reflect with other colleagues who haven't had those times with me or we haven't been in each other's classrooms like that, the conversation, the reflection is different. It can only go so far. It can't go to that place. This lesson study place. (Madeline, Details of the Experience Interview, December 2018)

Describing what she observed during the final debrief of the lesson study cycle, Rebecca commented on the significance of multiple rounds of lesson study as the process related to deep thinking: "You're getting in a routine of really understanding and getting deeper. I think on that first lesson study, you're still kind-of here (motions with hands). And each time you can go a little deeper" (Rebecca, Meaning of the Experience Interview, February 2019).

The teachers fostered deep thinking through participation in a lesson study cycle. They noted the depth of both collaborative and individual reflection that occurred through greater elaboration on their observations. Additionally, the shared experiences provided in the lesson study through multiple rounds of observations and lesson debriefing sessions fostered deep thinking among the research team.

Learning from and Applying Peer Examples

The contribution of peer examples to the development of teachers' reflective practice was referenced 49 times in the data. The sub-theme of learning from and applying peer examples refers to what the teachers reported as having picked up from others' reflective and teaching practices through observations. For example, both Brittney and Madeline discussed engaging in reflection-in-action while observing their peers teaching the research lesson. Brittney described it this way:

I think there's so much that goes into even just reflecting on things in the moment as you're the observer and then bringing it to the table. You really process it together and take those conversations and try to build them into something that will be of value to move forward. (Brittney, Details of the Experience Interview, November 2018)

Madeline shared similar thoughts:

Well, it's interesting, because even from the very first lesson in Rebecca's room I was listening and note-taking, but at the same time I was also reflecting. I'm watching and taking the whole thing in, but at the same time I've got this other part of my brain talking to me. 'Oh wait a minute - I really like the way that she said that. I need to remember that. I've never thought about doing it that way before. Oh, that's a really good strategy that she used for redirecting some behavior.' (Madeline, Details of the Experience Interview, December 2018)

Both Madeline and Brittney described the reflection-in-action they experienced as observers of their colleagues' lessons. They also referred to the action steps that could potentially result from their reflections-in-action. Brittney specifically described the reflection-in-action that occurred when observing a research lesson she had previously taught:

I think that you see someone else teaching the same lesson and it automatically makes you reflect on what you have done in the past that's like that or what you have not done. So even in the moment of you seeing this lesson, I think you're still always bringing it back to yourself and how it can impact you. (Brittney, Details of the Experience Interview, November 2018)

While observing a research lesson she had previously taught, Madeline described the resulting reflection-on action: "I was thinking back to what I had done and observed that I didn't use the same kind of think aloud talk that Brittney had used" (Madeline, Details of the Experience Interview, November 2018). Madeline was the only teacher to describe the reflection-on action that resulted from observing peers teaching the research lesson. However, all three teachers discussed the reflection-for-action that occurred as a result of their peer observations.

In Rebecca's own words, she recalled:

I tried to piggyback off of something I had seen in Madeline's room and we had talked about was an effective way to keep the students engaged. And so when I asked the students to wiggle their fingers and then I lowered my voice, I had them riveted. They were with me. (Rebecca, Stimulated Recall Interview, December 2018)

Similarly, I observed several instances of reflection-for-action in Madeline's lesson that resulted from her observations of peers. Picking up language and gestures from Brittney's lesson, Madeline said the following to students during her lesson: "Tap your nose if you had a book you loved so much; Put your hand on your heart if you love this story" (Observation Field Notes, December 2018). Additionally, Madeline commented on her own reflection-for-action as a result of the observations embedded in the lesson study process:

I think as a result of my participation in this lesson study, that experience itself with more knowledgeable others, with opening our classrooms to each other, with really observing others, shifting our practice after a debrief session, going back at it and looking to see, how does that elevate this particular lesson, my reflective practice is so much bigger and deeper than how I had once viewed it. (Madeline, Meaning of the Experience Interview, March 2019)

In several interviews Brittney not only discussed the reflection-for-action that resulted from observing her colleagues teaching the research lesson, but she also described her awareness of her peers' observations of her teaching influencing their own reflection-for-action:

I put faces on the post-it notes and had the students mimic them. After that point my colleagues were more aware of using those strategies because we had seen that work well. It allowed all of us to talk about adding those actions into the mini-lesson and those images onto our charts because it gave the students something to latch onto. Because I did that, I know they were wanting to try that, too. (Brittney, Stimulated Recall Interview, November 2018)

Madeline described how the shared lesson study experience served as an anchor for the team's continued reflection-on action after the conclusion of the lesson study cycle. She recalled a particular experience that stemmed from Brittney sharing her reflection-on action with the team:

So Brittney will catch onto something or some little spark will happen in her room and she'll share it with us and we'll think 'I can do that'. And then we realize that's the transferable piece. Remember when we talked in our lesson study? This is the bigger picture. (Madeline, Meaning of the Experience Interview, March 2019)

Not only did the team refer to their lesson study experience in future discussions, but they also recognized the positive peer pressure present within lesson study. To demonstrate this, Brittney recalled the urgency she felt to reflect-on action in the presence of her peers:

You're held accountable, meaning every teacher has an obligation to be teaching their students the goals we identified. I think it keeps you on track when you know we're meeting and discussing this, and obviously in a lesson study you're watching each other, but you have an obligation to bring something to the group. (Brittney, Meaning of the Experience Interview, February 2019)

All three teacher participants discussed the perceived impact of peer examples of reflection on their own practice numerous times throughout our interviews. Madeline described the learning that took place when she listened to her peers' reflections:

First of all, I benefited from hearing the reflection and comments of my colleagues and how they compared to my thoughts. I felt that although there were so many similarities that we found, each of us had a unique take on something, and just like when children and people discuss books, you construct your own meaning from something and you might learn something from somebody else that you hadn't even thought of. That's what I felt here. (Madeline, Details of the Experience Interview, December 2018)

While Madeline described the learning that took place for her within the lesson study experience, Brittney spoke at length about the importance of peer models in general as they related to the development of reflective practice. Brittney particularly articulated the importance of having models of reflective practitioners early in teachers' professional careers. Rebecca also acknowledged how her teammates have served as models of reflective practice:

It's helpful for me to hear my teammates think about why they do the things they do, and then to think about if I have had that same experience. I like to hear their thinking, especially since both of them have been in the classroom and I was out, now back in. It helps me to really understand their many, many, many years of experience. (Rebecca, Details of the Experience Interview, November 2018)

Both Madeline and Brittney seemed to realize the importance of having peer examples of reflection when looking back on certain events. However, Rebecca shared her intentionality of learning from her colleagues' reflections within the lesson study cycle:

Listening to some of what they had to say, listening carefully to how they were thinking, listening carefully to how they made the decisions they made. I know I make decisions, but how do other people make decisions? How are other people thinking this will work? How are other people reflecting on what worked and what didn't work? (Rebecca, Details of the Experience Interview, December 2018)

The teachers experienced the power of peers through the observations and debriefing sessions that took place in the lesson study cycle. They learned from peer examples of both teaching and reflective practice, applying what they learned to their own practice.

Peers Reflect-On and -For-Action Together

Peers reflecting-on and -for-action together was referenced 28 times in the data. The sub-theme of peers reflect-on and -for-action together refers to the reflection that teachers intentionally engaged in with colleagues during lesson study. All three teachers described numerous times how the reflection they engaged in together stood out from their individual reflection. For example, Brittney commented several times that the reflection she practiced with her peers provided a different layer to the individual reflection she engaged in by herself.

Describing a difference she experienced between the two, Brittney explained,

Being part of that team is different than the reflective practice you do individually. The reflective practice with your team is going to help the students so much as a whole. It doesn't necessarily change my feelings about my personal reflective practice, but I think it adds another layer. (Brittney, Meaning of the Experience Interview, February 2019)

Madeline attributed the difference to the common experiences of observation and reflection present within lesson study. Describing the reflection-on action that occurred within

the lesson debriefing sessions: “When I’m reflecting on a lesson, I feel like we’re doing that as a team, but again, because we’ve had this common experience, we’re really talking more about the bigger picture” (Madeline, Details of the Experience Interview, November 2018). Further discussing the role the common experience played in her reflective practice, Madeline described the process she now uses to reflect-on action: “I start with myself, but then I’ve got to go outside of myself. And bringing those two particular individuals in, who have had this common experience, we know each other better now as a result of this” (Madeline, Meaning of the Experience Interview, March 2019).

Similarly, Rebecca described how lesson study supported her individual and reflection with peers in response to a surprise:

When something is a surprise to you, for example the kids already understand something or I don’t know if I should push for this exact word or not, but having the opportunity to meet with the team I have a place beyond my own mind to lift those questions. (Rebecca, Details of the Experience Interview, November 2018)

Referencing the importance of “three heads being better than one” multiple times, Rebecca explained why she found reflection with peers a beneficial practice: “I think the whole team part is helpful with reflective practice – period. Because otherwise all you’re doing is reflecting on what you’re doing, and maybe you’re doing something that’s not as beneficial” (Rebecca, Meaning of the Experience Interview, February 2019). Echoing the sentiments her colleagues shared regarding reflection with peers, Brittney felt her greatest gain from her lesson study experience was reflecting as a team. She recognized what she was able to do for students as a result of reflecting-on and -for-action together was more than anything she could have done by herself (Brittney, Meaning of the Experience Interview, February 2019).

Rebecca cited the focus on the lesson rather than individual teachers as a contributing factor in her successful reflection with peers: “I think everybody felt comfortable – nobody felt judged. I feel like we just looked at it as the lesson, it was not personal. We all talked about what we could make stronger and made decisions about what to adjust” (Rebecca, Details of the Experience Interview, November 2018).

She and Brittney also discussed the continuation of reflecting -on and -for-action after the lesson study. Brittney recalled particular instances that occurred in which the teammates engaged in peer reflection as a result of their lesson study experience. Both Rebecca and Brittney described the changes they hoped to see in their professional learning community (PLC) meetings. Rebecca detailed her vision for collaborative reflection-on and for-action in the coming months after the lesson study cycle concluded:

I’d like to do more together, reflecting on a lesson or a topic that has been taught and really discussing that. I’d love to even just hear, ‘Hey, I taught this lesson a day ahead of you, let’s reflect on what happened in my room today, and how can this be improved for this next group of kids?’ (Brittney, Meaning of the Experience Interview, February 2019)

Articulating her hopes for continued peer reflection, Madeline described a change in her reflective practice that now must include a collaborative experience: “I think the way that I’ve grown in my reflection is I know it starts with me, but then it grows bigger than me, and it HAS to involve other colleagues” (Madeline, Meaning of the Experience Interview, March 2019).

Referring specifically to the continuation of reflecting with peers through lesson study, Madeline very poignantly conveyed her desire to commit the time to future lesson studies:

I think when I think of the future and I think about next year, I don’t want to not do a lesson study. I feel like lesson studies or videotaping lessons and reflecting together with colleagues - in some way like that where we have those voices together and we’re experiencing something similar - that is something that I’m going to value more and

commit more time to than I had been before. (Madeline, Meaning of the Experience Interview, March 2019)

The teachers experienced the power of peers during lesson study, describing the essential role that reflecting -on and -for-action with peers played in their reflective practice. They recalled how their peer reflection was supported through lesson study.

Summary of Theme

The power of peers during lesson study emerged as the first theme of this qualitative study. The participants noted changes in their reflective practice as a result of their openness to each other and the lesson study process, which allowed them to think deeply, pick up teaching and reflecting moves from each other's practice, and experience more from their reflection with peers than they could on their own to make a greater impact on student learning.

Reflecting on Unexpected Classroom Events during Lesson Study

The second theme that emerged through the analysis of the data was reflecting on unexpected classroom events during lesson study, which was mentioned 141 times, indicating the importance of unexpected events in relation to teachers' reflective practices during lesson study. All three teachers referred to the following as factors related to unexpected classroom events: 1) peers studying responses to unexpected classroom events and 2) the disequilibrium of classroom events. These two sub-themes are examined through the words and observations of the participants.

Peers Studying Responses to Unexpected Classroom Events

Peers studying responses to unexpected classroom events was referenced 99 times in the data. The sub-theme of peers studying responses to unexpected classroom events refers to the instances when the teachers collaborated to reflect on surprises that occurred during research lessons. This collaboration occurred during the lesson study debriefing sessions that took place after each research lesson was taught, when the teachers reflected-on and -for-action together.

Throughout our interviews, the teachers all described listening intentionally to students and observing students closely during instruction of the research lessons, which was also observed throughout the lesson studies and recorded in the field notes. Lesson study refers to the three research lessons and three lesson debriefs that occurred throughout one day. The lesson study cycle refers to all three lesson studies in which the teachers participated. During the research lessons, teachers were often observed reflecting-in-action. They also elaborated on their reflections-in-action during interviews. The lesson debriefs provided authentic opportunities for reflection-on action. The teachers said they often discovered unexpected classroom events from listening to and observing students in the midst of instruction, and they shared their thoughts about what they observed during post-lesson discussions.

Rebecca was the first teacher to teach the research lesson during the first lesson study. She shared with me through initial interviews that she tried to teach the research lesson as planned, even though she could pinpoint parts of the lesson that needed adjustment. Although the team used her reflections to make adjustments to the subsequent lesson, she quickly realized the team could benefit from observing changes made during instruction, or her reflection-in-action. After the first research lesson, all three teachers were observed making lesson adjustments on the

spot and sharing their reflections-on action during lesson study debriefs. The team also studied what they heard and observed during instruction to suggest changes to upcoming research lessons. This part of the lesson study process also informed next steps in instruction beyond the lesson study, supporting the teachers' reflection-for-action.

The teachers' initial conversations during the first round of lesson study centered on how to best engage students and how to use the active engagement portion of the lesson as formative assessment. Both of these topics came about during lesson debriefs due to the teachers' reflections related to the unexpected classroom events that occurred during the research lessons.

Brittney conveyed that the team's first lesson study sparked ongoing conversation regarding how to best engage students while at the carpet for mini lessons. These conversations were a result of what the team observed and studied regarding student redirection during the research lessons. Brittney noted, "You do notice when you lose them. And you do notice that when one student gets off-track, others tend to do the same. So that's a common topic we talk about" (Brittney, Details of the Experience Interview, December 2018).

Additionally, the team focused on how to use the active engagement portion of the lesson as formative assessment. In her closing remarks at the end of the first lesson study, Melissa, the knowledgeable other, included an idea to encourage formative assessment of all students rather than randomly selected students. She shared, "One way is to focus on quadrants of students during each mini-lesson" (Observation Field Notes, November 2018). The teachers agreed that was a good idea, and it led to some changed thinking that Rebecca later expressed. During the final lesson study, Rebecca shared a limitation to listening and responding to just one student example: "What I don't know about the other students is if they had the same understanding or if this was just one student with a misconception" (Observation Field Notes, February 2019). This

led to a discussion about how to listen and learn from more students during the active engagement, circling back to Melissa's earlier comments about focusing on quadrants of students at a time.

Rebecca realized that by only listening to one student or moving on to listen to another student partnership too quickly, she might be making assumptions about what the students actually did or did not understand. Based on a combination of the knowledgeable other's remarks and her own reflection-on action, Rebecca recalled a change in her listening practice:

I think one of the things I've been trying to do is not dipstick into so many, but to stay at just a couple and hear more, so I can really evaluate if they understand the whole thing not just snippets. (Rebecca, Stimulated Recall Interview, February 2019)

The teachers used the active engagement portion of the research lesson as formative assessment. They intentionally noted observations of students and used them to reflect-on action during lesson study debriefs. For example, during the discussion following the research lesson she taught, Brittney referred to the student confusion she observed during the mini-lesson and reflected-on action when she shared that the order in which the team planned to teach the lessons could be contributing to students' confusion. She reflected-for-action with her teammates, "Something for us to think about is changing the order of these lessons when we teach them next year" (Observation Field Notes, December 2018).

Rebecca also began her reflections on the lesson by sharing the student confusion she observed. She recalled an action step she did not take in the moment but applied later after the team had finished observing. When she used a language stem at the end of the reading workshop, she determined that students who did not initially demonstrate understanding were able to do so. Because she adjusted and provided a scaffold for students, she shared the successes she observed with the team. This led to a commitment by the team to use language stems in upcoming lessons.

The teachers often made lesson adjustments in response to the host teacher's reflections during lesson study debriefs. The teachers shared surprises they recognized when formatively assessing students during the lesson, especially during the active engagement portion of the lesson. They also shared their thinking about the lesson adjustments they made during instruction to inform future actions. For example, the team articulated the importance of studying responses together when Rebecca reflected on two different approaches she could have used in response to student confusion during the research lesson. She shared with the team that she "made the best decision at the time" (Observation Field Notes, February 2019), but she questioned its effectiveness with students. Madeline responded, "That's why we study."

In another debriefing session, the teachers' lesson adjustments included plans to intentionally listen to students during the active engagement portion of the lesson so they could use students' ideas to craft a sentence together. They made this adjustment after realizing the statement they were using to demonstrate the learning objective was too formulaic. Knowing they would be observing the change and debriefing afterward, Brittney commented, "That will be good for us to see" (Observation Field Notes, December 2018).

The teachers utilized the lesson debriefing sessions to study their own responses to unexpected events as well as students' responses to their instructional decisions. They shared their reflections on what they heard and observed during the lesson, informing their next steps in instruction that day and beyond.

Disequilibrium of Classroom Events

Disequilibrium of classroom events experienced as a result of surprise and/or struggle was referenced 42 times in the data, supporting the overarching theme of reflecting on

unexpected classroom events during lesson study. The sub-theme of disequilibrium of classroom events refers to the feelings of uncertainty and/or surprise that accompany unexpected classroom events. For example, Brittney spoke about her awareness of unexpected classroom events and framed her response in a positive light when she recalled a pleasant surprise that arose in her classroom after her colleagues had left. Although a student wanted to apply what Brittney had taught in the lesson independently, the text the student had selected was far too complex, posing a dilemma for Brittney. She chose to “grapple” with the decision to read the text to the student or address text selection instead (Observation Field Notes, November 2018). Her awareness of a surprise gave her reason to pause and became content for her own reflection-in-action.

Not only did Brittney talk about her choice to grapple with surprises on her own, but she also recalled intentional decisions she made to bring such experiences to her teammates for reflection-on action with peers. In one particular instance, Brittney described a surprising situation that occurred after her colleagues had ceased observation of her lesson. Rather than reflect-in-action, she recalled a conscious choice she made to reflect-on action with her teammates. When she realized a student was reading an unfamiliar text, she decided to bring her discovery to her teammates so they could wrestle with it together rather than make a decision in the moment on her own.

Additionally, Brittney recalled in her interviews how unexpected events contributed to the team’s reflection-for-action as they used these events to build upon the lesson. During the team’s debriefing sessions between lesson observations, changes were made to the lesson in response to the unexpected events one or all of the teachers experienced during the previous lesson. However, changes were not made only in the debriefing sessions. Brittney, Madeline, and Rebecca all described changes that occurred as a result of the reflection-in-action each of them

engaged in while teaching the research lesson. Brittney described an incident during one of the lesson observations by focusing on the role that student conversations played in the host teacher's reflection-in-action:

I think the students brought a lot into the lesson when we were in there because some of them were having conversations that changed our lesson. The teacher had to think on her toes and change the lesson a little bit to go where the students were guiding her. (Brittney, Details of the Experience Interview, December 2018)

Madeline also shared that the disequilibrium of classroom events led to positive changes. Recalling a particular classroom incident in which a student discussion led to changes within the lesson, Madeline reflected that “sometimes there are surprises that happen that make me know that hey, you know this was unexpected, but this was actually better than what I intended” (Madeline, Stimulated Recall Interview, December 2018). Madeline also described her reflection-in-action as an intentional choice. In this particular reflection, she recognized the disequilibrium experienced was a result of student confusion; yet, it resulted in positive effects for both the teacher and students:

There's going to be this little part of confusion that readers are going to have to grapple with, so let's grapple with it now together, and let's negotiate this and listen to each other's reasoning and thinking about it. I love those unexpected moments that teach me, but also are great learning opportunities for the class. (Madeline, Stimulated Recall Interview, February 2019)

Expanding on the idea that unexpected events led to reflection-in-action, which in turn, created an opportunity for teacher learning, Madeline shared these thoughts:

I hope that my colleagues who have witnessed the change I made in the moment will open up their thinking to recognize sometimes unexpected things arise. Having the knowledge of the bigger literacy goals and our own grade level goals, we can be responsive. (Madeline, Stimulated Recall Interview, December 2018)

Madeline shared the internal process she recognized while reflecting-in-action, demonstrating the disequilibrium she experienced in deciding on her own next steps: “I've got

this struggle of ‘Do I go there now? Because it’s out there? Or do I ignore it and just kind-of keep going?’” (Madeline, Details of the Experience Interview, December 2018).

In much the same way, Rebecca also described the internal struggle she experienced while reflecting-in-action and the result she hoped it had for her colleagues: “I wanted them [colleagues] to know that at that time I was struggling really quickly in my mind. ‘Do I let it go or do I go ahead and take the time to go a little deeper?’” (Rebecca, Stimulated Recall Interview, February 2019). Both Madeline and Rebecca articulated the disequilibrium that accompanied their reflection-in-action and having to make quick decisions about moving ahead with the lesson plan or taking a detour. While Madeline clearly stated her celebration of her awareness related to surprises in students’ responses to instruction, Rebecca expressed discomfort in not always knowing why she made the choices she made in the moment.

Another discrepancy that arose from the data refers to the source of teachers’ reflection-for-action in response to reflection-in-action. While Madeline recognized students’ disequilibrium during a lesson through formative assessment, Rebecca described a “gut feeling” she had. In Madeline’s own words, she recalled, “The number of children who were giving their thumbs up at different places along the way that indicated some sort of disequilibrium, not confusion, but I wanted to clarify where their thinking was” (Madeline, Stimulated Recall Interview, February 2019). In contrast, Rebecca revealed the following as a characterization of a particular teaching episode: “Uncertainty. I think just really that teacher gut. You know when you send them off and they’re ready to go. I sent them off and I did not have a strong feeling of where they were at.” (Rebecca, Stimulated Recall Interview, December 2018).

The teachers’ observations of students during classroom events led to disequilibrium, providing content for reflection-in, -on, and -for-action during lesson study.

Summary of Theme

Emerging as the second theme of this qualitative study, the teachers reflecting on unexpected classroom events during lesson study was referenced 141 times throughout the data. The sub-themes of reflecting-in and -on action to respond to student needs and disequilibrium of classroom events supported the overarching theme by describing the ways in which teachers gathered information from students as well as the various ways in which they chose to respond.

Initiating Action Steps after Lesson Study

The third of four major themes that emerged from the data were initiating action steps after lesson study. The teacher participants in this study referenced action steps as a result of their reflection-in and -on action 109 times throughout the data. From this overarching theme, the following sub-themes emerged: 1) new thinking after lesson study and 2) reflecting to improve teaching and learning.

New Thinking after Lesson Study

The teachers referenced their new thinking as a result of experiences that took place within the lesson study cycle 61 times. The sub-theme of new thinking after lesson study refers to any new understandings related to content, pedagogy, and/or professional learning the teachers expressed.

For example, both Brittney and Rebecca communicated new thinking associated with teaching practices as a result of their lesson study experience, namely new understanding related to differentiation and gradual release of responsibility. Brittney also identified particular teaching

strategies that served as new thinking and even discussed implementation of those strategies.

“Sticky teaching strategies” (Brittney, Stimulated Recall Interview, December 2018) were first introduced by Melissa, the knowledgeable other who provided closing comments at the end of each lesson debrief. Strategies such as gesturing and using anchor charts with students are called “sticky teaching strategies” due to their intention to make the teaching stick with students.

Brittney shared that the reflections built into the lesson debriefing sessions allowed her to recognize those small but impactful changes and apply them to lessons beyond the research lesson. For example, she shared that she and the rest of her teammates continued to apply their learning about using language stems that emerged from the reflection-on action during one of the lesson debriefing sessions. Additionally, Rebecca identified a particular example of how the team took an idea that came from their reflection-on action in a lesson debrief and applied it beyond the lesson study:

We’ve also moved forward and we’ve used picture books and just had the kids look at the pictures. That was one of my takeaways after having them go off and read on their own. Some of those early level readers didn’t offer a lot for them to have a structure of the story, problem, solution, but they could easily do that in pictures. (Rebecca, Stimulated Recall Interview, November 2019)

Rebecca also identified new thinking related to one of the instructional components of the mini-lesson which was discussed in several of the lesson debriefing sessions. Rebecca shared her new understanding about the purpose of linking the day’s lesson to ongoing work the students were doing: “I think that was really my big takeaway; I need to put far more importance on that link than I have in the past. And then having that link be part of partner work when the students come back together as a whole group” (Rebecca, Stimulated Recall Interview, December 2018). Further discussing how her thinking had changed, Rebecca expressed, “I think before, I always

thought of the link as the end of the lesson. It's just the end of the first act" (Rebecca, Stimulated Recall Interview, December 2018).

Madeline often spoke about the learning she took away from the lesson studies pertaining to planning and teaching with the bigger picture in mind. Specifically, she described that she continues to highlight for her students the importance of what she is teaching for a reader's life rather than for that lesson or that grade. Throughout our interviews, she reflected on the importance of making the students' learning go beyond that day and beyond her classroom.

Madeline was the most vocal about the importance of teaching for transfer, although all three teachers discussed this in some way. Madeline described how her thinking from a previous lesson study stayed with her and emphasized she would use it to prompt her own thinking when planning, specifically asking herself, "Is it about the skill or the transference?" (Madeline, Details of the Experience Interview, November 2018). Not only did Madeline continue to probe her own thinking, but the thinking of her teammates as well. Noting that she felt "invigorated" (Madeline, Details of the Experience Interview, December 2018) when she asked her teammates to reflect on their teaching by asking them to consider whether what they taught was instructed in a way that was transferable rather than for particular content for that lesson. Further illustrating her continued thinking about teaching for transfer, Madeline reflected,

That transferable piece just keeps sticking in my head, and that's making me think bigger than just my lesson. It's making me think about my questions and instructional language, especially during that link, that are helping students to see that this isn't just for right now, this is for the life of a reader. I'm starting to think about that transferable piece, and the challenge I have is I don't believe that I've done that consistently yet. (Madeline, Stimulated Recall Interview, December 2018)

Brittney shared similar insight when she talked about intentionally linking her reading lesson focus to a bigger picture at the conclusion of each lesson, learning she took away from the

collaborative reflection-on action that occurred within the lesson study debriefs. This idea of intentional teaching for transfer was continually talked about, reflected on, and applied within and beyond the lesson studies by all three teachers. Brittney specifically commented on a gesture she asked her students to use during one of the research lessons, noting that it was her hope that it would serve as an anchor to the students' learning that day and as they continued retelling stories months down the road.

Not only did the teachers discuss their new thinking about teaching practices and instructional contexts but also the use of instructional resources. Leveled text was a topic of conversation throughout the team's third and final lesson study and led to the team's experimentation within that lesson study, using different texts in each of the three research lessons. The team's experimentation involved first using a complex text previously read aloud, then changing to a less complex text previously read aloud, to deciding to use a leveled reader not previously read but aligned to the level of text most students could access independently (Observation Field Notes, February 2019).

As a result, all three teachers came to a new understanding about the use of leveled texts in mini-lessons. During a lesson debrief, Madeline summarized the team's learning about the difficulties of using complicated texts within the mini-lesson, as this was a time the students actually needed more scaffolds. Demonstrating her shift in thinking, she concluded, "Maybe those rich texts are for a different purpose" (Observation Field Notes, February 2019).

All three teachers described their new thinking resulting from structures and processes embedded in the lesson study cycle. The lesson debriefs that occurred after each lesson observation provided a context to make changes to implement that same day. However, the teachers continued to make adjustments to their instruction after the lesson studies concluded.

They all initiated action steps related to the new thinking that emerged from their experiences. The participants made it clear through their multiple comments throughout the interviews that what happened in the lesson studies did not simply stay in the lesson studies. They all discussed how the lesson debriefs supported their new thinking about teaching for transfer across disciplines and grades, teaching practices, instructional contexts, instructional resources, and professional learning structures. They also described how some of the people and processes involved in lesson study have impacted their initiation of action steps.

The presence and contributions from a knowledgeable other during the lesson debriefs was a contributing factor to the development of new thinking for all three teachers. Throughout observations during the lesson debriefs, a pattern began to emerge in response to the knowledgeable other's remarks. At the conclusion of each lesson debrief, the knowledgeable other shared a summary of her notes. One or more of the observing teachers always responded with an affirming statement, a question, or an action step to take. For example, near the conclusion of a lesson debrief during the second lesson study, the knowledgeable other commented on a need for the team to map out the order of lessons, prompting Rebecca to affirm, "Maybe that's what we're missing" (Observation Field Notes, December 2018). It is worth noting that during the final debrief of the second lesson study, all of the teachers picked up their pencils as soon as the knowledgeable other picked up her notes to share her final comments. Commenting on the knowledgeable other's contributions to the team's new thinking, Brittney summed it up in this way:

I will say as part of the reflective process I valued having her ask different questions. I think that really helped feed into new learning and new ideas. I think having a knowledgeable other was really kind of unique. There were ideas we took from her comments specifically. (Brittney, Meaning of the Experience Interview, February 2019)

Not only did the post-lesson discussions throughout the lesson study cycle support the team's new thinking through the knowledgeable other's comments, but the facilitated sessions allowed the teachers to acknowledge new thinking from reflection with peers and the shared observations of the research lessons. All three teachers commented on the new thinking that emerged as a result of this collaborative experience. Madeline recalled how collaborative discussions led to new thinking about retelling, a literacy comprehension skill: "I think we're onto something here with getting the kids really connected with what's happening with the character and where's that problem first begin? I've not thought of retelling in that way, until this collaborative experience with my peers" (Madeline, Details of the Experience Interview, December 2018).

In addition to the focus on teaching for transfer that all three teachers discussed as an outcome of their lesson study experience, they also described how elements of the lesson study process led to new thinking about how they engage in professional learning collaboratively. For example, Rebecca noted elements of the lesson study that have been beneficial to embed in their team's protected professional learning time, namely reflection on lessons taught and making adjustments to improve student learning. She reflected that she has seen carryover of the deeper discussions the team is able to have not just during lesson study debriefs but outside of that time as well. In fact, she recalled how even casual conversations with a teammate have changed: "I'll be sitting and talking to either one of them and that level is even different from doing this work" (Rebecca, Meaning of the Experience Interview, February 2019). She attributed the different level to the way they now challenge each other through questioning and talk about the lesson's purpose when reflecting-on action. Madeline further discussed how the team's collaborative time

outside of lesson study has changed, acknowledging how the team now responds to differing student outcomes when reflecting-on action:

Although we come from different viewpoints and perhaps different beliefs about children, I think that when we see or hear something happening differently, we're willing to ask the questions. I think because we've been having those kinds of questions within our lesson study experience and now they're happening outside of this experience. (Madeline, Meaning of the Experience Interview, March 2019)

Brittney also acknowledged how the team's collaborative time has changed because of their shared lesson study experience. She indicated that beyond the final lesson debrief embedded within the lesson study protocol, the teachers got together on their own to continue reflection-on action, discussing more observations and implications for classroom practice than time allowed for in the debrief.

During our final interview, Madeline deemed her lesson study experience as "powerful" and began to plan for transferring the process across all subject areas – not just literacy. Madeline specifically gave an example of what her team had done in the past, which consisted of talking generally about a few lessons, and offered an alternative:

When we are approaching something and can think ahead about this particular lesson in math that is always a challenge, we could use this process and we could really be more intentional in our planning for it so that we have a similar impactful result. (Madeline, Meaning of the Experience Interview, March 2019)

While Brittney and Rebecca discussed how the lesson study process transferred to their collaborative team meetings, Madeline also described how the role of reflective questioning within the lesson study debriefs transferred to her own reflective practice:

The questions that were posed as part of our debriefing sessions - they linger with me. I wrestle with those sometimes. Or I will reflect after doing a lesson on my own, and think, 'Wait a minute - that wasn't what I was after. How can I take it there now?' And that's because of this experience. (Madeline, Meaning of the Experience Interview, March 2019)

The teachers clearly articulated how elements of lesson study, namely the questions they pose to themselves and each other, had transferred beyond the days protected for lesson study. They also articulated their desire and willingness to continue using lesson study as a collaborative learning model. As Madeline projected to the future and the ways in which she wants to learn and hone her reflective practice, she stated, “When I think of the future and I think about next year, I don’t want to not do a lesson study.” She continued,

I feel like this has to become a regular part of my growth as a professional. I’m a better teacher, in such a different way than when I’m doing things on my own or with just one other individual. I’m probably going to be seeking in my future more common experiences like this. (Madeline, Meaning of the Experience Interview, March 2019)

Sharing similar sentiments, Rebecca said simply, “Let’s do it again! Let’s do it again. Maybe not this month. But I think it would definitely be helpful to go through yet another cycle” (Rebecca, Meaning of the Experience Interview, February 2019). Brittney discussed the importance of involving colleagues from other schools in District A at length, commenting on the expertise that exists throughout the district without a system for tapping into that in a meaningful way. She shared her dream in this way:

If we got together with different schools and did things like this would we have similar outcomes? Thinking back on all the years I’ve been here, we’ve never done anything like that. We might get together and people complain about things, but there isn’t a lot of reflection going on. (Brittney, Meaning of the Experience Interview, February 2019)

The data revealed that the teachers’ experiences throughout the lesson study cycle led to their initiation of action steps after lesson study. They developed new thinking about content, pedagogy, and structures to support their continued professional growth. The teachers acknowledged new thinking stemming from the structures and processes embedded in lesson study. Teachers’ new thinking grew out of their reflections-in and -on action during research lesson observations and facilitated lesson debrief sessions. This supports the overarching theme

of initiating action steps after lesson study, as it demonstrates how teachers' new thinking and ideas have been transferred into everyday practice.

Reflecting to Improve Teaching and Learning

Referencing reflecting to improve teaching and learning 48 times in the data, this supports the overarching theme of initiating action steps after lesson study. The sub-theme of reflecting to improve teaching and learning refers to the lesson adjustments and next steps identified and taken to improve instruction that were observed and/or discussed by the teachers during our interviews.

All three teachers referenced their reflection-on action leading to reflection-for-action, that is intending to make improvements, throughout our interviews. In her own words, Brittney emphasized the importance of taking further action when reflecting-on action: "I always feel like there has to be an action after it, too – that follow up piece. Because you can just reflect, but there's no purpose unless you're going to take an action after it" (Brittney, Life History Interview, November 2018). In our first interview, Rebecca defined reflection with similar characteristics as Brittney, alluding to the reflection-for-action that follows her reflection-on action. When asked how she defined reflective practice, she responded, "Looking back on practice, looking back to determine how you can target in on what specifically worked, possibly what didn't work, and how you can make those changes, those adaptations, to make your classroom successful" (Rebecca, Life History Interview, November 2018). Similarly, Madeline recalled the reflection she tends to engage in when she has quiet time to herself, namely her lunch break. In her own words, Madeline described her reflective process in this way: "There's a lot going through my mind, kind-of looking back over the morning or thinking ahead to how I

can use what I learned to help me later today or tomorrow” (Madeline, Life History Interview, November 2018).

During our initial interviews, the three teachers indicated their reflection-on action involved identifying next action steps for improving teaching and learning, and this was observed throughout the lesson study cycle. All three teachers discussed how their reflection centered on improving instruction and highlighted examples of action steps taken after lesson study. All three teachers consistently reflected-on action by first discussing the successes experienced and then talking about the changes that may need to be made. The lesson study debrief protocol supported this, as the facilitator invited the teacher who taught the research lesson to first share what went well followed by what did not work well within the lesson.

Brittney made connections between her own process of reflection-on action and what she experienced during the lesson study debriefs, noting that her team always started with the positives or the observations that exemplified student understanding and then began to discuss teaching moves that might be more successful. Noting the similarities between her own process and what happened within the lesson studies, she shared, “When I reflect I think about what went well, what I could do differently and why, and we did this during lesson studies” (Brittney, Details of the Experience Interview, November 2018). Sharing what she believes should happen every time teachers reflect, she described the process she experienced during lesson studies in this way: “It’s that process of what went well, how the kids reacted, and what can I do to help their reaction. Let’s try it and see if it did anything. And then you go back to reflecting again. Ok, did this do anything?” (Brittney, Meaning of the Experience Interview, February 2019).

During the lesson debriefs following the research lesson observations, the teachers suggested changes based on the evidence they collected. To illustrate this, Brittney tended to ask

the group questions in response to observations and reflections: “Should we do this in the share? Not all students will be ready in the active engagement” (Observation Field Notes, December 2018). Additionally, after the knowledgeable other shared comments at the conclusion of a session, Brittney asked the group, “Is that something we want to adjust?” (Observation Field Notes, November 2018). During a lesson debrief, Madeline suggested a change in the form of a statement, sharing, “A possible change might be” and continued to describe a way the team might address the complexity of the text being used with students in the research lesson (Observation Field Notes, February 2019). Rebecca commented on the changes the team was able to make, recalling, “I think it was helpful actually going in and looking at ways to change the lesson to benefit the students. We put ideas out there and came to some compromises in some instances” (Rebecca, Details of the Experience Interview, December 2018).

All three teachers described a process of beginning with successes prior to identifying possible causes and implications, and they all discussed this in different contexts of their reflection-on action. Madeline commented that she spends equal amounts of time reflecting on what went well and what did not: “I think that after my lesson I was just as reflective about what I felt went well and what I would’ve changed about the lesson” (Madeline, Stimulated Recall Interview, December 2018). Rebecca elaborated on the importance and rationale for reflecting on the successes and not just what did not work well, indicating that identifying the factors that led to that success support her in moving forward to replicate the practice. In her own words, she recalled the questions she asks herself in identifying successful factors: “What led to that success? What was it in your practice, what was it in those lessons that led to that success?” (Rebecca, Life History Interview, November 2018).

After experiencing the entire lesson study cycle, Brittney discussed the importance of having continued collaborative conversations about what went well and what did not, noting her desire to observe the instruction prior to having those collaborative conversations with her peers. Madeline recalled reflecting on successes prior to possible changes in both collaborative and individual settings, and Rebecca referred to journaling as a means of recording her thought process about what worked and did not to go back at a later time to make changes. While journaling was not a part of the lesson study process, documenting the lesson, reflections, and changes to each research lesson all occurred consistently throughout the lesson study cycle. All of the teachers' examples show connections between the reflection-on action that occurred within their lesson study experience and their own reflective practice.

Projecting to the future, Brittney reflected on her experience in the lesson study cycle and how she envisions her team continuing to work together. While they had a chance to reflect on each individual lesson they taught in each of the three lesson studies, they did not have a chance to reflect on the set of lessons as a whole. Because of this, Brittney wanted to get together as a team to "really reflect on these lessons, what can we change now that we've been through this and we've seen the outcomes a couple times." (Brittney, Meaning of the Experience Interview, February 2019).

Madeline also envisioned how she wants her team to continue to work together, discussing how her own reflective practice has shifted to place more emphasis on the reflection with her peers. She reflected, "So it's shifted away from just myself to my team. How can we as a team shift and adjust these lessons to be as targeted and as transferable as possible moving forward?" (Madeline, Meaning of the Experience Interview, March 2019). Sharing similar

insights, Rebecca commented on the role of continued, collaborative conversation in identifying next steps to improve instruction:

So it's more or less about keeping that conversation going, talking about what is and is not working. Talking about why these kids are not moving where they need to move and what could be those next steps that would move them along more. (Rebecca, Meaning of the Experience Interview, February 2019)

Throughout the lesson study cycle, the teachers identified lesson adjustments in the form of next steps for upcoming research lessons as well as the lessons they would be teaching on their own outside of the lesson study. Brittney recalled the role that next steps played as she described what she (and the team) identified for themselves during each of the final debrief sessions in the lesson study cycle:

We all had a thought on where we were going next with it, so it wasn't like this was over – it's a lesson, it's all done. We were thinking about what's going to come next in our teaching. So I think because all of us had a next step it made it more valuable, too. (Brittney, Details of the Experience Interview, December 2018)

Further describing how the team identified the next steps for their instruction on retelling, Brittney recalled what transpired after the conclusion of the first lesson study in this way: “We definitely met as a team to move forward from that and make some generic plans of what steps might be next” (Brittney, Details of the Experience Interview, November 2018). Rebecca elaborated even further on how her identified next steps to improve teaching and learning played out in the classroom:

We spent the rest of the week on retelling the beginning of the story, and I think that the reflection absolutely helped me determine those next steps. And thinking of ways to make sure that they have this in place before we move to non-fiction when we come back from winter break. (Rebecca, Meaning of the Experience Interview, February 2019)

Throughout the interviews and observations, the teachers demonstrated and described the adjustments they made individually and collectively to improve instruction for students. The

teachers' improvements often came from their reflections-on action, responding to observations made during the research lesson, comments from the knowledgeable other, and questions they asked each other during facilitated lesson debrief sessions. The improvements the teachers identified resulted in action steps taken either immediately within the lesson study or in the days following the lesson study, thus supporting the overarching theme of initiating action steps after lesson study.

Summary of Theme

Referenced a total of 109 times, the teachers initiating action steps after lesson study arose as the third theme of this study. The sub-themes of new thinking after lesson study and reflecting to improve teaching and learning both support this overarching theme as they provided context for the kinds of action steps the teachers initiated as a result of their reflections-in and -on action. The sub-themes also demonstrate how and why the teachers engaged in reflection-for-action.

Questions Drive Reflections During and After Lesson Study

The final theme that emerged through analysis of the data was questions drive reflections during and after lesson study and was mentioned 102 times. The data revealed the following sub-themes: 1) teacher-initiated questioning -in, -on, and -for-action and 2) teachers asking why questions. These two sub-themes will be discussed in more detail and examined through the words and observations of the participants.

Teacher-Initiated Questioning -In, -On, and -For-Action

The questions the teachers initiated to aid in their reflective practice were referenced 65 times in the data. This supports the overarching theme of questions drive reflections during and after lesson study and highlights the weight teachers placed on initiating questions to aid in their individual reflection and reflection with peers. The sub-theme of teacher-initiated questioning-in, -on, and -for-action refers to the actual questions teachers described asking themselves and each other as part of their reflective practice during and after lesson study.

The data revealed several purposes for teacher-initiated questioning: to anticipate changes, to evaluate, to wrestle with decisions, and to include colleagues in their reflective practice. For example, all three teachers shared a series of questions they ask themselves to anticipate changes and/or next steps in instruction as part of their reflective practice. This was clear through each of our initial interviews. However, as the teachers continued describing their reflective practice during and after lesson study, their next steps questions evolved.

Rather than simply anticipating possible next steps as part of her reflection-for-action, Rebecca began to ask herself questions to anticipate the outcomes of potential changes in instruction. Examples of such questions include “What would be that growth? What would be that outcome?” (Rebecca, Meaning of the Experience Interview, February 2019). Her questioning also implied a cycle of reflection-for-action and -on-action. Her reflection-for-action questions were followed with those that would support her own evaluation of anticipated outcomes, such as “Did I get the anticipated outcome? And what would I tweak for next time?” (Rebecca, Meaning of the Experience Interview, February 2019).

Brittney recognized student complacency as a reason she guides her reflection through questions pertaining to next steps. The series of questions she shared during our initial interview include:

This has been great, but now what? What's the next step? What am I seeing the students doing or not doing? Are they too comfortable? Is it time to change things? Do I need to guide them in a different direction? Do I need to do more learning because something I'm trying to do isn't working? (Brittney, Life History Interview, November 2018)

While these were questions Brittney was already used to asking herself as part of her reflective practice prior to engaging in this lesson study cycle, her next step questions evolved to those that she asked her team to aid in their reflection together. Commenting on the purpose of such questions and sharing examples, she recalled, "It's not about venting or talking about 'this was terrible,' but what can we do to improve it? What can we do to move forward?" (Brittney, Meaning of the Experience Interview, February 2019).

Similarly, Madeline described next step questions she was used to asking herself as part of her reflective practice prior to lesson study that were similar to the questions Brittney shared. However, her questions evolved from general questions about pedagogy to questions specific to the instructional moves she was deliberately making, placing a greater emphasis on her evaluation of what happened and how it happened before anticipating next steps. In her own words, she shared the shift in reflective practice she experienced after lesson study:

I feel that the reflective practice that I was engaged in on my own, on a day-to-day basis, on-the-fly, every moment of everyday, continually reflecting and thinking 'How could I have done that differently? How could this have been more supportive for this student?' As teachers we're always doing that. I guess I would consider that a Category 1 reflection because we all do it. (Madeline, Meaning of the Experience Interview, March 2019)

Further discussing the more nuanced questions she found herself asking after her lesson study experience, she shared,

When I sit and think longer, I have to think about the bigger picture, and I ask myself, ‘How is my questioning within this lesson supporting students? How is it a scaffold for what comes next? Is it language that I can use to bridge all future learning about reading to the greater life-long picture of reading? Am I really setting the purpose big enough for them and communicating it to them?’ (Madeline, Meaning of the Experience Interview, March 2019)

In addition to the reflection she engages in related to next steps, Madeline also initiated questions for herself to evaluate whether she and her students had reached their goals. It was evident that Madeline valued the use of evidence in her evaluation of meeting outcomes. She described her reflection-on action in this way: “Having had this journey in my own head, reflecting and thinking back over, Alright, Am I reaching them the way that I’m hoping I am? What evidence do I have?” (Madeline, Meaning of the Experience Interview, March 2019). Not only did she initiate these questions for her self-reflection after lesson study, but I also observed several examples of questions she posed to her teammates to support their reflection-on action. The following examples refer to a discussion the team had centered on linking the lesson’s teaching point to other learning: “One thing I’m wondering; I feel it most at the link. Are we getting there too fast? Do we give the link enough time?” (Observation Field Notes, November 2018).

Madeline’s evaluative questions were observed and shared in multiple contexts, including her own reflection-in-action during lesson study. Referring to a point she recognized during a surprising student exchange, she described what was happening in her mind in that moment. Again a series of questions aided in her decision to respond to the students rather than wait. In describing the struggle she experienced, she shared,

That’s a wrestling point with me sometimes. I want to go naturally where the kids are taking me because it’s authentic. But at the same time, I don’t want to lose sight of the course we’re on right now. Have we sufficiently gone far enough to be able to hold onto

what we've learned? Or do we need to go a little bit farther before we take this detour? (Madeline, Stimulated Recall Interview, February 2019)

Further highlighting the questioning that aided her reflection-in-action during lesson study, Madeline shared the following series of questions she asked in her head: "Do I go there now? Because it's out there? Or do I ignore it and just kind-of keep going?" (Madeline, Stimulated Recall Interview, February 2019). Rebecca also described questions she asked herself when wrestling with instructional decisions as part of her reflection-on action after lesson study. While Madeline weighed her options in the moment, Rebecca shared the questions she asks to evaluate the effectiveness of her instructional choices as well as to anticipate possible next steps. She also shared the points with her teammates during research lesson debriefs, asking her team questions as well as modeling the questioning she engages in when immediately reflecting-on action. For example, in one instance she shared with the team, "When I sent them off to share, I thought, 'I wonder if that was enough'" (Observation Field Notes, February 2019). She also described many examples of the questioning she initiated to reflect-on action to evaluate student understanding. In multiple interviews she shared questions that allowed her to reflect-on action and for-action by clarifying which students had met the outcome and were applying it in other contexts. Examples of such questions include:

Who's got it? Who doesn't have it? Who needs additional teaching? Does it look like they're getting it, the class as a whole? Are most of them understanding and really applying and practicing? Or is this not working and we need to change this up again? (Rebecca, Meaning of the Experience Interview, February 2019)

Rebecca further demonstrated her self-questioning to evaluate the effectiveness of her instructional decisions in light of student understanding and priorities for student learning. Several times throughout our interviews she questioned the relevancy of her teaching decisions as she reflected-on action after lesson study. Sharing one such example, "Did it really matter?

Did they already have it? Did we really need to clarify that they walked? It didn't really matter."

(Rebecca, Details of the Experience Interview, December 2018). In another example she questioned the time spent on teaching in relation to its importance while reflecting-on action: "Is what I spent all that time on truly worth my kids' time? Is there a better way I can spend that time?" (Rebecca, Meaning of the Experience Interview, February 2019).

Rebecca's questioning to support her reflection-on and -for-action focused on an overall evaluation of which students understood intended outcomes and which teaching moves contributed to their understanding. Similarly, Madeline described the reflection-for-action she consistently engaged in after lesson study, focusing on instructional outcomes and teaching moves, guided by her own questions:

I'm going into things constantly cycling through that thought process of what is my outcome here? What do I know about my students? What do I want them to be able to do? How will I know when they do it? All of those instructional questions that we continually ask but then adding in the craft of it - how do I want them to experience this? And that has become just as important. (Madeline, Details of the Experience Interview, November 2018).

Specifically, Madeline described asking herself questions to reflect on particular instructional moves related to teacher questioning and instructional language. Through her reflection-on action, she also wanted to ensure that the instructional moves she was making were providing the right amount of challenge and support: "Am I reaching this group of diverse learners in a way that is helping them grow? Or am I doing things that are making it more challenging? Have I been supportive enough? Are my expectations realistic?" (Madeline, Meaning of the Experience Interview, March 2019).

While many of the examples the teachers provided related to their individual reflection, both Madeline and Rebecca shared examples of questions that brought colleagues into their

individual reflections in some way. For example, Madeline described asking a series of questions that helped her identify what her colleagues could help her with as part of her reflection-for-action. The following questions illustrate this: “Where can my colleagues support me? What questions do I feel I need to talk with them about? Are they experiencing the same things?” She further described a change in her reflective practice: “I feel myself in my reflection now, not being solo” (Madeline, Meaning of the Experience Interview, March 2019).

In a similar manner, Rebecca implied her desire to include her colleagues’ reflections-on-action with her own, referring to their years of classroom experience differing from hers, as she had spent a long time in a different role as a reading specialist. She shared the following examples: “Did I have that same experience? Was my experience different? I really want to hear their thinking, especially since both of them have been in the classroom and I was out” (Rebecca, Meaning of the Experience Interview, February 2019).

All three participants initiated questions to aid their individual reflection and reflection with peers; however, Madeline and Rebecca described more examples throughout our interviews. It was clear that the teachers’ self-initiated questions changed during and after engaging in lesson study. They began to probe their own and each other’s thinking in more nuanced ways, including evaluating the effectiveness of their instructional moves in relation to meeting intended learning outcomes.

Teachers Asking the Why Questions

The data revealed another sub-theme to support the overarching theme of questions drive reflections during and after lesson study. Teachers asking why questions refers to the questions the teachers described when seeking to focus their reflections. The why questions refer to

questions about possible reasons students struggle and/or succeed. They also refer to the teachers' intended purpose of proposed changes to instruction. Teachers asking the why questions was referenced 37 times in the data.

Madeline perceived shifts in her reflective practice, attributing them in part to the questions that supported her examination of her decision-making to identify why she made particular choices. In describing her reflection-on action after taking part in the lesson study cycle, she shared, "The depth in really going into the instructional language, the actual impact on students, the whys behind the decision-making, I wouldn't say that that's where my reflection always was" (Madeline, Meaning of the Experience Interview, March 2019).

Not only did Madeline describe the why questions she asked herself, she discussed how this has carried into the collaborative reflection-for-action she takes part in with her team outside of the lesson study experience. In her own words, Madeline shared, "We don't all have to do it the same way, but if it's a practice or a way of doing something that's different than what I'm used to, I'm probably going to ask the why question" (Madeline, Details of the Experience Interview, December 2018).

The majority of the data supporting this sub-theme came from my interviews with Rebecca. She first revealed the discomfort she felt in reflecting-on action to identify why she made the choices she made during a particular teaching episode, something she was asked to do during lesson study debriefs as well as our stimulated recall interviews. Expressing this discomfort, Rebecca revealed, "I'm not always comfortable that I know why I do it. I just do it, so to really think about and pull apart that why is difficult" (Rebecca, Details of the Experience Interview, November 2018).

Although reflecting-on action to include a rationale for her instructional decisions was not something with which Rebecca was initially comfortable, she did recognize the importance of it when she recalled, “That why is so specific and important. Everybody can do how and what – if you understand that why, that takes your teaching to a whole different level” (Rebecca, Details of the Experience Interview, November 2018).

After participating in the entire lesson study cycle, Rebecca attributed her shift to asking the why questions to what she experienced with her team during lesson study debriefs. The summation of her lesson study experience synthesized the lesson study process and included how the entire team asked the why questions when reflecting-for-action:

We wrote the lesson, we tweaked it, then we went in, and of course thinking about how it went in each of my teammates’ classrooms as well as mine, what changes we wanted to make and why we wanted to make those changes. People sometimes want to make changes but they don’t always understand the why, and I think that we worked really hard in understanding how it would benefit students. (Rebecca, Meaning of the Experience Interview, February 2019)

Rebecca further discussed how the lesson study process supported her in asking the why questions and transferred this to her independent practice:

I think having to explain why I did some of the things I did helped me to think more deeply about why I do make certain instructional decisions. As I move forward and reflect throughout my day, I will stop myself and ask the why questions. (Rebecca, Meaning of the Experience Interview, February 2019)

The lesson study process itself and the models her teammates provided during research lesson debriefs supported her in asking the why questions. Recalling examples of how her peers provided support through their modeling, she shared, “If somebody’s thinking something didn’t work, it’s helpful to listen to them talk about being really reflective about why they don’t think it worked. Or being reflective about why they think it did work” (Rebecca, Meaning of the Experience Interview, February 2019).

Both Madeline and Rebecca described their reflective practice after lesson study to include questions pertaining to why potential changes to instruction may be beneficial as well as why a particular teaching episode was or was not successful. However, the majority of the data came from interviews with Rebecca. Both teachers described shifts in their reflective practice to include asking why questions of themselves and/or each other.

Summary of Theme

Questions drive reflections during and after lesson study was supported by 102 references. The two sub-themes of teacher-initiated questions -in, -on, and -for-action and teachers asking why questions emerged. The sub-themes supported the overarching theme by providing examples of the numerous questions teachers initiated throughout the lesson study cycle as well as highlighting the role of asking why questions in shifting their reflective practice.

Summary of Major Themes

The four overarching themes that emerged from this study on teachers' reflective practice during and after participation in a lesson study cycle highlighted the factors the participants perceived to have experienced when reflecting-in, -on, and/or -for-action. Having the most supporting evidence, the power of peers during lesson study emerged as the most significant factor. The teachers reflecting on unexpected classroom events also played an integral role in the teachers' reflective practices during lesson study. Initiating action steps after lesson study and asking questions to drive reflections during and after lesson study were also found to be important. These four major themes contribute to answering the research questions for this study. As overarching themes were examined through the lens of the theoretical framework and in light

of the research questions, assertions were made to support a robust discussion of the findings.

Each of these assertions will be detailed in the next chapter as a discussion of major findings.

CHAPTER 5

DISCUSSION OF FINDINGS

This chapter includes a discussion of the five major findings that emerged in relation to teachers' reflective practice in lesson study. The focus of this chapter is an analysis of the findings in relation to past research on teachers' reflective practice and lesson study. Also included is an analysis of the findings in light of Schön's theory of reflection, the theoretical framework chosen for the study. I also describe implications of the major findings as well as recommendations for educational practice and future research.

Discussion of Major Findings

This study focused on three elementary teachers' reflective practice in lesson study. The methodology utilized multiple points of data from individual interviews, observations of the teachers engaged in three lesson studies, and stimulated recall interviews following each of the lesson studies. Findings from this study include the following assertions:

1. Teachers' reflective practice is supported through participation in a series of lesson studies that include the critical components of Japanese lesson study.
2. Peers serve as models of reflective practitioners in lesson study.
3. Teachers' reflective practice is facilitated by questions that are both the same and different than those asked in lesson study debriefs.

4. Teachers reflect-in and -for-action when they observe surprises in the midst of instruction during the research lessons.
5. Teachers reflect-on and -for-action when they study the effects of planned instructional strategies and adjustments made in the midst of instruction.

The major findings as they relate to the overarching themes and research questions are presented in Table 4.

These findings indicate that teachers' reflective practice is supported through all components (research lessons and lesson debriefs) of lesson study. In addition, teachers' reflective practice is supported through the critical components of Japanese lesson study. These critical components are participation by experts (knowledgeable others) in the field and lesson design by the lesson study team. In the following section, each of the five major findings are discussed, including how each finding relates to past research on this topic and the theoretical framework.

Finding #1: Reflective Practice and Critical Components of Japanese Lesson Study

The first finding relates to the research question: How do elementary teachers describe their reflective practice while engaging in lesson study? The teachers in this study were open to observing each other and reflecting together through the lesson study process, which was set up to include a series of facilitated lesson studies and the inclusion of a knowledgeable other. The study revealed that teachers' reflective practice is supported through participation in a series of lesson studies that include the critical components of Japanese lesson study.

Table 4

Alignment of Overarching Themes, Major Findings, and Research Questions

Overarching Themes and Major Findings	Research Question 1: How do elementary teachers describe their reflective practice while engaging in lesson study?	Research Question 2: How do elementary teachers describe their reflective practice after engaging in lesson study?	Research Question 3: How do elementary teachers reflect-in, -on, and -for-action while engaging in lesson study?
The power of peers during lesson study: Teachers' reflective practice is supported through participation in a series of lesson studies that include the critical components of Japanese lesson study. Peers serve as models of reflective practitioners in lesson study.	x		x
Reflecting on unexpected classroom events during lesson study: Teachers reflect-in and -for-action when they observe surprises in the midst of instruction during research lessons. Teachers reflect-on and -for-action when they study the effects of planned instructional strategies and adjustments made in the midst of instruction.	x		x
Initiating action steps after lesson study; Questions drive reflections during and after lesson study: Teachers' reflective practice is facilitated by questions that are both the same and different than those asked in lesson study debriefs.		x	x

Note. The overarching themes are bolded. Major findings are listed underneath the overarching themes.

Prior to this study, both Rebecca and Brittney had participated in previous lesson studies. However, their prior experience was limited to just one day of study and lacked critical components of Japanese lesson study. Even Madeline, who had not previously participated in lesson study herself, knew about the abbreviated model from colleagues who had shared their experience of lesson study within one day.

Rebecca noted that although her previous experience was helpful, it paled in comparison to her experience during this study. She attributed the difference to the series of lesson studies focused on the same long-term goal in which she and her teammates participated. Over the course of three months, she experienced the power of peers as she observed her team being able to have deeper discussions about student learning. These discussions centered on what did not work in the research lessons as well as what did. Madeline and Brittney also saw value in participating in a series of lesson studies, noting the difference they saw in the team's openness to experiment with different teaching moves the second time around. They realized the strength of a series of lesson studies in relation to their depth of thinking, and they each articulated a desire to participate in another round after the study concluded. This aligns with research on Japanese lesson study that describes the amount of time Japanese teachers spend engaging in lesson study (several months to a year) to produce significant improvements in instruction (Lewis, 2008; Richardson, 2004; Stigler & Hiebert, 1999; Yoshida, 1999).

Teachers' study of content and curricular materials to design research lessons is considered a critical component of Japanese lesson study (Fujii, 2016; Lewis, 2002; Lewis & Perry, 2014; Stigler & Hiebert, 1999; Watanabe et al., 2008). Research has supported the notion that it is often left out of lesson studies in the US (Meyer & Wilkinson, 2011; Perry & Lewis,

2009; Yoshida, 2012), contributing to the difficulty of implementing Japanese lesson study in the US.

The teachers in this study contributed a substantial amount of time to designing research lessons together, meeting before and after school to engage in the lesson design. Reflecting-for-action together, they studied assessments and supplemental curricular resources to design instruction in response to student difficulties while aligning the instruction to student assessments. Brittney shared in several interviews that her previous lesson study experience lacked this crucial component, a contributing factor in her uninspired evaluation of her previous lesson study experience. Her previous experience was more in line with a top-down hierarchical approach to lesson study, which can result in teachers feeling disconnected from the process and reporting dissatisfaction with their lesson study experiences (Akiba & Wilkinson, 2016; Gero, 2015). This mirrors the feelings Brittney expressed about her previous experiences.

Most notably, the teachers in this study valued the comments and questions offered by the knowledgeable other during lesson study debriefs. The contributions of the knowledgeable other supported the teachers' reflective practice in lesson study through the examples of reflections-on and -for-action she provided as well as the reflective questions she posed. The inclusion of a knowledgeable other on the lesson study team is a hallmark of authentic Japanese lesson study (Richardson, 2004; Takahashi, 2014; Watanabe et al., 2008; Yoshida, 2012).

It was evident that the teachers valued the knowledgeable other's comments because they all took notes when she spoke, made lesson adjustments based on her comments, and even sought out further professional reading related to topics she brought to the lesson debriefing sessions. Melissa, the knowledgeable other, not only provided comments, but she also asked reflective questions and served as an additional facilitator at times. Through interviews,

Madeline shared that the questions Melissa asked lingered with her and guided her own reflective practice outside of lesson study.

When examining the first major finding through the lens of Schön's theory of reflection, the teachers made new models of a problematic situation throughout the series of lesson studies. Schön's (1987) theory of reflection suggests practitioners see and learn by doing. The series of lesson studies provided approximately 15 hours dedicated to lesson design, observation of and teaching research lessons, and reflecting-on and -for-action during lesson study debriefing sessions. Peers experienced powerful interactions throughout all of these components of lesson study.

The critical components of lesson study, namely collaborative lesson design and the inclusion of a knowledgeable other to provide closing comments can also be examined through the theoretical framework. The teachers engaged in reflection-for-action together as they designed a series of research lessons, each in response to student assessment data gathered prior to launching the series of lesson studies as well as the observations made during each lesson study. The knowledgeable other offered comments to aid the teachers' reflection-on action. During the second and third lesson studies, I observed teachers including previous comments made by the knowledgeable other in their reflections-on action.

My study provided evidence to support the power peers provide in a lesson study that is 1) implemented as a series of lesson studies over time and 2) includes a knowledgeable other to ask reflective questions and provide comments during discussions. Currently missing from the body of research on lesson study is more specificity surrounding the knowledgeable other's role in lesson study and teachers' reflective practice. While Takahashi (2014) studied how prospective knowledgeable others can develop expertise in giving final comments, opportunities

exist for further examination of the moves knowledgeable others can make to support teachers' reflective practice in lesson study. A case study focused on the questions and comments of the knowledgeable other in US lesson study could contribute greatly to the field.

Finding #2: Peers as Models of Reflective Practitioners

The second major finding of this study also aligns with the first research question: How do elementary teachers describe their reflective practice while engaging in lesson study? All of the teachers described the role their peers played in learning together in lesson study, including modeling reflection-in, -on, and -for-action throughout the lesson study cycle. They described paying attention to each other's reflections to fuel their own reflective practice. The teachers also revealed the power of peers as models of reflective practitioners within their lesson study experience.

Although it was not in direct relation to her lesson study experience, it is important to share Brittney's thoughts about how reflective practice develops. She commented that she had always had colleagues who promoted reflection. During our initial interview, when asked her thoughts about how reflection develops, she spoke at length about the importance of having models of reflective practitioners from whom to learn. This is supported by Reagan et al. (2000), who acknowledge that educators on their course to becoming more reflective practitioners must engage in reflective conversations with colleagues. The teachers in this study engaged in reflective conversations with colleagues during the research lesson planning meetings and lesson debriefs within each of the three lesson studies.

Rebecca and Madeline learned from their peers' reflections-in, -on, and -for-action throughout the lesson studies, noting how they paid careful attention to the similarities and

differences between their own reflections and those of their teammates. Rebecca recognized she tended to be more succinct in her reflections than her peers were and wondered how she might elaborate on her thoughts to support her own reflective practice. When she compared her reflections-on action to those of Brittney and Madeline, she observed they often connected their reflections to their hunches about why students responded to instruction in the ways they did. After recognizing this and studying her peers' reflections-on action, she began to hypothesize about her own observations of students to reflect-for-action.

Not only did peers demonstrate reflective practice for each other, the knowledgeable other and lesson study facilitator served as models of reflection as well. The lesson study facilitator used the discussion protocol during every lesson study debrief. The guiding questions as part of the protocol provided models for the teachers, as did the follow-up and additional reflecting and clarifying questions posed during debriefs. Because the knowledgeable other and facilitator are both skilled and experienced instructional support coaches, they both contributed to the lesson study debriefs by asking questions and paraphrasing teachers' reflections throughout the discussions. In these ways, they, too, served as models of reflective practice and contributed to the power of peers through lesson study.

Schön's theory of reflection describes practitioners generating new knowing-in-action when surprising events occur, acknowledging that practitioners learn through job-embedded experiences rather than only university-based programs (Schön, 1987). When this finding is examined through the lens of the theoretical framework, it is essential to expand a definition of learning beyond content and pedagogy to include reflective practices as well. The teachers in this study all referred to learning reflective practices from peers. The lesson studies were job-embedded experiences in which teachers engaged in reflective conversations during their

lifelong journeys to become more reflective practitioners. This also aligns with research that supports how lesson study team members' interactions lead to learning and continuous improvement (Fernandez & Zilliox, 2011; Kuwabara & Yamaguchi, 2007).

This study begins to demonstrate how peers support each other's reflective practice and contributes to the current body of research pertaining to the relationship between teacher learning in lesson study and the support they receive during the process. While research suggests that when teachers receive support through the lesson study cycle they learn more (Takahashi, 2011), there is a missing body of research on how this support (knowledgeable other and facilitator) contributes to teachers' growth in reflective practice.

Future research is needed to better confirm or deny the relationship between lesson study support and teacher reflection. Worthy of further study is the role of the facilitator in lesson study through the lens of reflection. Greatly missing from the current body of research is a focus on lesson study facilitators and how they support teacher learning through reflection. A case study on lesson study facilitators is needed.

Additionally, further research is needed regarding peers' interactions in lesson study as they relate to reflective practice. This study touched on the power of peers as models of reflective practice in lesson study, and a case study devoted to this topic is needed to support these findings. Specifically, it would be interesting to study teachers who are in varied stages of development in their teaching careers. For example, what results would be produced when studying teachers who are unconsciously unskilled? An exploration of how peers study reflective practice in lesson study would also serve as an important addition to the current body of research.

Finding #3: Similarities and Differences in Questions in and Outside of Lesson Study

The third major finding of this study is teachers' reflective practice is facilitated by questions that are both the same and different than those asked in lesson study debriefs. It is aligned to the second research question: How do elementary teachers describe their reflective practice after engaging in lesson study? One of the overarching themes that arose from this study was questions drive reflections during and after lesson study. Brittney, Madeline, and Rebecca supported their own and each other's reflective practice through questioning. Some of the questions were carried over from those asked by the facilitator and/or the knowledgeable other within lesson studies, and some were questions they developed on their own after having participated in the lesson study cycle. Most of the questions teachers asked to drive their reflections were similar to the facilitator's in content and/or purpose. A visual depicting the similarities between the teachers' and the facilitator's questions is shown in Table 5.

The Lesson Study Discussion Guide offered several possible questions to support the team's discussion of data after observing a research lesson. The lesson study facilitator asked questions to connect teachers' observations and reflections. Brittney, Madeline, and Rebecca asked similar questions during their reflective conversations which occurred after the lesson studies to facilitate their individual reflection. In fact, the majority of the questions they posed to themselves and each other were iterations of those asked by the facilitator during lesson study.

Table 5

Comparison of Facilitator's and Teachers' Questions to Drive Reflections

Categories of Questions	Examples of questions asked by the facilitator	Examples of questions asked by the teachers
Questions about student successes	<i>What did you observe that contributes to student learning?</i>	<i>What went well?</i>
Questions about student difficulties	<i>What did you observe that interferes with student learning?</i> <i>What were potential barriers to student learning?</i>	<i>What was difficult for students?</i> <i>What didn't work well?</i>
Questions connecting instructional strategies to student learning	<i>How did (insert instructional strategy) support students?</i> <i>If students did not learn what you wanted them to, why not?</i>	<i>How is my questioning supporting student understanding?</i> <i>Were we getting the anticipated outcome from the lesson the way it was written? Why?</i>
Questions focused on making improvements	<i>What do you think the students need that will help them out?</i> <i>How do you anticipate students will respond differently?</i>	<i>What do we need to do?</i> <i>What should we tweak for next time?</i> <i>What is the anticipated outcome for students?</i>
Questions focused on future action steps	<i>What ideas do you have for future lessons?</i>	<i>What are those next steps to improve?</i>

In addition to these questions, the teachers also asked themselves different questions to support their reflections-in, -on, and -for-action. These tended to focus on teachers' learning needs and evaluation of their own teaching. Some examples include the following: What do I need to learn so that I can best support students? Where can my colleagues support me? Did my instructional language support students' understanding?

Questioning to support reflection creates space for practitioners to reflect aloud and for colleagues to hear their reflections (Lee & Barnett, 1994). Reflective practitioners have the

ability to pose powerful questions to reflect on their thinking (Dewey, 1933, 1962; Schön, 1983, 1987). This particular finding identifies a connection between the questioning used in lesson study debriefs to support teachers' reflections-on and -for action and the questions the teachers continued to use after the lesson study to support their reflective practice. Therefore, a skilled facilitator is imperative when implementing lesson study. The facilitator must model powerful questions to support teachers' reflections and develop new thinking habits (Smith, 2015).

Connections among major steps in the lesson study process (Lewis, 2008; Stigler & Hiebert, 1999; Yoshida, 1999), Schön's (1983; 1987) theory of reflection, and the role of questions to support reflective practice are depicted in Figure 5.1. Questions shown in the figure demonstrate the types of questions used to drive reflections in each major component of lesson study. Questions to guide reflection-in and -for-action during the teaching of research lessons were created based on what the teachers shared during interviews.

More research is needed to examine the types of questions that best promote reflective practice. Specifically, what types of questions promote teachers' reflections-in, -on, and -for-action within lesson study? It will also be important to study strategies that best support the gradual release of reflective questions to teachers' individual practice.

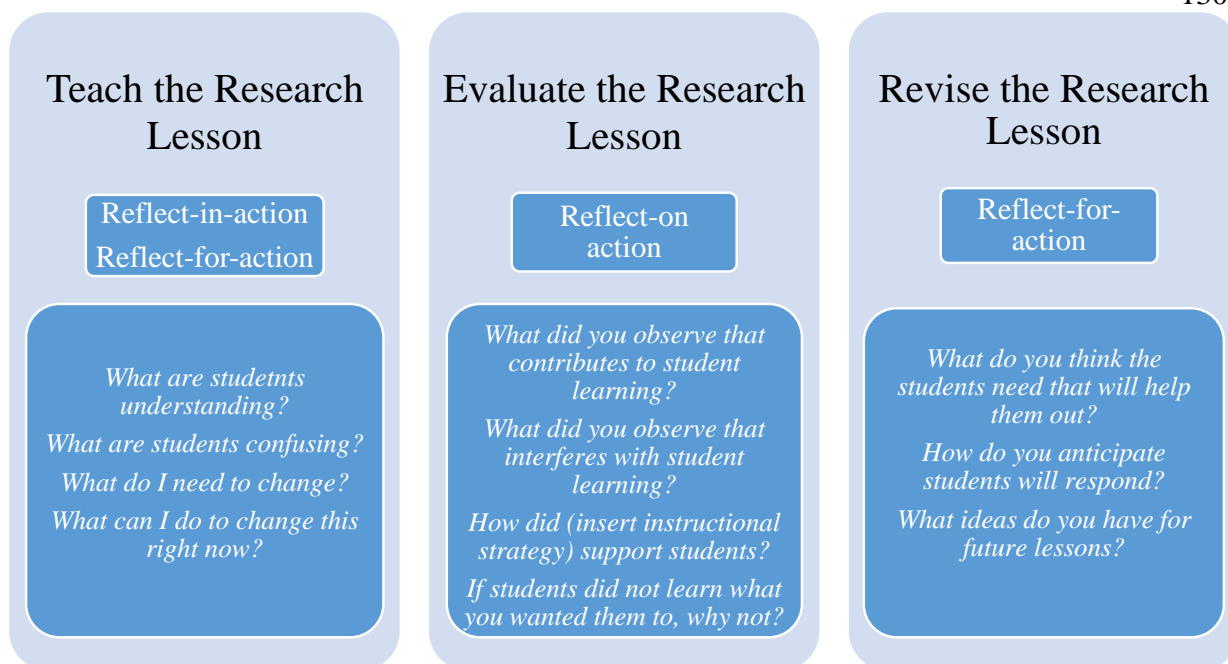


Figure 5.1: Connections among major components of lesson study, Schön's theory of reflection, and questions to drive reflections.

Finding #4: Observing Surprises during Research Lessons

The fourth finding of this research study relates to how teachers reflected on unexpected classroom events during lesson study. This aligns with the third research question: How do teachers reflect-in, -on, and -for-action while engaging in lesson study? Brittney, Madeline, and Rebecca reflected-in and -for-action when they observed surprises in the midst of instruction during the research lessons. They experienced and observed each other adjusting the research lessons in the moment when surprises arose. Because they designed research lessons together, they could easily identify when a change was made during instruction.

I attended the team's planning sessions prior to teaching the research lessons. As an instructional support coach, I supported the team in the planning process, as this was not a part of the study. We developed a lesson plan that included the lesson objective, how it fit into the

bigger curriculum framework, and the flow of instructional moves. Because I was familiar with the lesson plan, I could observe any changes teachers made to the plan during instruction of the research lessons. Observations of changes indicated teachers reflected-in and -for-action, and stimulated recall interviews confirmed this.

Brittney, Madeline, and Rebecca made changes to the research lessons when confronted with a surprise that took the form of student inattention, misconceptions, lack of comprehension, students initiating extensions to the lesson, and/or teacher recognition of instructional moves missing from the lesson plan. For example, at one point during a research lesson, Brittney reflected-in and -for-action when she realized students did not understand the academic language she was using and she chose to define it using a gesture and invited students to do the same. This example is in line with Schön's (1983, 1987) theory of reflection, as Brittney stopped to think in the moment to reframe a problem.

Madeline was observed taking a different course of action when student discussions illuminated new problems. Acting as a "researcher in the practice context," she responded to puzzling scenarios with the intention to make immediate change (Schön, 1983, p. 68). In this way, when faced with a surprise, she reflected-in and -for-action during research lessons. Rebecca, too, began to reflect-in-action after the first lesson study when she concluded her teammates could benefit from seeing how changes to the research lesson in the midst of instruction support or interfere with student learning.

Teachers have opportunities to engage in reflection-in-action every time they recognize a surprise in the midst of instruction, reframe problems, and change their course of action. Certainly this exists outside of lesson study. However, lesson study supports practitioners to develop a researcher lens (Hart & Carriere, 2011; Lewis, 2002). In other words, it supports

teachers to see and understand how students learn and think as they engage in intellectual work.

In lesson study, teachers know they will be coming together to reflect-on action together, sharing what they saw to determine what supported and interfered with student learning. It is possible that the process itself gives teachers permission to develop and test hypotheses in the form of reflection-in and -for-action (Dewey, 1933, 1962; Schön, 1983, 1987).

More research is needed to examine the difference in quantity and quality of teachers' reflections-in and -for-action both inside and outside of lesson study. Additionally, it is worth considering any sort of link between the misconceptions teachers anticipate and their perceptions of their reflections-in and -for-action. If teachers use planning guides similar to what is provided through the Lesson Study Alliance, they anticipate student misconceptions and responses as a crucial part of their process (Meyer & Wilkerson, 2011). If careful consideration of possible misconceptions has been a part of the planning process, it may be possible that teachers are more able to see what their students understand and how they think, which could make it more likely that teachers reflect-in and -for-action when surprises are uncovered.

Finding #5: Studying the Effects of Plans Implemented and Adjustments Made

The final major finding of this study reveals how teachers reflect-on and -for-action in lesson study. It relates to the third research question: How do teachers reflect-in, -on, and -for-action while engaging in lesson study and builds on the theme of reflecting on unexpected classroom events. The teachers in this study reflected-on and -for-action when they studied the effects of planned instructional strategies and adjustments made in the midst of instruction to inform future teaching.

Lesson study debriefs were conducted after every research lesson, positioning the teachers to reflect-on action using the observations they made and documented during the research lessons. This provided the teachers with opportunities to acknowledge surprises and challenges that presented during research lessons, an indicator of reflective practitioners (Schön, 1987). Not only did Brittney, Madeline, and Rebecca acknowledge surprises, they hypothesized about why the surprises may have occurred and studied how they contributed or interfered with student learning. They used the observations they documented to corroborate and, at times, reject a team member's assertions regarding the surprise.

Reflections-on action led directly to lesson revisions prior to teaching it to the next group of students, part of the cyclical nature of the lesson study model (Stigler & Hiebert, 1999). The teachers made lesson adjustments to provide scaffolds for students, use and define academic language during instruction, use different texts, and make the purpose of the lesson clearer to students at the beginning and end of the lesson. In these ways, the team of teachers established action plans to address their perceived barriers to student learning. Every debriefing session resulted in reflection-for-action or a new pathway for both student learning and continuous improvement of instruction (Killion & Todnem, 1991; Lewis, Perry & Hurd, 2004).

Not only did the teachers reflect-for-action to improve instruction, they also reflected on their process at the conclusion of each lesson study. The team reflected on what worked well and what changes they would suggest for the next time they learned together during a lesson study. They set goals for how they would work together the next time around to plan the research lesson and reflect-on and -for-action (Doig & Groves, 2011). They discussed changes related to the order in which they would teach the research lesson (i.e., the teacher who taught the first research lesson during the first lesson study would teach either the second or third research

lesson the following month), anticipated goals for the next research lesson, and even set a goal to spend more time reflecting on what did not work in the lessons. They also made plans to continue reflecting on learning from the lesson studies during their collaborative team time, in essence contributing to a culture of reflection, an outcome of lesson study supported by research (Gutierrez, 2015).

Absent from the current body of research is what kinds of documented observations made during research lessons best contribute to teachers' reflections-on and -for-action during lesson study. A case study guided by research questions related to observations of research lessons would be interesting. For example, what do teachers pay attention to as they observe research lessons? How do they document their observations? How do they describe their reflections-on and -for-action in relation to this?

Recommendations for Educators

As part of the discussion of the findings, recommendations were included as they related to each assertion. The following sub-sections outline specific recommendations for particular groups of educators. Recommendations for classroom teachers, instructional support coaches, and building and district leaders are described. Additionally, suggestions for further research are provided.

Recommendations for Classroom Teachers

An external approach to educational change has been prevalent for decades, resulting in feelings of inadequacy and dissatisfaction among teachers (Fullan, 1993, 2007; Sarason, 1990). When implemented in the way it is intended, lesson study puts teachers in the driver's seat to

identify problems, test hypotheses, study results, and make changes beyond the research lesson itself. Throughout the cycle, they reflect-in, -on, and -for-action, recognizing and responding to surprises with the support of their peers.

It is recommended that classroom teachers embrace opportunities to engage in lesson study to continue to develop and refine a researcher lens to question and study practice through reflecting-in, -on, and -for-action. Additionally, teachers should seize opportunities to reflect with peers, formally and informally. The lesson study process provides a formal structure for peer reflection; however, the teachers in this study sought out each other to reflect together outside of lesson study. Sometimes this happened more informally, or spontaneously. Other times the teachers used their protected team time during the school day to reflect together. It is recommended that classroom teachers take advantage of time they are afforded for team learning and include reflection-on and -for-action as part of their process.

This study illuminated the power of peers as models of reflective practitioners. Especially at the beginning of one's teaching career, classroom teachers should surround themselves with colleagues who engage in, model, and promote reflective practice. Lesson study provides a structure for teachers to engage in reflective practice with peers and to learn to become more reflective as well. It is recommended that classroom teachers pay careful attention to reflective questions posed by colleagues and to use such questions to support their own and others' reflective practice.

This study also revealed unexpected classroom events as being ripe for reflection-in, -on, and -for-action. It is recommended that classroom teachers anticipate and be on the lookout for unexpected events in the midst of instruction, engaging in reflection-for-action when applicable. When teachers realize a surprise, they may instead choose to proceed as planned but share the

unexpected event with colleagues after the fact to reflect-on and -for-action. In this way, peers can support each other in studying the effects of planned instructional strategies and brainstorm adjustments to respond to students.

Recommendations for Instructional Support Coaches

The following recommendations for instructional support coaches pertain to coaches who facilitate job-embedded professional learning in a non-evaluative role. The coaching model necessary to enact these recommendations requires coaches to partner with all teachers to improve student learning through curriculum analysis, data analysis, instructional changes, and examination of beliefs and practices (Killion, 2008).

This study found that teachers' reflective practice was supported through lesson study that closely embodied the process that originated in Japan. Therefore, it is recommended that instructional support coaches provide opportunities for teachers to engage in lesson study. This may require advocating for lesson study with building and district leaders, educating them on the way it works and the benefits for teachers and students. To do this, coaches should be extremely familiar with the Japanese lesson study model and its critical components. The effectiveness of lesson study hinges on a deep understanding of lesson study design and how it works (Hart & Carriere, 2011). Therefore, it is recommended that coaches take ample time to learn about the model prior to using it. Observing lesson study in action would be an effective way for coaches to prepare to facilitate lesson study with teams of teachers.

It is recommended that instructional coaches facilitate lesson study in a way that places ownership of the learning with the teachers. This means coaches should support teams in using data to identify their own long-term and short-term goals of the lesson study. Additionally,

ensuring that all critical components of lesson study are present is also recommended. This includes supporting teachers with planning and careful study of curriculum materials prior to teaching the research lesson, facilitating post-lesson discussions using the discussion guide from the Lesson Study Alliance, and working with teachers to invite a knowledgeable other to be a part of the planning and/or debriefing sessions during lesson study cycles.

It is recommended that coaches give careful consideration to the knowledgeable other who will be providing comments to teachers. Deep content knowledge of the subject being studied is imperative. Additional qualities to consider when selecting knowledgeable others include trustworthiness and proven effectiveness in teaching the subject under examination as well as providing useful feedback to adult learners. Although the knowledgeable other in this study was not part of the teachers' research lesson planning sessions, it may be helpful for coaches to bring them in at this stage in some way. In this study, the knowledgeable other played an integral role in the teachers' reflections-for-action, so being involved in the initial planning of the research lesson may support teachers in selecting instructional strategies and curricular materials. The knowledgeable other's involvement could be through direct participation in the planning sessions and/or giving feedback to research lesson plans prior to the team of teachers teaching them during lesson study.

It is also recommended that instructional support coaches provide teachers with protocols and templates to support teacher learning and reflection during lesson study cycles. Such tools can allow teachers to gain familiarity with questions that aid their reflecting-on and -for-action. When these questions are used again and again throughout lesson study, teachers are better prepared to use them to support their reflections outside of lesson study.

Because lesson study provides an avenue for peers to engage in reflective practice together, serving as models for each other, instructional coaches should use paraphrasing and questioning techniques to support peers as models of reflective practice who study and adopt reflective strategies from each other. For example, when an instructional coach observes a teacher asking a colleague a reflective question during lesson study, he/she may follow up with a question that supports the transfer of that process to situations outside of lesson study.

In addition, instructional coaches should support teachers in anticipating and observing unexpected classroom events, knowing the importance of this in relation to reflection-in-action. Instructional coaches may do this in a variety of ways that may include co-planning, co-teaching, and pointing out surprises while observing instruction. Coaches can also help teachers to reflect-on action, studying the effects of their plans through the facilitation of reflecting conversations.

Recommendations for Building and District Leaders

The following recommendations for building and district leaders pertain to overcoming barriers of time, ensuring that teachers are supported by a skilled facilitator and knowledgeable other, and a high commitment to engaging teachers in professional learning through lesson study. It is clear that the teachers in this study committed a substantial amount of time to learn through lesson study. Therefore, it is recommended that both district and building leaders support teacher teams in engaging in lesson study by making it as easy as possible for teachers to be out of their classrooms to observe research lessons and reflect-on and -for-action as part of post-lesson discussions. When teachers are out of their classrooms to observe research lessons, building leaders should find ways to ensure high-quality instruction is provided for students in the

teacher's absence (i.e., the social worker teaches a social emotional lesson, math and/or reading specialists teach their respective subjects of expertise).

In addition, building leaders should provide time for teams to meet to debrief and share learning from lesson studies as a means of professional learning. This could replace traditional staff meetings or school improvement days. Because building leaders will need to ensure teachers have ample time to devote to this as is required by the intended model, district leaders will need to support this as well. To do this, it is recommended that both district and building leaders become knowledgeable about lesson study as well. This may occur through their participation in lesson studies, perhaps as a knowledgeable other if applicable or even as observers of research lessons and participants in post-lesson discussions.

District leaders responsible for designing district-wide professional learning should consider opportunities to make lesson study available to all teachers as part of their continuing education. For example, if the district runs professional learning courses during the school year, leaders may find creative ways to provide salary credit for participation in lesson study just as they would participation in a more traditional course. It is also recommended that district leaders embed lesson study as part of their mentoring program for new teachers.

Suggestions for Future Research

While the findings and recommendations from this study are of benefit to the field, I have identified areas in need of further research regarding teachers' reflective practice in lesson study. The first four recommendations are based on different methodological choices for future studies to add to the current body of literature. The final recommendations are more closely related to

the findings of this study, based on a more careful analysis of the literature on reflective practice and lesson study as well as what is still lacking.

Diversify Participants' Level of Experience

The teachers in this study were all veteran elementary teachers who held Master's degrees. It is necessary to conduct similar research with varied samples from the teaching population. This could include novice teachers as well as teachers new to a grade level. Additionally, this could include teachers at various stages of skill development, from unconsciously unskilled to consciously competent.

Diversify Geography, Grade Level, and Content Area of Participants

Additionally, the teachers in this study taught at the same elementary school. Other geographic areas could be explored to compare teachers' reflective practice in lesson study at other schools. It could also be of value to study teachers who teach at varying levels. While the teachers in this study were all primary teachers, it would be interesting to study intermediate, secondary, and/or higher education teachers. Research is also needed in other subject areas and with teachers who do not teach on the same team or even the same grade level.

Increase the Length of Study

This study took place over the course of three months during one trimester. Research or studies that include more than one trimester or an entire school year could be of value to the field. The teachers in this study indicated that participation in a fourth round of lesson study might allow them to dig even deeper into their reflective practice by challenging assumptions

and hypothesizing more about why particular instructional moves contributed or interfered with students' learning.

The lesson studies in this study took place over the course of one school day. While the teachers commented about the mental exhaustion they experienced, they all agreed that they would not have wanted to spread the research lessons and post-lesson discussions over the course of a few days or even weeks. Even so, further research could be conducted to implement lesson study across days or weeks rather than completing an entire round in one day.

Need for Comparison Study

This study focused on teachers' reflective practice in lesson study. It would be interesting to study teachers' reflective practice in other collaborative professional learning models such as peer learning labs, instructional rounds, or even video clubs. While these examples share some commonalities with lesson study, there are particular differences as well. In addition, research is lacking in lesson study as a means to support teachers' instructional design practices. This, too, could be of benefit to the field.

In-Depth Case Studies of Knowledgeable Others

The current body of research contains minimal literature about knowledgeable others, particularly in lesson studies in the US. More specificity surrounding the knowledgeable other's role as it relates to teachers' reflective practice is needed. Additionally, more specificity regarding the qualities necessary for knowledgeable others to serve successfully in that role is required. Opportunities exist for further examination of the strategies knowledgeable others can

use to support teachers' reflective practice in lesson study. In-depth case studies in the US focused on knowledgeable others' questions and comments could contribute greatly to the field.

Exploration of the Relationship between Peer Support and Teachers' Reflections

Future research is needed to explore the relationship between lesson study support and teacher reflection. In addition to studying knowledgeable others, an exploration of the role the facilitator plays in lesson study through the lens of reflection is needed. A case study of lesson study facilitators and how they support teacher learning through reflection would be beneficial. Further research is also needed to study peers' interactions in lesson study as they relate to reflective practice. A case study devoted to how peers study reflective practice in lesson study would contribute to the current body of research.

Closer Examination of Questions to Drive Reflections

This study illuminated the role of questions to drive teachers' reflections during and after lesson study. This opens the door to closer examination of the kinds of questions that best promote reflective practice. To better understand how participants of lesson study can use questions to support their reflective practice, a study of questions that promote teachers' reflections-in, -on, and -for-action within lesson study could be enlightening. Additional studies are needed to explore how to support the transfer of questions asked during lesson study to teachers' self-questioning to drive reflections in everyday practice.

Exploration of the Relationship between Anticipated Misconceptions and Teachers' Reflections

More research is needed to explore the possible connection between the misconceptions teachers anticipate and their perceptions of their reflections-in and -for-action. In this study, teachers anticipated possible student responses and misconceptions when they reflected-for-action. However, this only hints at a possibility that teachers' reflections-in-action when surprises are uncovered is supported through anticipation of students' responses. Further examination could provide more clarity regarding the relationship between anticipating misconceptions and teachers' reflections.

Closer Examination of Research Lesson Observations

While this study examined teachers' reflective practice in lesson study, it could be interesting to put one particular component of lesson study under a microscope. For example, a closer examination of the relationship between research lesson observations and teachers' reflective practice could be a novel addition to the current literature. A case study that explores this could be guided by research questions related to observations of research lessons. An examination of what teachers pay attention to as they observe research lessons, how they document their observations, and how they describe their reflections-on and -for-action in light of their observations could provide relevant information about teachers' reflective practice in lesson study.

Conclusion

Teachers who have experienced lesson study in its intended form have compared lessons to a swiftly flowing river (Lewis, 2008). The metaphor conjures images of rushing water that passes onlookers in the blink of an eye. It reminds us that just as water quickly rushes past, teachers must make decisions in an instant as they reflect-in-action. However, when colleagues document their observations of teachers' and students' words and actions as part of lesson study, more is revealed about the effects of those reflections-in and -for-action.

Staying with the metaphor, this study explored how three elementary teachers jumped into the boat together and made their way across the river. They helped each other to see more than they could on their own, demonstrated a willingness and open-mindedness to take this new route together, and they not only reflected-in, -on, and -for-action as part of the process, but they learned from each other's reflective practice as observed through multiple rounds of lesson study.

As teachers continually strive to hone their teaching practice, strong and ever-developing reflective practice is essential (Hall & Simeral, 2008). Reflective teachers study classroom experiences with the intention of improving practice (Stronge, 2018). Lesson study supported teachers to reflect-in, -on, and -for-action again and again as they engaged in three rounds of lesson study over the course of three months. Borrowed from another cultural context, lesson study was not necessarily easy to implement within our current school structure. Despite this, the teachers in this study committed to the time and structures necessary to engage in lesson study that mirrored very closely the intended Japanese model. The reflective experiences inherent to and facilitated in the model afforded teachers ample opportunities to reflect-in-action during

research lessons, reflect-on action individually and collaboratively, and reflect-for-action immediately and long-term. Given that the teachers walked away from their lesson study experience with strategies to facilitate their own and each other's reflective practice for the purpose of improving instruction, teachers are encouraged to learn about the authentic Japanese lesson study model, advocate for participation, and pay careful attention to strategies used within it to support their own and peers' reflective practice. In this way, the ripples made in the swiftly flowing river are far-reaching.

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APPENDIX A

PARTICIPANT RECRUITMENT SCRIPT

Hi _____. I wanted to talk to you about possibly participating in my dissertation research study. It's about teachers' reflective practice through lesson study. I think you would enjoy the study and I would love working with you. I would like to observe you as you engage in three lesson studies and ask you to do several interviews with me. All my research would take place during the second trimester only, and interviews would be at times convenient to you. Are you willing to go over the consent form with me?

APPENDIX B

LETTER OF CONSENT FOR PILOT STUDY



NORTHERN ILLINOIS UNIVERSITY
College of Education

Department of Curriculum
and Instruction
DeKalb, Illinois 60115-2828
815-753-8556
Fax: 815-753-8563
CIDepartment@niu.edu

I agree to participate in the research project entitled *Examining Elementary Teachers' Reflective Practice Through Lesson Study* being conducted by Amanda Wojcik, a graduate student at Northern Illinois University. I have been informed that the purpose of the study is examine teachers' descriptions of reflective practice through lesson study.

I understand that if I agree to participate in this pilot study, I will be asked to do the following in October 2018:

- Be observed and videotaped by Amanda Wojcik in 1 lesson study
- Participate in 3 semi-structured interviews, the first to be conducted prior to the lesson study and the remaining 2 within one week of the final reflection session of the lesson study (approximately 30-45 minutes each time for a total of 90 - 135 minutes)
- Participate in 1 stimulated recall interview within 2 days of the final reflection session of the lesson study for approximately 20 minutes

I am aware that my participation is voluntary and may be withdrawn at any time without penalty or prejudice, and that if I have any additional questions concerning this study, I may contact Amanda Wojcik at [REDACTED] or Dr. Mary Beth Henning at [REDACTED]. I understand that if I wish further information regarding my rights as a research participant, I may contact the Office of Research Compliance at Northern Illinois University at 815-753-8588.

I understand that the intended benefits of this study include the opportunity for me as a teacher to reflect on my practice through structured and semi-structured experiences throughout the lesson study cycle. I will also get the chance to learn collaboratively from my grade level team as I reflect with them about the topics relevant to our grade level and our students. Finally, I will get the chance to contribute to the growing body of research regarding reflective practice through lesson study.

No foreseeable risks are present in this study. I understand that all information gathered during this study will be kept confidential through the use of pseudonyms for the school and participant names. All data related to the study will be kept in a password-protected computer, password protected Google Drive, or a locked drawer.

I also understand that for transcription purposes and for increased accuracy in the data gathering process, the researcher will use an iPad or smart phone to record the audio and the video of the teacher interviews and observations of instruction. The video files will be kept on a password-protected computer and kept in a locked drawer. The only person who will have access to the computer will be the researcher. I understand that there will be identifiable features such as the teacher's face on the video. Within three years of the dissertation publication date, the video files will be destroyed.

I understand that my consent to participate in this project does not constitute a waiver of any legal rights or redress I might have as a result of my participation, and I acknowledge that I have received a copy of this consent form.

I consent to participate in this study.

Participant Signature

Date

_____ I consent to the classroom teaching and lesson debriefing sessions being **video recorded** for data collection purposes.

_____ I do not consent to the classroom teaching and lesson debriefing sessions being video recorded for data collection purposes.

Participant Signature

Date

_____ I consent to the interviews being **audio recorded** for data collection purposes.

_____ I do not consent to the interviews being audio recorded for data collection purposes.

Participant Signature

Date

APPENDIX C

LETTER OF CONSENT



NORTHERN ILLINOIS UNIVERSITY
College of Education

Department of Curriculum
 and Instruction
 DeKalb, Illinois 60115-2828
 815-753-8556
 Fax: 815-753-8563
 CIDepartment@niu.edu

I agree to participate in the research project entitled *Examining Elementary Teachers' Reflective Practice Through Lesson Study* being conducted by Amanda Wojcik, a graduate student at Northern Illinois University. I have been informed that the purpose of the study is examine teachers' descriptions of reflective practice through lesson study.

I understand that if I agree to participate in this study, I will be asked to do the following from November 2018 to February 2019:

- Be observed and videotaped by Amanda Wojcik in 3 lesson study cycles between November 2018 and January 2019
- Participate in 4 semi-structured interviews, the first to be conducted prior to the lesson study cycles and the remaining 3 within one week of the final reflection session of each lesson study cycle (approximately 30-45 minutes each time for a total of 120 - 180 minutes)
- Participate in 3 stimulated recall interviews within 2 days of the final reflection session of each lesson study cycle (approximately 20 minutes each time for a total of 60 minutes)

I am aware that my participation is voluntary and may be withdrawn at any time without penalty or prejudice, and that if I have any additional questions concerning this study, I may contact Amanda Wojcik [REDACTED] or Dr. Mary Beth Henning at [REDACTED]. I understand that if I wish further information regarding my rights as a research participant, I may contact the Office of Research Compliance at Northern Illinois University at 815-753-8588.

I understand that the intended benefits of this study include the opportunity for me as a teacher to reflect on my practice through structured and semi-structured experiences throughout the lesson study cycle. I will also get the chance to learn collaboratively from my grade level team as I reflect with them about the topics relevant to our grade level and our students. Finally, I will get the chance to contribute to the growing body of research regarding reflective practice through lesson study.

No foreseeable risks are present in this study. I understand that all information gathered during this study will be kept confidential through the use of pseudonyms for the school and participant names. All data related to the study will be kept in a password-protected computer, password protected Google Drive, or a locked drawer.

I also understand that for transcription purposes and for increased accuracy in the data gathering process, the researcher will use an iPad or smart phone to record the audio and the video of the teacher interviews and observations of instruction. The video files will be kept on a password-protected computer and kept in a locked drawer. The only person who will have access to the computer will be the researcher. I understand that there will be identifiable features such as the teacher's face on the video. Within three years of the dissertation publication date, the video files will be destroyed.

I understand that my consent to participate in this project does not constitute a waiver of any legal rights or redress I might have as a result of my participation, and I acknowledge that I have received a copy of this consent form.

I consent to participate in this study.

Participant Signature

Date

____ I consent to the classroom teaching and lesson debriefing sessions being **video recorded** for data collection purposes.

____ I do not consent to the classroom teaching and lesson debriefing sessions being video recorded for data collection purposes.

Participant Signature

Date

____ I consent to the interviews being **audio recorded** for data collection purposes.

____ I do not consent to the interviews being audio recorded for data collection purposes.

Participant Signature

Date

APPENDIX D

ASSENT



NORTHERN ILLINOIS UNIVERSITY

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Assent from the individual elementary students will be obtained immediately prior to the subjects' participation in the classroom observations and in addition to the written consent of a parent/representative.

The assent process will be oral and will be conducted by using the following script:

Good morning (afternoon). My name is Mrs. Wojcik. You know me as an instructional support coach who works with all the students and all the teachers in this school to make learning the best it can be for kids, but I am also a student at Northern Illinois University. I am working on a research study and would like your help. A research study is a way to learn more about something. I would like to find out more about how teachers think about their teaching, especially when they study lessons together like they do in a lesson study.

I am here today because I would like to learn more about how your teacher thinks while she is teaching you. By watching and listening to her teach you, I will be able to ask her some questions later about what she was thinking about. You were selected to help with my research study because your teacher also wants to learn more about how her thinking helps her learn, so she agreed to be a part of my study.

(Teacher's name) has allowed me to join you in your classroom three different times including today, for about 45 minutes each time. If you agree to join this study, you will be asked to just act like you normally would in class. While I'm here I will be recording what (teacher's name) says. Your voice may also be recorded as you talk to her or to each other. This is much like other times when I work with your teacher in your classroom. The only difference is that I will be using what I learn from you to write a book, called a dissertation, to share with other teachers.

I will also be taking a few notes. These notes will help me remember details about the time that I spend in your classroom. If you agree to help me with this study, there isn't anything bad that could happen to you. You do not have to join this study and have your voice recorded. It is up to you. You can also say okay now and change your mind later. All you have to do is tell me or your teacher if you want to stop. But of course you will keep learning in the lessons like everyone else. I'll just be extra careful to keep you out of my recording. No one will be upset with you if you don't want to help me with the study or if you decide to help me and then change your mind later and stop. Before you say yes or no to helping me with this study, I will answer any questions you have. Also, if you help me with the study, you can ask questions at any time.

Students will be allowed time to ask questions.

If you agree to help with this study put your thumb up, like this. If you do not agree to help me with this study put your thumb down, like this.

Thank you.

If any child indicates no, then the iPad will be directed away from the child and any notes related to that child will not be taken.

APPENDIX E

LESSON STUDY SCHEDULE

Lesson Study Schedule

November 27, 2018

Time	What	Participants	Coverage Needed (To release teachers to observe and/or reflect)
9:00 - 9:15	Observation #1	3 Classroom Teachers (Madeline teaches research lesson) Facilitator Knowledgeable Other	2 teachers
10:00 - 10:30	Reflection #1	3 Classroom Teachers Facilitator Knowledgeable Other	3 teachers
11:00 - 11:15	Observation #2	3 Classroom Teachers (Rebecca teaches research lesson) Facilitator Knowledgeable Other	2 teachers
11:45 - 12:15	Reflection #2	3 Classroom Teachers Facilitator Knowledgeable Other	X - all first graders at lunch
12:30 - 12:45	Observation #3	3 Classroom Teachers (Brittney teaches research lesson) Facilitator Knowledgeable Other	2 teachers
12:50 - 1:20	Reflection #3	3 Classroom Teachers Facilitator Knowledgeable Other	X - all first graders at specials

APPENDIX F

TEACHER INTERVIEW PROTOCOL

Interview Questions for Initial Interview

This interview will be conducted prior to the first lesson study to learn as much as possible about each of the participants in the context of reflective practice and lesson study.

Seidman (2006) refers to this interview as a “focused life history” (p. 17).

1. Could you tell me about your background as an elementary teacher?
2. How do you define reflection?
 - a. In your view, what is reflective practice?
 - b. What are the main characteristics of reflective practice?
3. Can you describe any past experiences that have shaped your thinking about reflective practice? Specifically, your own reflective practice?
 - a. Where did you learn to reflect?
 - b. Has anyone been influential in your reflective practice?
4. What causes you to reflect?
 - a. When does your reflection take place?
 - b. Why do you reflect at this time?
 - c. Where and how does your reflection about teaching typically take place?
 - d. In what ways has your reflection informed your practice?
5. In your view, in what ways does reflective practice develop?
 - a. How did you learn to reflect on your teaching?
 - b. What factors help or hinder your reflection?
6. Could you tell me about your background with lesson study?
 - a. What has been your experience reflecting during lesson study in the past?
 - b. What has been your experience reflecting after lesson study in the past?

Interview Questions for Second Interview

This interview will be conducted at the conclusion of the first and second lesson studies to learn as much as possible about each of the participants' reconstructions of the details of their experience. Seidman (2006) recommends focusing the participants on stories about their experiences to elicit details.

1. Can you describe your most recent lesson study experience?
 - a. How did you feel about it?
 - b. How does this compare with any previous experience you've had with lesson study?
2. Specifically, describe your experiences with reflection within the lesson study cycle.
 - a. Can you describe a specific experience you had within the lesson study that did not go as planned? How did you respond?
3. Can you describe any additional challenges that arose within your recent lesson study experience? How did you respond?
4. Can you describe a specific experience you had within lesson study that you consider a celebration? In your view, what factors contributed to this success?

Interview Questions for Final Interview

The purpose of the third and final interview is to allow participants to reflect on the meaning of their experience (Seidman, 2006). The focus of this interview is on each participant's understanding of her experience.

1. Given what you have said about your reflective practice during your participation in three rounds of lesson study, how do you now understand reflective practice in your professional life?
2. In reflecting on your overall lesson study experience, can you describe the role it played in your own development as a reflective practitioner?
3. As a result of your lesson study experience, what knowledge, if any, did you gain about your own reflective practice?
4. How does reflective practice inform your future teaching?
5. Describe any actions you anticipate putting into place as a result of your reflective experiences.
6. What final thoughts regarding your reflective practice in lesson study would you like to share?

APPENDIX G

RESEARCH JOURNAL ENTRY

November 20, 2018

We just finished the planning meeting for the team's upcoming lesson study. Because the teachers are in different units of study, we had to talk through how to address this. Having a long-term goal of determining important ideas helped to frame the work.

Some teachers started flipping through lessons before they were clear on the particular lesson goal, which actually became more focused during the planning process.

My role was to capture their plan on the research lesson planning tool as well as use coaching questions and paraphrasing to support their focus on the lesson and objective. For example, I asked, "How do you, as a reader yourself, identify the problem in a story? What kinds of thinking will students have to do?" This led to the team identifying three indicators that became part of the language they planned to use in the mini-lesson.

The planning session lasted from 11:30 - 12:45, with one teacher arriving at 11:45 and one teacher leaving at 12:15. They planned the entire lesson, but did not explicitly discuss misconceptions or key points to observe. They did agree to norms and an observation tool to use during the lesson study.

Although data were referred to by one teacher, I wonder how the focus could have been more apparent by using some kind of formative assessment data . . . A baseline retell? Info from the Benchmark Assessment System?

APPENDIX H

STIMULATED RECALL PROTOCOL (adapted from Wagenheim, 2005)

I will begin by reminding the participant that “I am not evaluating your teaching effectiveness. My purpose is to study your experiences with reflective practice through participation in lesson study.”

Participants will be asked to respond via the structured protocol to two to three videotaped segments provided by the researcher. These excerpts will be identified prior to the stimulated recall interview and will be chosen from the researcher’s field notes.

1. Description of the videotaped experience
 - a. Describe what is happening during this segment of teaching.
 - b. What important events took place before and/or after this segment of teaching?
 - c. How would you characterize this episode of your teaching?
2. Reflection
 - a. What were you trying to achieve during this segment of teaching?
 - b. Why did you use this action or technique?
 - c. What factors influenced you in the moment?
 - d. What were the consequences of your actions for students?
 - e. What were the consequences of your actions for your colleagues?
 - f. What were the consequences of your actions for you?
3. Evaluation
 - a. Looking back on this segment of teaching, how do you feel about it? Why?
 - b. Does this episode of your teaching inform any next steps for you? If so, what are they?

APPENDIX I

OBSERVATION PROTOCOL (Adapted from Cloat, 2014)

Component of lesson study	Context	Explanation	Examples of reflection	Connection to Schön
Debrief 2 Lesson Study 1	Instructor remarks	Hypothesizes how visuals on chart could provide a scaffold for students	That might help lower level students . . . to have pictures and emojis on the chart	Reflection-for-action
Debrief 2 Lesson Study 1	Instructor remarks	Proposes changes to next lesson	The more I think about it, I want my students to want to talk to each other more. How can we make partner conversations more interesting?	Reflection-for-action
Debrief 2 Lesson Study 1	Peer response to instructor remarks	Anticipating misconceptions	Is that something I confer with on the spot? My students have non-fiction books in their book bins.	Reflection-for-action
Debrief 2 Lesson Study 1	End of instructor remarks	Deciding what to adjust in the lesson	If the opportunity presents itself to connect to other literacy components, we should make that connection for students.	Reflection-for-action
Debrief 2 Lesson Study 1	Observing teachers' remarks	Sharing observations and inferences	At first, they were confused. I heard students naming different parts of the story.	Reflection-on action
Debrief 2 Lesson Study 1	Host teacher responds to observing teacher's remarks	Considering observations shared	I wasn't even thinking of that ahead of time. He helped me reach that a-ha.	Reflection-on action

APPENDIX J

LESSON STUDY DISCUSSION GUIDE (Adapted from Lesson Study Alliance, 2018)

Protocol Overview

1. Thank the instructor
2. Reminder of the purpose and process
3. Remarks by the instructor
4. Group sharing and discussion of data
5. Final comments by the invited knowledgeable other

1. Thank the instructor

Thank the lesson instructor for teaching the lesson so everyone could observe and learn from it.
Thank the lesson study team for all of their work researching and preparing the lesson.

2. Explanation of purpose and process

- Summarize the protocol (listed above).
- Remind everyone about the purpose of lesson study – teacher learning, not the creation of a perfect lesson – and of the post-lesson discussion: i.e., to share evidence of student learning as it relates to the lesson’s focus; collaboratively determine what contributed to student learning and potential barriers.
- If you have a final commentator (knowledgeable other), note that this person will present uninterrupted at the end.
- At a future meeting, team members will reflect on today and summarize their learning from the lesson study cycle.
- Verify that someone (ideally not from the planning team) will take notes.

3. Remarks by the instructor

- Invite the instructor to share his or her own **observations**—what he or she noticed students doing or saying during the lesson—and how he or she interprets those in relationship to the lesson goals.
- If the teacher deviated substantially from the plan, invite him/her to talk about those decisions.
- After the teacher’s initial comments, invite her/him to raise questions for the group to discuss.
- Optionally, invite one or two members of the planning team to share observations and raise questions.
- Observer’s role now is to provide data and discuss what it tells us about student thinking and learning.

4. Group sharing and discussion of data

- Invite lesson study team members and observers to present data from their observations. Minimize serial sharing of disconnected data. Whenever someone raises an important observation, ask others to share data related to that. Possible strategies:

- If the teacher has raised a good core issue, start with it: “Ms. X raised an important issue, so let’s discuss that.”
- If someone makes a claim, invite others to concur or disagree and to share supporting or conflicting data. Challenge people to take a stand: “Does everyone agree with that conclusion?”
- Invite discussion about the use of time in the lesson. Were students given enough time? Too much? Ask for concrete data.
- Occasionally summarize consensus (or disagreement), and then move on: “So there seems to be general agreement that __. What about __?”
- Later in the discussion, review the goals of the lesson. Possible questions:
 - “What do the data suggest about the students’ progress on the lesson goals and long-term goals?”
 - “What data do we have about whether students learned this?”
 - “If students did not learn what we wanted them to, why not? What do we think the students need that will help them?”
- If not addressed, return to the research focus, the long-term goal identified by the lesson study team. Ask:
 - “To what extent did the lesson address your long-term goals for students? How successfully? Why or why not? What ideas do you have for future lessons?”

General principles:

- Don’t get in the way, especially at the beginning. Let the discussion flow relatively freely. Note important issues to return to later.
- You aren’t a discussant. You don’t get to share your observations except (sometimes) after others have done so.

5. Final comments

An invited knowledgeable other may discuss the lesson in relation to key subject matter issues, link the observed lesson to larger issues in teaching and learning, and suggest possible next steps with these students in the lesson and next steps in addressing the research theme.