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Inquiry-Based Instruction in the Social Studies: Successes and Challenges

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INQUIRY-BASED INSTRUCTION IN THE SOCIAL STUDIES: SUCCESSES AND CHALLENGES

INQUIRY-BASED INSTRUCTION IN THE SOCIAL STUDIES: SUCCESSES AND CHALLENGES

A dissertation submitted in partial fulfillment
of the requirements for the degree of
Doctor of Philosophy in Curriculum and Instruction

By

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ABSTRACT

The purpose of this study was to investigate teachers' perceptions, understanding, and use of inquiry-based instruction in the social studies, to assess the impact of inquiry-based units on instruction, to detail implementation successes and challenges reported by teachers when implementing inquiry-based instruction, and to provide recommendations for future efforts. Teachers' perceptions of teaching and learning, particularly their beliefs about inquiry-based instruction, changed during the study. Throughout the study, teachers' perceptions and beliefs about teaching social studies had an impact on how they planned, implemented and reflected on inquiry-based instruction. Many of the teachers changed their perceptions and began regularly teaching with an inquiry-based focus, and some changed from a belief system that focused on a teacher-centered model to a more student-centered focus.

This dissertation is approved for recommendation to the Graduate Council.

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ACKNOWLEDGMENTS

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CHAPTER 1

INTRODUCTION

When the question is not discharged by being asked of another, when the child continues to entertain it in his own mind and to be alert for whatever will help answer it, curiosity has become a positive intellectual force.

John Dewey, 1916

Purpose of the Study

The purpose of this study was to investigate teachers' perceptions, understanding, and use of inquiry-based instruction in the social studies, to assess the impact of inquiry-based units on instruction, to detail implementation successes and challenges reported by teachers when implementing inquiry-based instruction, and to provide recommendations for future efforts.

Importance of the Study

The goal of education today is to prepare students for an ever-changing world, and this is evident in district and school mission statements across the state and country. In fact, recent state-led efforts to establish common core standards across the nation have set a new bar for student learning expectations. Stakeholders agree that education must prepare learners to cope with changes that will increase in complexity throughout their lives. Most students will deal with several job changes, move to several different locations, and will be involved in complex social issues, such as social reforms. While as teachers we cannot give learners all the information and skills they need, we can provide the tools to help them deal with present and future problems. Additionally, while our society, especially those in the field of social studies, have tended to focus on transmitting knowledge, I argue, from a constructivist perspective, that it is more important for teachers to show students how we come to know, interpret, and act on information.

Massialas, Sprague, and Hurst (1975) argue that the primary objective of school is "to provide the learning conditions and appropriate psychological climate in which to identify and reflectively probe the crucial issues of the time" (xii). Students must be provided the appropriate knowledge and tools so that they can "creatively reconstruct" our increasingly pluralistic society (Massialas, Sprague, & Hurst, 1975, p. 2). When teachers act as knowledge facilitators, providing students with tools for learning, rather than mostly knowledge givers that own and manage information, students are required to examine their own context for learning while also incorporating historical resources, particularly primary source materials (Grant, 2003; VanSledright, 2002; Wineburg, 2001).

Despite calls for change for decades by prominent organizations, such as the National Council for the Social Studies, the American Educational Research Association, and the Association for Supervision and Curriculum Development, social studies classes are still plagued with long lectures and assigned readings from textbooks, which at times maintain "one interpretation of every historical event" (Johnson, 2007, p. 197). Recently, for example, Yilmaz (2006) detailed an exhaustive qualitative study in which he interviewed full-time secondary social studies teachers in the United States, of whom all but one held advanced degrees, to gather information about their perceptions and methods for teaching social studies courses. Results of the study indicate that only one teacher could identify a specific historian or historical theory, and all but one viewed history as a domain of knowledge rather than an interpretation of the past.

Inquiry-based teaching often requires teachers to shift their pedagogical paradigms because the teaching methods and the way the content is approached is drastically different from how they learned social studies. Teachers' perceptions of this shift, their ability to make the changes and learn the strategies themselves, and their success at implementing inquiry-based

models in the classroom, must be addressed. Researchers agree that affecting teacher change is a crucial component for enacting any successful change in instruction (Brush & Saye, 2006; Saye & Brush, 2005; Yilmaz, 2008). To affect teacher change, the successes and challenges teachers face when implementing inquiry-based instruction in social studies must be further researched.

Theoretical Framework

John Dewey advocated teaching through inquiry in the early twentieth century. Other theorists, including Piaget, Vygotsky, and Bruner connected the work of Dewey to groundbreaking discoveries on cognitive development and advocated an educational setting where students actively construct their own knowledge while teachers serve as guides or facilitators. Inquiry-based instruction relies on questioning to help students actively seek, analyze, communicate and reflect on information. Inquiry-based learning in the social studies encourages students to develop multiple perspectives and encourages empathy with the subject.

By learning to address social studies as an inquirer, students learn to problem-solve and think critically. Ideally, students learn to shed their ethnocentric lens, in favor of a view that is more objective and global. At the same time, students realize the lens through which information and policy are presented is heavily influenced by society and culture. Inquiry-based models are based on recent developments in psychology, history, and sociology, such as constructivism, cognitive research, and social learning theory. While these developments have ultimately changed the way we think about teaching and learning, they have yet to infiltrate social studies education (Harmon, 2006).

Inquiry-based Research: A Rationale

While variation exists among inquiry-based models, the primary premise is that people learn and are motivated when they interactively problem-solve using authentic tasks (Bloom,

1956; Joyce & Weil, 1986). When teachers use inquiry-based learning in the classroom, they are able to connect students to a greater understanding of the nature of scientific endeavors and research (Hinrichsen, Jarrett, & Peixotto, 1999). Research suggests that inquiry-based learning is particularly important in the social studies. Students must work, just as experts in the field of social studies would, to give meaning to events, phenomena and experiences (Audet, 2005; Harmon, 2006). A successful social science course presents a variety of approaches to questions about social phenomena, often raised by and relevant to students, preparing them to critically evaluate the social situations they may be confronted by in their everyday lives.

Despite the specific social studies course a student is taking, successful social science courses present a variety of approaches to a broad array of questions about social phenomena. Such multiplicity prepares students to critically evaluate the social situations they will likely encounter in their everyday lives. To better prepare for this, students need the critical thinking skills that economists, psychologists, historians, and sociologists use on a regular basis. Such skills, however, come from doing the work, not just hearing cases, examples, and lectures. Within the field of history, for example, a current buzz phrase is that teachers should guide students, allowing them to "do" the work of the discipline of study. Inquiry-based learning meets this need in all of the social studies fields because it teaches students to critically analyze and question contemporary issues while making connections with the past or other sources of information (Joyce & Weil, 1986, Brush & Saye, 2004). The goal of inquiry-based learning is that students learn the process of being active citizens who can make difficult decisions and justify their decisions (Brush & Saye, 2005). Within the field of economics education, organizations, such as the Buck Institute, are recommending Problem-Based Learning, which is heavily inquiry-based (Finkelstein, Hanson, Huang, Hirschman, and Huang, 2010). Although the

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empirical evidence, particularly evidence directly related to student outcomes, is slim in the social studies, there is a large body of evidence supporting inquiry-based instruction in science (Hall & McCurdy, 1990; Hinrichsen et al., 1999; Shymansky, 1984). Again, while a variety of inquiry-based models exist, they all recommend similar strategies for improving student engagement, motivation, and achievement.

Background and Need: Teachers' Perceptions and Use

Teachers' perceptions of the shift from traditional teacher-led instruction to student-centered inquiry-based instruction, their ability to make the changes and learn the strategies themselves, and their success at implementing inquiry-based models in the classroom are discussed at length later in the study. Researchers agree that affecting teacher change is a crucial component for teachers to consider when implementing any successful change in instruction and are addressed in the design of the study (Brush & Saye, 2005, Saye & Brush, 2006; Harmon, 2006; Yilmaz, 2008).

Enacting change in teachers' perceptions and actions can be especially difficult in the social studies, as mentioned, because many do not have a pre-existing model for constructivist pedagogical methods such as inquiry-based instruction (Brush & Saye, 2005; Yilmaz, 2008). Brush and Saye (2005) discuss several reasons why teachers lack the skills and experience necessary, including lack of experience with inquiry-based methods when they were in secondary school, limited training in post-secondary institutions and difficulty placing teachers in field experiences in which multiple opportunities to see inquiry-based instruction can be provided.

Furthermore, it is well noted in the research that changing teacher behavior is a difficult task (Brush & Saye, 2005; Saye & Brush, 2006; Harmon, 2006). Beyond issues with content

knowledge, which is common in the social studies because of the broad content domains, more specifically many teachers often lack what is referred to as cognitive flexibility. Cognitive flexibility theory builds on constructivist theory and considers the nature of learning in complex and ill-structured domains (Spiro & Jehng, 1990). In other words, the theory examines learners' ability to attain a deep enough understanding of content material that allows them to reason with it and apply it flexibly in diverse or messy contexts. Researchers in this field ask questions such as:

1. How can teachers guide students' abstract and multi-perspective thinking, when they may lack the ability themselves?

2. How does this deficiency in skills affect teachers' ability to implement inquiry-based models?

Research Questions

Based on the stated purpose of the study, the research questions were as follows:

1. What were teachers' perceptions of inquiry-based instruction and the nature of teaching social studies before, during and after implementation?

2. How did teachers change their instructional practice during and after implementing an inquiry-based unit and what supports did they require?

3. What instructional challenges and successes did teachers describe when using inquiry-based methods?

4. What recommendations did teachers have for future inquiry-based instructional initiatives?

Background, Design, and Overview of the Study

Teachers from a secondary school located in Northwest Arkansas and a pre-service teacher in a Masters of Arts in Teaching program in Northwest Arkansas were invited to participate. Based on my experience in secondary schools, I was concerned that many of the teachers in the social studies I interacted with were not using inquiry-based instruction on a regular basis. As a regular classroom teacher, I used inquiry-based instruction often, as it fit with my philosophy of constructivism and provided the platform for student-centered instruction. I also found that my inquiry-based lessons supported the social studies curriculum well. As such, I began to question why so few social studies teachers regularly used inquiry. Across the schools I worked in and visited, I oftentimes saw teachers modeling how they inquire, research, and make connections, but seldom saw students engaged in this process. Therefore, I was influenced to start my own inquiry-based project, and felt that if teachers had the proper support and experienced success with students that they would be open to change.

Based on the research and my own experiences, I was prepared for all teacher participants, regardless of experience, would express difficulty and lack of understanding in implementing inquiry-based methods within the social studies and that some, if not most, would primarily be coming from a teacher-centered perspective of teaching and learning. Most teachers, based on my experiences, did not learn social studies with an inquiry-based approach. In addition to the challenges stemming from lack of understanding and experience with the methods, I also expected challenges such as teacher content knowledge, teacher cognitive flexibility, and classroom management would be identified. Cognitive flexibility, according to Spiro and Jehng (1990) refers to the "ability to spontaneously restructure one's knowledge, in many ways, in adaptive response to radically changing situational demands...This is a function of both the way

knowledge is represented (e.g., along multiple rather single conceptual dimensions) and the processes that operate on those mental representations" (p. 165). In other words, in order to conduct inquiry-based lessons and units, teachers would have to constantly be in a state of inquiry themselves, with the students.

However, when provided with necessary materials, including a co-constructed inquiry-based unit and on-going support, I believed that teachers would be more willing to incorporate the use of inquiry-based methods in future lessons and would report an overall change in instruction, from a more traditional teacher-centered form of instruction to a more student-centered form of instruction that regularly included inquiry-based instruction.

I expected that the challenges described would require teachers to seek additional support during and after implementation. Implementing the inquiry-based unit would require teachers to have the content background and cognitive skills to lead students into deep discussions, guided by higher-order thinking, questioning and active learning. I expected teacher planning time to be lengthy, possibly double the preparation time of traditional teacher-centered planning, but also expected that the flexibility of inquiry methods, which were embedded throughout the unit, would allow for continued use across the curriculum, thus improving teacher transference of knowledge to different contexts. Another challenge would be classroom management. Teacher and student models and expectations for responding and working in a less restrictive environment would be an important and possible confounding variable within the study. Teachers' unwillingness to risk losing control of their classroom may inhibit creative and inquiry-based instruction (Kagan & Tippins, 1992).

I expected that it would be necessary for some teachers to shift their paradigms of thinking about their own teaching and their students learning. Responsibility would lie primarily

with the teacher in the beginning, as he or she would have to help students develop self-regulation and metacognitive skills, as a part of the inquiry-based method, while reconciling challenges to their own thinking. I anticipated that inquiry-based instruction would be a difficult but rewarding task and that the results would pay off as teachers recognized that the model allowed students to guide and deepen their own learning. Based on the literature review, I hypothesized that most participants would also identify immediate student benefits (student engagement) and long-term benefits (critical thinking), while also recognizing a shift in their own thinking, from one based on transmitting information to constructing information.

In order to prepare for the study, it was necessary to plan for expected challenges and needed supports for successful implementation. However, the study was designed to allow challenges and provide supports that were not expected to emerge. Therefore, the study employed qualitative and case study research using a generative design model in order to identify common themes that surfaced across the findings and one general overarching theme, while also detailing the experiences of individual teachers in a case study format. The nature of my research questions demanded that I go beyond the "what works" for teachers. In order to foster future implementation efforts more successfully, I am interested in the "how, when, and why" of how it works and of what "exactly 'it' is" (Cobb, Confrey, diSessa, Lehrer, & Schauble, 2003, p. 13).

General themes identified from the literature review and those identified at the beginning of the study were used to address the research questions, but I also categorized and detailed teachers' implementation efforts by creating mini-case studies for each participant. Nine practicing secondary teachers and one pre-service teacher were involved as participants in this study from a local high school. Two focus group meetings and several one-on-one semi-structured interviews and planning sessions were conducted with teachers before, during and

after implementation. The data collected consisted of interviews, planning sessions between myself and the teacher and between multiple teachers at a time and the researcher, pre- and post-lesson reflections, classroom observations, and classroom artifacts (such as lesson plans, classroom handouts, and student work) related to each case. Data was analyzed simultaneously during collection. Based on the data, I made changes as necessary to better support teachers, as suggested by the generative design methodology. For example, if a teacher needed a model lesson or resource that I did not expect to need and did not have readily available, I asked them to give me time to prepare and followed-up as soon as possible. The result is a narrative text that includes both brief case studies of each teacher and overall findings of the themes, and a general theme, which emerged as teachers implemented inquiry-based instruction (Cobb et al., 2003).

As part of the study, several inquiry-based instructional methods and processes were modeled and co-taught in co-constructed curriculum units or lessons. I worked with teachers to design unit lessons that incorporated inquiry-based methods and provided support as the teacher worked through the lessons in the unit. While many inquiry-based practices were modeled for teachers, some of the more common practices teachers incorporated and reported as successful are described in the findings. Following implementation of the first co-constructed unit, teachers were asked to design, implement and share another inquiry-based lesson of greater length on their own within six weeks. The data collection process was repeated throughout this process. My role as the researcher and specific implementation steps required of participants are further discussed in the methodology chapter.

Significance of the Study

The results of the study are important for pre-service and practicing social studies teachers, teacher training programs, professional development providers and any stakeholder

interested in affecting instructional change. If the challenges and successes teachers describe when seeking to incorporate inquiry-based instruction can be identified, we can better support implementation efforts. I argue that we must profoundly understand the perspective of the educator implementing the change before we can begin considering the impact on student learning.

Teachers of science, mathematics, and literature can also learn from social studies teachers sharing information about the challenges and successes of implementation efforts. Finally, the rich description of the instructional change process will contribute to the research base, particularly in the social studies.

Limitations of the Study

Currently, I work as a part-time educator/part-time administrator in a local school district. Therefore, I worked with all of the teachers involved in the study. I conducted all of the interviews and collected and analyzed all of the data. I served as the model for inquiry-based instruction during workshops on campus and in classrooms and provided support for teachers as they implemented inquiry-based instruction. My role as a participant-observer may have biased the results. Furthermore, the study was not intended to assess the impact of inquiry-based instruction on student learning in the classroom. Despite the need for this type of research, again, I argue that if inquiry-based instruction is not implemented with fidelity, confidence, and consistency in the classroom by the teacher, then we cannot, with validity, measure the impact on student learning.

While studies that include well-trained and experienced teachers using inquiry-based instruction could be designed to measure the impact on student learning, the literature reviewed indicates that many teachers in the field are not prepared and have not made the shift in their

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thinking that such instruction requires due to a lack of models during teacher preparation, lack of sufficient content knowledge, and the cognitive demands, including cognitive flexibility. (Brush & Saye, 2005; Yilmaz, 2008). Therefore, identifying teacher challenges and required supports, in order to better impact change, is a necessity in this process. Future research could build on the findings, particularly the challenges and successes identified by teachers from the classroom. If we can meet their needs and build on their successes, then we can continue with the change process and begin identifying the impact on student learning.

Summary

Chapter 1 provided a rationale for the use of inquiry-based instruction within the paradigm of constructivist pedagogy in classrooms and the accompanying research questions on teacher understanding, perception and use of such principles. It also addressed the need to understand the successes and challenges teachers face when attempting to incorporate new methods of instruction and provided an overview of the design and methodology. Chapter 2 presented a review of literature and Chapter 3 described the research methodology for this study. Chapter 4 illustrated the findings and Chapter 5 expounded on the findings, providing a discussion of the major findings and mini-case studies for all participants.

CHAPTER 2

REVIEW OF LITERATURE

Make a "productive use of doubt by converting it into operations of definite inquiry."

John Dewey

This literature review examines inquiry as a tool of constructivism; therefore, the first section is devoted to inquiry's roots in constructivist thought. The following sections illustrate how inquiry can be used to meet content- and skill-based goals, reviews research from the past several decades on the effectiveness of inquiry-based instruction, provides an overview of the current state of social studies education and the use of inquiry in the field and considers research on impacting instructional change.

Background: Roots in Constructivism

Inquiry-based instruction developed from constructivism. While constructivism can be traced back to Socrates and his emphasis on inquiry, the theory formally developed in the late nineteenth and early twentieth century with the work of John Dewey. Constructivism is based on research that students learn through direct experience and personal reflection (Dewey, 1938). Learning, according to constructivists, happens as an individual meaningfully constructs an interpretation of how things work based on their own pre-existing structures. Dewey's primary premise was grounded in personal experience and he encouraged those who doubt how learning happens to consider their own process of inquiry through sustained reflection (1933). Knowing, according to Dewey, happens as a result of inquiry. While Dewey understood the need for organizing subject matter is an important component of formal education, he repeatedly

addressed the need for the learner's personal involvement in exploration, which allows for deeper learning, or "seeking and finding" of one's own solutions (Dewey, 1916, p. 160).

Later theorists such as Piaget, Vygotsky, and Bruner connected the work of Dewey to research on cognition and advocated an educational environment in which students actively construct their own knowledge through inquiry and discovery with guidance from their teachers. Piaget emphasized the role of developmentally appropriate education, and introduced the concept that as people learn, they either assimilate knowledge into their existing mental schemas, or they adjust their mental schemas to accept new knowledge through the process of accommodation (Bhattacharya & Han, 2001). The constant process of connecting prior knowledge and new knowledge to construct new understandings and organizing existing information encourages us to view the way we learn as a cycle that is continuous and constantly adapting (Fosnot, 1996).

Like Dewey and Piaget, Vygotsky believed that we create our own understandings by assimilating prior knowledge and new external influences. Mental development, he argued, occurs when learners make meaning through the process of internalization utilizing both external and internal interactions (DeVries, 2000). Bruner (1962) continued building on this research and advocated discovery learning, which places the student in problem-solving situations requiring them to draw on past experiences, background knowledge, and existing knowledge to discover facts, relationships, and new information. Bruner argues that by emphasizing discovery, children are able to "learn the varieties of problem solving, of transforming information for better use" which enables children "to learn how to go about the very task of learning" (p. 87).

More recent research continues to connect the early thinking of Dewey and other constructivists to cognitive research. Bloom (1958) called for the integration of curriculum

combined with an inquiry-oriented approach, which opened up possibilities for students to make their own meaning and establish relevance. Research on cognition has led to a need for shifting instruction to a constructivist approach that is more student-initiated and centered, goal-driven, and independent with a focus on intentional learning and knowledge building. Intentional learning refers "to cognitive processes that have learning as a goal rather than an incidental outcome" (Bereiter & Scardamalia, 1989, p. 363). In a constructivist classroom in the social studies, the teacher and the student work together in order to think like a social scientist, sharing responsibility and decision making, setting both content and skill-based goals, asking questions, constructing meaning from primary source documents through guided interaction, and by going beyond facts presented in textbooks (NCSS, 2008; National History Standards, 2003; Talley & Goldenberg, 2005; Bruce & Bishop, 2002).

For example, Harmon (2006) argues that in the teaching of social studies there is a demand for interpretive pedagogical approaches, chiefly constructivism, because it involves "'students doing' research by weighing and interpreting evidence to construct a story of the past" (p. 1). Building on the work of other scholars and his own research, Harmon emphasizes the critical and autonomous thinking, discovery learning, and methods of inquiry (2006). Because several definitions of inquiry-based instruction exist, the next section will offer descriptions for the purposes of this study and will consider the meaning from the perspective of the learner and the teacher, as well as the context of content-, skill- and process-based learning.

Description of Inquiry-based instruction

"Upon its intellectual side education consists in the formation of wide-awake, careful, thorough habits of thinking."

John Dewey (1933)

According to the National Council for the Social Studies (2008), "powerful social studies teaching combines elements of all the disciplines as it provides opportunities for students to conduct inquiry, develop and display data, synthesize findings, and make judgments" (n. p.). Inquiry is a pedagogical approach to teaching and learning and is the primary tool of constructivism. Inquiry, as a method for learning and teaching, dates back to the time of Socrates when he used it as a mechanism for truth-seeking, information gathering, and the building of knowledge through questioning. Modern-day advocates, following the work of Dewey, emphasize the development of inquiry skills and the nurturing of inquiring attitudes or habits of mind. Implementing inquiry into the classroom involves key components of constructivism and engages students in owning their learning, which creates a student-centered classroom (Davis & Oehler, 2003).

While descriptions of student-centered learning and student-centered classrooms vary, for the purposes of this study, the concepts can be traced back to constructivism and the work of Kember (1997), who examined teaching orientations across many studies. Kember argues that in a student-centered classroom, the teacher is a facilitator of learning, as opposed to a presenter of information, and that students construct knowledge for themselves. Inquiry-based instruction has broad implications in the classroom and can help the teacher meet content standards, skill goals, and broader goals such as active citizenship. For the purposes of this study, the focus was

on content-, skill-, and process-based goals. The hope is that in meeting these goals, future efforts can apply this learning to broader citizenship goals.

Following this approach today (which has been at times called progressive, reconstructive, and critical, and has many similarities with multicultural education), the teacher might offer suggestions to help students think of ways to correct problems, to set up research, or to evaluate information. However, the teacher should start these lessons with questions and then allow the student to investigate. The questions the teacher asks are of utmost importance. As stated earlier, the questions must challenge students to reexamine their own personal beliefs and values. By challenging students' predetermined beliefs, the teacher sets up an environment in which students are more likely to experience insight, which is important for personal construction and social construction of knowledge (Massialas, Sprague, & Hurst, 1975).

Skills

Inquiry-based learning requires students to use questioning and researching to discover, analyze, communicate, and reflect on information, which can help teachers meet a broad array of learning goals. In the social studies, inquiry-based instruction encourages students to develop multiple perspectives and encourages empathy with the subject (NCSS, 1998). According to Ash and Kluger-Bell (2000), students doing inquiry learning tend to look, act, and think differently from students doing traditional learning. In inquiry-based learning environments students:

•View themselves as learners in a cycle of learning

•Feel invited to learn and are motivated to engage in an exploration process

•Ask questions, propose explanations, collect information, and use observations

•Plan and carry out learning-based activities

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•Communicate to others using a wide variety of methods

•Critique their own learning and practices

As can be seen in Figure 1, because inquiry-based instruction in the classroom is a process, it demands reflective thinking incorporating content- and skill-based learning. Because inquiry is not a linear thinking process, it is not prescriptive and it may include only portions of the complete cycle (DeBoer, 2005). Furthermore, constructivist theory argues that "disequilibrium facilitates learning" (Yilmaz, 2006, p. 43).

Problems or errors faced while inquiring and problem solving are a natural part of learning, and should not be thought of as negative or be avoided. In fact, challenging tasks, tasks that require shifting back and forth during inquiry, help students understand the process of learning more deeply and provide the most realistic and "meaningful contexts" for learning (Yilmaz, 2006, p. 43).

Figure 1. The Inquiry Process
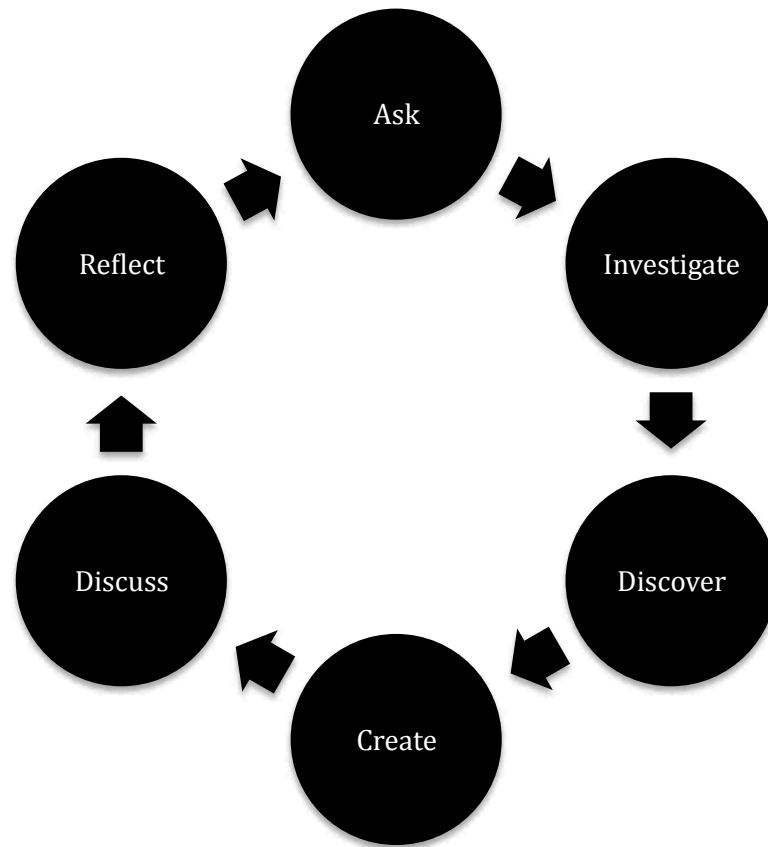
Content-Based Goals: Teacher Perspective

A concern of teachers, which is further addressed later in this review, is the need to meet content standards and the pull to cover as much material as possible through direct instruction (Hammer, 1997). Inquiry, however, when implemented according to models such as those advocated by Bruner, involves students learning content "through the same processes and tools of inquiry used by historians and social scientists (Audet, 2005, p. 23). As such, the learning is organized around relevant and authentic content-based questions in which students are cognitively "engaged in sense making, developing evidence-based explanations, and communicating their ideas. The teacher plays a key role in facilitating the learning process and

may provide content knowledge on a just-in-time basis" (Hmelo-Silver, 2007, p. 100). The content is the context of all learning in the classroom, and demands that the questions teachers and students craft for their learning should be broad, allowing a wide scope of content needs to be met. Part of the content challenge, then, may stem more from the knowledge and support needed to design such learning, especially the "asking" part of the inquiry process.

From the teacher's perspective, the solution, according to Blumenfeld et al. (1991) and Barron et al. (1998), is to find ways for inquiry-based instruction to develop into projects or problems that center on learning goals that are predetermined by the teacher, but not always evident to the student, especially in the early stages of the inquiry process. An appropriate strategy recommended more recently in the research is to help teachers develop "driving questions," questions that will ensure that students encounter and struggle with complex concepts and principles based on content needs. By designing the driving question, teachers can better ensure that a breadth of content is addressed, oftentimes across content areas (Thomas, 2000).

A good Driving Question makes a project intriguing, complex, and problematic. Although standard classroom assignments, often present questions that students must answer, a Driving Question requires multiple activities and the application, synthesis and evaluation of different types of information before it can be answered (Thomas, 2000). Designing instruction in this manner puts the student at the center of the learning experience and requires the teacher to serve more as a guide (Youngquist & Pataray-Ching, 2004).

A sample inquiry-based question for a student driven project over the Civil War may be, "Could the Civil War have been avoided?" To expand this question even more, to make it a driving question, and to connect to other content standards, it could be reframed as "Can we avoid conflict that has been fueled by our differences? If no, why? If yes, how?" By expanding

the question even more, the teacher can build in smaller, more direct questions that build up to the driving question, while connecting to other disciplines and present day issues as well. Building inquiry around driving questions is a crucial component of current instructionally focused efforts in inquiry (DeBoer, 1991, Thomas, 2000).

Driving questions frame the inquiry the teachers want students to engage in and scaffold more direct questions which helps connect to a wider variety of state and national content standards, across disciplines. Traditional questions, as can be seen in Figure 2, can be broadened with the use of driving questions. Driving questions encourage exploration, which leads to more questions to investigate (Bruce & Davidson, 1996). Additionally, elements of inquiry-based instruction can cut across state and national skill-based standards, as shown by Audet (2005) in his Standards Crosswalk (see Figure 3). According to Audet, a standards crosswalk is a "systematic procedure for generating and representing cross-comparison data." In Figure 3, Audet uses the science-as-inquiry standards anchor points to illustrate inquiry skills across content areas.

Content and Skills: Student's Perspective

From a student's perspective, the inquiry process must feel open-ended and broad as well. Tower (2000), for example, encourages students to analyze their inquiry-based questions by asking, "if I can go to one source, one book and find the answer, I am thinking too small" (p. 22). By placing the responsibility for such tasks on the student, the student becomes the director of his or her learning and learns to speak up regarding his or her learning needs.

Kordalewski (1999) and Gabella (1994) discuss the importance of student voice in classrooms. When students have the "voice" they are the ones asking questions, analyzing

information, and making predictions. Gabella (1994) argues that while historians see knowledge as a part of "the ongoing conversation among a community of inquirers," rather than in a textbook or teacher (p. 351), many students do not. Therefore, students need to learn the principles and habits that social scientists use and they need to practice being the inquirer among a community of learners. Constructivist and inquiry-based activities, such as projects, creating products, reenactments, group work, and examination of primary sources are avenues for engaging students as the learner and inquirer.

By designing instruction in this manner, students are more likely to begin identifying and experimenting with real questions that drive inquiry, view themselves as in charge of their own learning and develop their own voice, make interdisciplinary connections, engage in collaboration, and promote public good (Chard, 2004). By engaging in learning as a cycle or process, students are more likely to be able to transfer knowledge and skills to new settings and retain more information (Parr & Edwards, 2004).

Figure 2. Driving Questions and State and National Standards

Could the Civil War have been avoided? If no, why? If yes, how?		Can we avoid conflict that has been fueled by our differences? If no, why? If yes, how?	
State Standards	National Standards	State Standards	National Standards
EUS.3.AH.3	NCSS St 1	EUS.3.AH.3	NCSS St 1
	NCSS St 2	EUS.3.AH.2	NCSS St 2
	NCSS St 3	WC.15.AH.1	NCSS St 3
		WC.18.AH.8	

Figure 3. Audet (2005) Standards Crosswalk

Science	Geography	English/Language Arts	History	Economics*
ABILITY Use data to construct a reasonable explanation.	How to use mental maps to organize information about people, places, and environments.	They gather, evaluate, and synthesize data from a variety of sources.	Chronological thinking -Interpret data presented on a timeline -Explain change and continuity Historical Comprehension -Draw upon data in historical maps -Draw upon visual and mathematical data presented in graphs -Draw upon visual data presented in	-Confront real-world dilemmas that have more than one possible solution -Solve problems through analysis, investigation, research, and discussion -Connect economic

			photographs, paintings, cartoons, and architectural drawings Historical Research Capabilities -Obtain historical data -Interrogate historical data -Consider cause and effect and correlations**	problems to other disciplines, such as history, psychology, politics and statistics
UNDERSTAND Scientific investigations involve asking and answering a question and comparing the answer with what scientists	How to analyze the spatial organizations of people, places and environments on Earth's surface	Students draw on their prior experience, their interactions with other readers and writers, their knowledge of word meaning and of other texts, their		

already know about the world		identification strategies, and their understandings of textual features.		

*Economics based on of the Buck Institutes work on Problem Based Economics

**Added to Audet's Model

Research Supporting Inquiry-based Instruction

Research supporting inquiry in mathematics and science is easier to find, but this is not the case in the social studies. However, studies below, though somewhat limited in scope, indicate that well-trained and experienced teachers operating within the paradigm of constructivist pedagogy and inquiry can positively impact on student learning (Harmon, 2006; Karaduman & Gultekin, 2007; Tally & Goldenberg, 2005).

In a study of 84 American History classes, Harmon (2006) found that student achievement in classrooms driven by inquiry-based instruction, as measured by state content assessments, was significantly different from classrooms driven by traditional teaching methods. In 8th grade classrooms, student achievement was higher in classrooms with inquiry-based instruction and for 11th grade classrooms, achievement was higher in classrooms that reported a high fidelity of implementation of inquiry-based instruction. While issues exist with the methodology of this study, chiefly with controlling for confounding variables such as teacher affect, the findings are valuable and future efforts can build on the limitations and framework of this study.

In a study of middle school social studies students and teachers, over the course of six weeks, Karaduman and Gultekin (2007) found that students, when presented with constructivist materials and instruction based on discovery, real-life examples and experiences, learner autonomy, and problem- and project-based learning learned significantly more than those involved in traditional teaching.

Project, service, issue, inquiry- and community-based activities are the hallmarks for such learning. Students focus on aspects of problems that they believe they can change, and are thus personally motivated (Klein, 2001; DiEnno & Hilton, 2005). When students construct their own inquiries, they go beyond the "processing of information" and instead deal with real issues that need to be solved (Summerby-Murray, 2001). Students learn how to learn, taking away more than content-specific knowledge. History, geography, and psychology, for example, can then be viewed as a ways of learning, rather than "things to be remembered." In the instance of history, this process can transform history into a critical study of the past, present, and future (Brown, 1996). Through such learning methods, students are actively involved, developing a sense of pride in their ability to change society. Students are able to make a real connection between what they learn in the classroom and what happens to them outside the classroom. Students also learn about themselves through real-world activities (Gredler, 2005).

More recent research has focused on the use of primary sources, particularly digital primary sources, to engage students in inquiry. Using primary sources promotes deeper learning and encourages students to activate the same critical thinking and information-seeking skills used by social scientists including observation, inferring, questioning, analysis, evaluation, interpretation, problem-solving, and synthesis (Allen & Dutt-Doner, 2006; Tally & Goldenberg,

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2005). As such, the use of primary sources may provide a welcome resource to inquiry-based learning.

Current State of Social Studies Education & Inquiry-based Methods

Harmon (2006) argued that although in the teaching of social studies there is a demand for interpretive pedagogical approaches, chiefly constructivism, that it is not a common occurrence in classrooms across the United States. Building on the work of other scholars and his own research, Harmon emphasized critical and autonomous thinking, discovery learning, and methods of inquiry (2006).

In a research study focusing on social studies teachers' conceptions of history and teaching history, Yilmaz (2008) conducted in-depth semi-structured interviews with twelve in-service teachers. Findings from the study indicate that the majority of teachers' conceptions of history were "characterized by common-sense understanding of history, i.e., a study of the past events, cultures, and people chronologically" (p. ii). Most teachers did not consider the subjective nature of history, lacking an understanding of the role that a historian's frame of "reference, gender, race, ethnicity, nationality or academic training" played in their historical explanations (p. ii). While the study found that many teachers were knowledgeable about inquiry-based strategies, that their concept of teaching history often constricted historical inquiry processes in the classroom.

Making the shift to learning environments that are driven by inquiry- and student-centered is a major challenge because it may require teachers to do some or all of the following, depending on where they start (and possibly more): advance in content knowledge and skills, paradigm shifts about the nature of teaching and learning, re-thinking classroom and lesson

design, and a deep understanding of students' preexisting knowledge (National Research Council, 2000).

Research on Impacting Instructional Change

In order for inquiry-based teaching to move forward, teaching initiatives for social studies teachers must address teachers' perceptions of the learning environment and their understanding and knowledge of inquiry-based methods in social studies methods courses. It should not be assumed that because teachers have met the history, geography, or sociology requirements that they are able to think like historians, geographers, or sociologists, which is necessary if we are to engage our students in "doing history" or "doing geography." Teachers may need to be trained how to approach content before they can effectively project it in the classroom. We may also not assume that their belief system supports inquiry-based instruction, and if this is the case, we must address their perceptions while also providing them the tools and support necessary to be successful. Research conducted by Brush and Saye (2002), Fragnoli (2005), and Johnson (2007) support these assumptions.

The importance of teachers' mental constructs about teaching social studies cannot be emphasized enough. Thornton (1991) addressed concerns that the *New Social Studies* movement placed too much emphasis on providing curriculum and materials did not consider the central role teachers' beliefs, views, and perspectives play when trying to reshape social studies education. Regardless of the tools and resources provided to teachers, if they do not embrace a change in how and what they teach, they will react as "curricular-instructional gatekeepers" (Thornton, 2001, p. 72). The work of Yilmaz (2006) further illustrates that teacher behaviors when planning, implementing, and reflecting on practice are most heavily influenced by their beliefs about teaching and learning.

According to Fullan (2001), changes in teachers' instruction are multi-dimensional and changes must happen in all dimensions for effective implementation to take place. Teachers must use new or revised materials, they must use new teaching approaches, and they must alter their pedagogical beliefs. Otherwise, changes were temporary.

CHAPTER THREE

METHODOLOGY

This study was designed, primarily, to investigate teachers' perceptions, understanding, and use of inquiry-based instruction over time within an environment of rich support. Teachers' perceptions and implementation efforts were studied using a qualitative inquiry approach and that occurred in natural settings during the course of the school day, primarily in classrooms and focus group settings on campus. To measure perceptions, semi-structured and focus group interviews were used. To measure use of inquiry-based instruction, the study incorporated teacher observations during implementation, classroom observation data, and artifacts such as student work, lesson plans, unit plans, and a researcher journal.

Because this study was designed to capture teachers' perceptions and understanding over time in a complex environment with point-in-time support and evolving challenges, a qualitative approach was selected. The study sought to illustrate much more than coded operational variables, it was exploratory and generative in nature, and the "context, setting, and participants' frame of reference" were as important as nominal labels and categories (Marshall & Rossman, 2006). While it was necessary to plan for the challenges teachers would face during implementation and the supports they would need, I knew that in real-world settings, not everything could be predicted. Therefore, the study was designed to allow challenges to surface throughout and included time to provide needed supports as they emerged. Therefore, the study employed qualitative and case study research using a generative design model. While one of the primary intentions of the study was to identify common themes and one general overarching theme, I also sought to detail, in-depth, the experiences of individual teachers in a case study format. In conclusion, the nature of my research questions demanded that I go beyond the "what

works" for teachers. Improving future implementation required me to be able to detail the "how, when, and why" of how it works and of what "exactly 'it' is" (Cobb, Confrey, diSessa, Lehrer, & Schauble, 2003, p. 13).

Based on the stated purpose of the study, the research questions were as follows:

1. What were teachers' perceptions of the inquiry-based method and the nature of teaching social studies before, during and after implementation?

2. How did teachers change their instructional practice during and after implementing an inquiry-based unit and what supports did they require?

3. What instructional challenges and successes did teachers describe when using inquiry-based methods?

4. What recommendations did teachers have for future inquiry-based instructional initiatives?

Based on the stated purpose of the study, the focus group questions used as a guide for the first meeting were as follows:

General Background

1. How long have you been teaching?
2. What are you certified to teach?
3. What is your educational background?
4. What are you currently teaching?

Questions to gauge general social studies conceptions/beliefs/practices:

1. How do you define social studies education?

2. What is the purpose of social studies instruction?

3. How do you present the purpose of social studies to your students?

4. How do your unit and lesson plans reflect your beliefs about teaching social studies?

5. What are teacher's perceptions on teaching history?

Based on the work of Yilmaz (2008) Possible probes include:

    a. History as interpretative?

    b. History as a story of the past?

6. Describe a typical daily lesson plan or typical project.

7. How do you define teaching and learning?

8. What characteristics does an effective social studies teacher possess?

9. What characteristics does an excellent student possess?

10. What teaching methods do you use to teach?

11. What is your role in the classroom?

12. What kind of learning environment best engages students?

13. What assessment techniques do you employ to evaluate students' learning?

Questions to gauge general inquiry-based instruction conceptions/beliefs/practices:

1. What are participants' present perceptions of the inquiry-based instruction?

2. Do participants think use of inquiry-based methods will influence student engagement? If so, how?

3. What types of barriers and successes do teachers expect?

4. What are teacher expectations from the study? What are teachers' expectations for support, specifically?

In this chapter the research design and methodological decisions, as related to the research questions, were described. Participants, measures, procedures, credibility issues associated with the researcher as the instrument, data management, and the analysis plan were included in the research design. In the methodological decisions, issues associated with using the researcher as an instrument were discussed.

Participants

The participants in this study were purposefully selected based on meeting the selection criteria, first, as social studies teachers in grades 6-12, and, secondly, because they agreed to participate in additional research, above and beyond school requirements, while teaching. Criterion sampling, which was used in this study, selects cases that meet predetermined criteria (Patton, 1990). Additionally, in the initial focus group interview process, potential program teachers had to agree to teach using the program curriculum and program methods, specifically inquiry-based methods in secondary social studies.

All participants came from the school district in which I am currently employed, in Northwest Arkansas. All were certified to teach grades 7-12 or 5-7, or as, in the case of a student-teacher participant, were working towards certification. While most participants were primarily social studies teachers, a few had backgrounds in different disciplines, including English and Journalism. Of the eleven teachers asked to participate, ten agreed. While the study was designed to last over the course of an entire school semester, or eighteen weeks, one of the participants, because of time constraints and scheduling difficulties, started a month late and

participated for twelve weeks. The other participant, a student teacher, did not start at the school until later in the study and was able to participate for eight weeks. Both participants who started the study late were provided the same training opportunities and support, but on a condensed schedule.

Methods

Data were collected using instructional rubrics that have been tested in classrooms and allow for a detailed analysis of inquiry-based instruction. Semi-structured interviews and focus groups were used. A reflective journal was kept throughout the study. Teachers were asked to record and submit their reflections to me when they came to breakthroughs in the lesson. They were also asked to allow me to conduct classroom observations, and submit lesson plans and student work.

Teachers were observed while implementing the inquiry-based lessons and/or units. Two inquiry-based rubrics were used to evaluate instruction, and these rubrics have been tested in other content areas. The first basic model comes from biology instruction (see Appendix A), and looks for the following five essential elements when evaluating teacher instruction: are students engaged, do they have time to explore on their own, does the teacher help explain what they observe, and do students elaborate and evaluate, making connections and forming hypotheses on their own (NRC, 2000). As the National Science Education Standards (1996) explain, students engaging in inquiry are challenged to "describe objects and events, ask questions, construct explanations, test those explanations against current scientific knowledge, and communicate their ideas to others. They identify their assumptions, use critical and logical thinking, and consider

alternative explanations" (p. 20). The second rubric used comes from the Teacher Advancement Program (TAP).

The TAP rubric for instruction is incorporated into classroom observations at the school of study. The areas of the rubric that were used for this study included: thinking, problem solving, and questioning. These indicators focus on developing and evaluating the inquiry process and problem solving. It was expected that this would be the smoothest instrument to implement, as the school district has been a part of TAP since 2002. The TAP model is based on a decade of research related to student achievement and teacher improvement and is already an integral part of instruction reform efforts at many schools across the nation (Teacher Advancement Program, 2009). The rubrics described were used during all phases of implementation and planning.

While designing units, teachers were presented with the rubrics, the inquiry model, which detailed the steps of inquiry, and pre-made sample inquiry-based units. Depending on the needs and requests of the teacher, I worked with them one-on-one while they developed the units, and/or provided feedback via email and the use of Google Docs. For the first cycle of implementation, participants either watched model lessons, or participated in co-teaching or observations of daily lessons from the inquiry-based unit. I strongly suggested teachers allow me to model the first day of instruction, which set the stage for the inquiry unit.

Teachers were interviewed using semi-structured open response questions in focus groups and one-on-one sessions. Interviewing, according to Patton (2002) is the best data gathering method to:

1. Enter the conceptions of others

2. Enable the participants to elucidate their own personal experiences

3. Allow the researcher to capture the complexities of participants' conceptions along with qualitatively distinct variations among conceptions (pp. 341-448, as summarized by Yilmaz, 2008).

Individual and focus group interviews took place at the beginning and over the course of the eighteen-week program. The focus groups at the beginning focused on four components: teacher's perceptions of inquiry-based methods and social studies instruction, teacher expectations for the study and inquiry-based curriculum, comfort level with the methods, and initial concerns. Individual interviews at the beginning of the program focused on teacher knowledge of inquiry-based methods, teacher perceptions' of inquiry-based method effectiveness, comfort level with implementation, concerns with implementation, and history of use of methods. Focus groups and interviews at the end of the program focused on the following, but also included questions previously listed as deemed necessary:

1. What are teachers' perceptions of the inquiry-based method and the nature of teaching social studies after implementation?

2. How did teachers change their instructional practice during and after implementing an inquiry-based unit and what supports did they require?

3. What instructional challenges and successes did teachers experience when using inquiry-based methods?

4. What recommendations do teachers have for future inquiry-based instructional initiatives?

Interviews and focus groups were audiotaped and transcribed. To enhance credibility, transcripts were used for member checking, peer examination, and peer-debriefing.

Data from teacher reflections, the researcher's journal, interviews and planning sessions were collected and analyzed for growth, implementation efforts, and barriers. Teacher lesson plans were compared to inquiry-based criteria and were used to compare actual and intended instruction. Student work was analyzed for evidence of higher-level thinking and questioning.

Procedures

During Focus Groups and Interviews

The question sets during interviews or focus groups were not restrictive. Participants were informed that the questions would only serve as a guide. During interviews, questions were asked for clarification and understanding. At the completion of the question set, additional questions were asked. Some of these questions were designed to elicit expansion, detail, elaboration, or clarification of what had been said in the interview. Additional questions were developed based on statements made in earlier interviews. Therefore, it is expected that interviews would be conversational. After the interviews, I wrote one- to two-page summaries to capture major elements of the interviews to be a part of the researcher's reflective journal. This process is based on journaling (i.e., recording reflective notes about what you are learning from your data). The idea behind journaling is to write memos to yourself when you have ideas and insights and to include those thoughts as additional data to be analyzed. In most cases, I worked daily with the person interviewed, and often follow-up to questions was asked briefly and recorded in the researcher's journal, but were not audio recorded.

At the beginning of the study, after the first round of questioning, teachers were categorized as having one of the following perspectives: student-centered or teacher-centered. Teacher-centered classrooms focus on the teacher transmitting knowledge to the learner, as the expert, whereas student-centered classrooms focus on the students' learning and what "students do to achieve this, rather than what the teacher does" (Harden and Crosby, 2000, p. 335). After the first planning session, some teachers were re-categorized as emerging student-centered, which meant they were in between the two perspectives, on the path to student-centered.

During Classroom Observations

Classroom observations were made regularly, especially during the first few days of the unit and during student work days. At least one classroom observation from each teacher was scripted and themes based on teacher and student behaviors were identified. Primarily, I was looking to see if teachers' plans for inquiry were followed, what teachers did when students were off track, and how the change in instruction affected teacher and student behavior. The inquiry rubrics were also used to measure the level of inquiry-based instruction present in the classroom. Most teachers were available to reflect on the lessons observed, which further contributed to the findings for challenges and successes.

Because our school is a TAP school, teachers and students are accustomed to having visitors. As the researcher, I attended classes several times while the inquiry-based units were being implemented and scripted, i.e, wrote down everything the teacher and students said, from bell to bell.

Research Journal (Teachers and Researcher)

I asked teachers questions after each lesson and while they were planning. I also asked them to journal if they came to any breakthroughs during the lesson, working with each other on

the units or while teaching or watching me model. Most participants preferred communication on lesson reflection in person or via email and did not keep chronological journals. I also followed up with participants after interviews and observed lessons to ask clarifying questions. All data collected, outside of the formal interviews which were transcribed, that resulted from conversations between the participant and myself were collected in the research journal.

Modeling

Modeling included instructional practices, processes that were necessary to or aided inquiry, and the use of resources to provide models for planning, assessment, and processes. Several elements of inquiry-based instruction were modeled to teachers in their classrooms and outside of the classroom throughout the study. Reflecting with the teachers following the model and recording their comments and questions was a common data collection strategy. I also asked them to describe what it would look like when they implemented the model lesson and planned for follow-up observations and support as a result. Some teachers also watched me model strategies or lessons from the class I was teaching.

While some of the models provided were pre-determined, I also modeled and provided support based on the needs of the teachers' lesson or unit and the needs of the students. By the middle of the study, some teachers were participating in co-taught lessons or were providing support to other teachers in the study, which was also documented. While some of the practices modeled directly supported the inquiry process, such as creating driving questions, other support processes helped create an environment for inquiry, such as cooperative learning strategies, or were designed to meet challenges identified by teachers early on in the study. Some of the supports or scaffolds requested by teachers were designed to meet individual student needs, allowing students to more fully participate in the inquiry process. Table 1 illustrates the

instructional practices or strategies that were modeled throughout the study. The practices that were pre-determined to be necessary for implementation are labeled as "All" and were modeled to all teachers. For example, creating a driving question for the lesson or unit was the first step in getting teachers to think about how they would guide the inquiry process, and how they would use questioning, to facilitate learning. All other practices or strategies were modeled on demand to the teachers, and have been categorized by frequency, as either "most" or "some."

Table 1

Instructional Practices and Strategies Modeled for Teachers

All	Most*	Some*
Driving questions	On demand scaffolds	Teacher-student feedback
Choosing standards	Knows and Need to Knows*	Analyze primary sources
Connecting standards	Thinking aloud	Task analysis
Graphic organizers	Student questioning strategies	Task organization
Identifying content themes	Self-reflection	
Cooperative learning	Peer feedback/assessment	
Scaffolding questioning	Gradual Release Model	
Creating content rubrics	Research skills	
Creating process rubrics	Analyzing rubrics with students	
Planning research	Creating content themes	
	Evaluating sources	

*Most category refers to practices or strategies that were modeled for at least 8 teachers

*Some category refers to practices or strategies that were modeled for 2-7 teachers

Planning/Reflecting

All teachers participated in at least one planning and post-lesson reflection session, but additional support was made available during the entire planning and implementation process. As the study progressed, teachers began seeking support more informally and regularly. Records of time spent working with teachers for planning and reflecting, in person, by email and by phone, were kept, to ensure trustworthiness of the data.

Data Analysis

Constant comparative analysis, or grounded theory, was used to analyze the data. Grounded theory, a complex iterative process, begins with the raising of generative questions, or questions which help to guide the research. The questions are not static or confining, but rather serve as a general guide, especially during the early phases of research. As the researcher begins to gather data, core concepts are defined and tentative links are developed between the core concepts and the data.

Grounded theory, which developed in the 1960's from the work of Glasser, requires the researcher to take one piece of data, such as an interview or focus group in the case of this study, and compare it to all other pieces of data (lesson plans, journals, classroom observations and classroom documents), looking for similarities and differences, along with patterns or themes (Mills & Francis, 2006). Data are looked at throughout the study through the lens of the researcher as the researcher considers what makes one piece of data different and/or similar to other pieces of data. This method of analysis is inductive and subjective, as the researcher begins to examine data critically and draw new meaning from the data as the study progresses. The researcher is focused more on telling a story about the phenomenon, rather than proving or disproving ideas. Because of this story telling focus, grounded theory is constructivist in nature

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and it denies "the existence of objective reality" and considers researchers to be "part of the research endeavor rather than objective observers" (Mills & Francis, 2006, p.2).

Because of the high degree of comparative analysis that takes place, I knew it would be important to organize data in a way that it could be readily compared. Data were organized using the model similar to that in Figure 4 and included several different questions to help the researcher address the research questions. Data were also organized into concept checking charts, as seen in Figure 5, to help with looking at the frequency of concepts across participants and data sources. Concept checking charts were kept on all of the major themes of the study.

Figure 4. Categorization of Responses to the Open Ended Question at three points during the program: How has use of inquiry changed your teaching methods?

Week Six	Week Twelve	Week Eighteen
Teacher One	Teacher One	Teacher One
Teacher Two	Teacher Two	Teacher Two
Teacher Three	Teacher Three	Teacher Three
Table notes		

Figure 5. Sample of the Table of Concepts Identified

Concept found	Participant	Descriptor or characteristics of the concept	Data reference in order of participant*
IA Individual accountability for students: group work, assessing learning	1 2 3 4 5 6 7 8 9 10	Group work	CO, I, LP

*CO=Classroom observation, I=Interview, LP=Lesson Plan

The focus groups and interviews conducted at the beginning of the study were transcribed and analyzed immediately to assess teachers' perceptions. These data were also used to determine the level of support each teacher would need and to identify supports teachers would need that had not been predicted from the literature review. Supports were determined by statements made directly about needed supports, or were implied based on how the teacher answered questions. For example, if a teacher answered questions in a way that classified as teacher-centered, then it was determined that they would likely need more assistance with student-centered practices such as cooperative learning strategies.

During the study, however, teachers regularly met informally, often impromptu, with me to ask quick questions about lesson planning, activities, or student outcomes. As a result of these meetings, I kept extensive notes during the study to document and analyze all of these informal meetings. Both of these data were analyzed extensively and used during the coding process. Once the transcripts are coded, statements across interviews were compiled into lists of characteristics for each participant according to their statements, to further complement my

knowledge of each participant's needs. After the first round of planning and implementation, teachers were questioned again, and data from the interviews and focus groups were re-examined as part of the first round of data analysis.

Open coding was used first, to develop initial categories and themes, as mentioned in the previous section and illustrated in Figure 5. The lists of characteristics made for each teacher were heavily used to design Figure 5. The data from classroom observations, lesson plans, and reflections with the researcher were used to verify the initial categories developed for Figure 5. The data were re-examined and follow-up questions were asked of teachers until the same findings were found repeatedly, referred to as data saturation.

Axial coding was used next to help center on a few themes. The data were then re-analyzed to see how each piece fit into the themes. Finally, themes were analyzed to see how they interrelate. Documents from the schools (such as lesson plans) were examined again for confirmatory evidence, as well as to reconcile discrepancies or to clarify information provided in the interviews.

The process of open and axial coding occurred again following the next round of lesson or unit plan development and classroom observations. Separate records of analysis were kept for the beginning, during and after stages of data collection. However, once all data were collected, another round of analysis was made to look for a single theory to emerge across all themes.

Researcher as the Instrument

In this study, as a participant observer, I do not intend to be detached, neutral, or unobtrusive. Because of my experiences a classroom teacher, I am biased towards inquiry-based teaching and therefore, will have to be careful to not be too critical or overlook participants who teach differently. As the instrument, I was there to learn from the participants, to interpret their

experience, and to use my experiences to better understand the challenges they faced and the supports they needed.

Data Management

Records were kept in a locked file cabinet, and electronic information was password protected and stored on my personal computer. Data was only be accessible to the researcher. Trustworthiness of the data was established by using an audit trail of all the interviews and documents. To protect participants, identification numbers were assigned to all participants and the links from identification numbers and participant names were destroyed when the study was complete.

Additional Sources of Credibility

The work of Guba and Lincoln (1989) was reviewed and the following suggestions were incorporated to ensure credibility. Designing the study to last for a school semester, or the equivalent of 18 weeks, incorporated prolonged engagement with the participants. Prolonged engagement allowed me to better understand the context of change and assisted in developing trust with the participants. Persistent observation, used to establish depth and detail in the study, was met through regular contact and frequent classroom visits with participants. Peer debriefing was accomplished by incorporating feedback from an educator outside of the study and the dissertation chair. Member checking was established by reviewing the themes with the participants after the first implementation cycle. Data triangulation was accomplished by collecting several cycles and types of data, including interviews, classroom documents, and notes from planning sessions and reflections with teachers.

CHAPTER 4

FINDINGS

Data were compared to determine the common challenges reported by teachers, teachers' perceptions before, during, and after the study, teachers' implementation efforts throughout the study, supports teachers required and the successes they reported. The challenges teachers reported and those identified during classroom observations and through document analysis revealed common themes, despite other variables that varied throughout the study. Teachers' perceptions changed throughout the study and greatly influenced teachers' implementation efforts and reported successes. Student work and engagement also improved in most classrooms throughout the study, as measured by student work and teacher reflections. The findings are organized in the order of the research questions, which were the following:

1. What are teachers' perceptions of the inquiry-based method and the nature of teaching social studies after implementation?

2. How did teachers change their instructional practice during and after implementing an inquiry-based unit and what supports did they require?

3. What instructional challenges and successes did teachers experience when using inquiry-based methods?

4. What recommendations do teachers have for future inquiry-based instructional initiatives?

Perceptions

Teachers' perceptions of teaching and learning, particularly their beliefs about inquiry-based instruction, changed during the study. Throughout the study, teachers' perceptions and beliefs about teaching social studies had an impact on how they planned, implemented and

reflected on inquiry-based instruction. Many of the teachers changed their perceptions and began regularly teaching with an inquiry-based focus, and some changed from a belief system that focused on a teacher-centered model to a more student-centered focus, as can be seen in Table 1. The same teachers who changed their perceptions about student-centered and inquiry-based instruction also changed their practices during and after the study, as can be seen in Table 2. Three categories of teacher beliefs and practices emerged based on teachers' perceptions and practices before and during/after the study. Based on their experience, observed practice and perceptions of instruction and inquiry-based instruction, they were categorized as student-centered, teacher-centered, or emerging student-centered.

Based on the literature reviewed and conversations with teachers early in the study, three categories of teaching were created. Teacher-centered classrooms focused on the teacher transmitting knowledge to the learner, as the expert, whereas student-centered classrooms focused on the students' learning and what "students do to achieve this, rather than what the teacher does" (Harden and Crosby, 2000, p. 335). At the beginning of the study, teachers were labeled as student-centered or teacher-centered. Due to the fact that several teachers had already begun incorporating more student-centered activities into their classroom before the study began, based on conversations that emerged during the planning of their first unit or lesson, after the initial interviews, a third category, emerging student-centered, was created.

Teachers were categorized based on their statements during interviews and planning sessions, lesson plans, student work and classroom observations.

Student-centered: Four of the ten teachers supported a student-centered classroom before the study began and designed their curriculum and instruction to fit this model, but felt that the challenges they faced were inhibiting their effectiveness. They all agreed that they could

use more support in implementing inquiry-based instruction.   Two of the four teachers'

practices were categorized as emerging student-centered, but their beliefs, or perceptions,

were categorized as student-centered.

Emerging student-centered: Two of the ten teachers supported a student-centered

classroom before the study began but felt that the challenges they faced in implementing

instruction inhibited them from embracing it regularly. However, they had experience with

and were open to more student-centered teaching and inquiry-based instruction. Their

practices supported that they were in-between the two categories, or emerging student-

centered.

Teacher-centered: Four of the ten teachers supported and practiced from a teacher-centered

perspective, but were willing to experiment with more student-centered instruction and agreed

to experiment with inquiry-based instruction.

Table 1

Teacher Perceptions before, during and after implementation

Teacher	Perceptions*		
	Before	During	After
1	SC	SC	SC
2	SC	SC	SC
3	SC	SC	SC
4	SC	SC	SC
5	ESC	SC	SC
6	ESC	SC	SC
7	TC	ESC	ESC
8	TC	ESC	*
9	TC	TC	ESC
10	TC	TC	TC

*Perceptions: SC=Student-centered ESC=Emerging Student-centered TC=Teacher Centered

Practices

At the beginning of the study, all teachers agreed to participate as observers or co-teachers in model lessons of inquiry-based instruction. While the instructional strategies varied to meet the learning objectives and content, a few strategies, including questioning, cooperative learning, and rubric analysis were utilized by most teachers on a regular basis during the study to

encourage and scaffold the inquiry process. Teachers reported that they used the strategies because the instruction met learning objectives and kept students engaged. They also reported that in using inquiry-based instructional practices they saw improvement in engagement and student quality of work as measured by rubrics. Despite the success teachers reported from using the practices, they also reported many challenges associated with the practices.

Teachers who supported student-centered learning in theory before the study started, but did not regularly incorporate it into their practice, persisted and experimented with inquiry-based instruction on a regular basis throughout the study. They understood the need for inquiry-based instruction and persisted despite challenges and lack of experience, content or pedagogical skills. Teachers reported that the on-going support, feedback, resources, and collaboration provided during the study helped buffer those challenges and they continued to experiment with inquiry-based instruction. Most teachers reported that inquiry based instruction would become a regular part of their instruction.

The practices and supports required for successful implementation are reported in Table 3 and summarized below. The types of activities or models that were provided by category are detailed below.

1. Use of questioning to:

-Model questioning for students, both inductive and deductive

-Create driving questions or essential questions for projects/units/lessons that tied back to content standards

-Create driving questions for student activities

-Co-construction of driving questions for projects with students

-Creation of driving questions in cooperative groups

-Form a basis for research and questioning

2. Use of rubrics that measured content, process, and guided expectations to:

-Model how to transfer rubric information to a task list

-Model how rubrics can measure content and process and using them as such

-Co-construction of rubrics with students

-Reflection and refinement of rubrics with students

-Use of rubrics to create "jobs for students"

-Use of rubrics to create a "need to know" for information

3. Use of cooperative learning to:

-Scaffold difficult tasks such as rubric analysis and creation of driving question

-Teach role and task assignment

-Regular checkpoints for individual and group accountability

-To incorporate flexible grouping

-To provide differentiation for students who needed more content or process support

4. Use of concept and process mapping

-Graphic organizers for content and process

-For hierarchical information

-Connector graphics-connecting ideas, concepts, events, people, countries, etc.

-Checklists for content requirements

-Checklists for tasks

-Checklists created from rubrics

-Planning inquiry before researching

-Activating background knowledge

-Creating outlines for concepts learned

5. Creating Relevance

-Connecting driving questions to real-world issues

-Connecting historical concepts across time

-Connecting to global issues

-Connecting to local issues

Table 2

Teacher Practices before, during and after implementation

Teacher Practices*

	Before	During	After
1	ESC	SCI	SCI
2	ESC	SCI	SCI
3	SC	SCI	SCI
4	SC	SC	SCI
5	ESC	SC	SCI
6	ESC	SC	SCI
7	TC	ESC	ESC
8	TC	ESC	*
9	TC	TC	ESC
10	TC	TC	TC

*Practices: SC=Student-centered ESC=Emerging Student-centered TC=Teacher Centered

SCI=Student-centered and Inquiry-based

Table 3

Instructional practices and supports used by teachers

_____

Instructional Practice	Required Support
Questioning	Researcher model during planning
	Researcher model and student scaffold with question stems
	Cooperative learning groups, researcher model
Rubrics	Product rubrics designed with researcher and other teachers
	Process rubrics created using models
Cooperative Learning	Model role assignment and task responsibility lists
	Model creation of contracts for students
	Model developing peer-to-peer constructive feedback
Concept and Process Mapping	Use concepts from the lesson and create the graphic ahead of time
	Discussion of the purpose and sample public task list
Creating Relevance	Sample projects, units or lessons

Challenges faced by teachers

     Teachers faced many challenges during implementation, including a lack of background knowledge in content and pedagogy, classroom management, and curriculum design and infrastructure. These challenges heavily impacted their implementation practices and reported successes. Teachers' perceptions, particularly their beliefs about teaching social studies, greatly

influenced their implementation efforts and their responses to challenges. The challenges, perceptions and implementation efforts of participants are presented below.

Teachers' Knowledge

Of the ten teachers involved in the study, all of them reported challenges in either pedagogical knowledge, content knowledge, or both. Content knowledge for the study was defined as a deep understanding of content that allowed teachers to make connections, ask questions with little preparation, and teacher confidence or efficacy in their own content knowledge reported as a part of the study. Teachers were asked to report their confidence in their content knowledge, but it was also measured during classroom observations and as a part of the document analysis. Pedagogical knowledge considered teachers overall instructional methods, and strategies and skills, with a specific focus on inquiry-based instruction. Pedagogical knowledge was measured during the interviews, as a part of classroom observations, and as a part of the document analysis.

Content knowledge was reported as a challenge for six of the teachers, pedagogical knowledge--specifically for inquiry-based instruction--was reported as a challenge by nine teachers, and six teachers reported both as a challenge. Analysis of classroom observations, lesson plans, and notes from planning sessions, indicated that teachers widely varied in their background knowledge of both content and pedagogy (specifically inquiry-based).

The level of comfort and experience with content, pedagogical strategies and inquiry-based instruction influenced their teaching practices throughout the study. Most teachers felt that content and pedagogy were equally important, and both affected their ability to implement inquiry-based instruction. For example, teachers who reported a high level of comfort and deep understanding of their content were able to spend more time on pedagogy, which included

planning and reflecting on inquiry-based lessons. Teachers who expressed more comfort with content, and could cognitively shift from differing points of view themselves, found it easier to use questioning to guide students to their own inquiry. However, the teacher's ability to question was both content and a pedagogical skill, because teachers had to know how to model and think aloud (pedagogy), but they also had to possess enough content knowledge to guide student inquiry, which differed from student to student, based on their project choices. As one teacher explained, *"There are different points of view, but we have to back up and think about context. Think about your view and how well you can interpret it. While considering the point of view we may have to train them (students) to inquire, go from survey knowledge to deeper inquiry. We may have to show them how to go from the textbook to primary sources."*

Classroom observations of teachers revealed that being able to not only question, but to model researching to find sources to help answer higher level questions, was a key skill that helped students learn how to inquire, or question on their own. For example, in one of the classes the teacher used a think-aloud to show students how she questioned data. She used her driving question for her project to outline the information she needed to answer it. She then mentally worked through one of the resources to determine relevance by skimming, scanning, and asking herself questions. After she determined that the source was relevant and would help answer her driving question and would fill in her outline, she asked the students to practice working through one of the resources they had found in small groups.

Another teacher, who had several years experience teaching world history and was already incorporating several student-driven pedagogical strategies, including projects, units driven by essential questions, and document analysis, still reported that she found it difficult to navigate through the content in order to choose pedagogical strategies that would help students make

connections and ask higher level questions on their own. As one teacher explained, *"I wanted to have them read some primary sources...and see if they can't interpret the meaning using a literacy strategy. I know that I can easily have them do some research and design a chart describing the different types of government but I am struggling with the overall idea."*

When asked to describe the nature of teaching social studies, a teacher with a background in English, who had just started teaching an integrated English and World History class at the beginning of the school year, described the challenge for herself and her students well. *"History is interpretative, you have to be open-minded...but interpretation needs to be informed, this is where the depth of content comes in."* This particular teacher was able to rely on her cooperating teacher for assistance, and repeatedly expressed that she felt having someone else to "bounce ideas off of" made her feel more confident about her own teaching and content knowledge.

Teachers who reported they were deepening their learning of the content along with experimenting with new pedagogical strategies, including inquiry-based instruction, often felt overwhelmed and had to occasionally resort to more teacher-centered instruction, despite planning for more student-centered instruction. For example, one teacher explained at the beginning of the study that while it would be desirable to incorporate more student-driven inquiry-based activities, that because she did not feel like an expert in her content area and lacked the tools she felt were necessary to her success, it was difficult to plan and implement inquiry-based instruction. *"Not being an expert... and without the proper tools... a person is sunk most of the time."*

In this particular classroom, instruction was heavily teacher centered and focused more on transmission of knowledge, and less on construction of knowledge. While the teacher

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incorporated the inquiry-based lessons that were co-constructed as a part of the study to her classes, she still felt it was very difficult to plan inquiry-based lessons independently, and continued to report, throughout the study, that it was in part because of content knowledge.

Classroom management

When teachers were asked to report challenges they had experienced or expected to experience during the beginning of the study, classroom management was mentioned as a challenge by all but one teacher. Classroom management was also measured during classroom observations. All but three of the teachers in the study reported that classroom management continued to be a challenge, or something they wanted to improve, throughout the study. Classroom management, as described or observed during the study, included general discipline, keeping students on task, refining and reinforcing independent student behaviors--such as task management, and planning, managing, fostering and assessing group work. Several teachers referred to the challenge of monitoring student behavior and keeping students on task, especially in larger classes. As stated by one teacher:

Keeping students on task, in a big class, is a huge challenge.

Over half of the teachers also mentioned the challenges associated with group work, particularly managing group work and keeping students on task. As stated by a teacher:

Classroom management and grouping, dividing students up and keeping them on task, this can be difficult, especially with class size.

Curriculum Design and Infrastructure

Teachers were provided a variety of planning frameworks to guide them through creating inquiry-based units or lessons. Some teachers requested assistance planning inquiry-based units that incorporated overarching driving questions, while others wanted to experiment with 2-3 day

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lessons that incorporated inquiry-based activities. Teachers who asked for assistance planning units had already been teaching with a student-centered focus and were looking to strengthen and broaden their practice.

Teachers were asked to describe how they planned during the interviews at the beginning of the study, and curriculum design was measured throughout the study through document analysis, during planning sessions and after classroom observations and model lessons. Throughout the study, teachers reported that curriculum design, particularly meeting content standards, was a challenge and they also reported that it in order to be successful, it was necessary to have certain structures in place, such as additional planning time, onsite support, and collaboration with colleagues. They also reported that planning for inquiry required a lot of preparation.

I also have discovered that merely creating a project...like I had done many, many times before in previous schools...is not truly inquiry/project based learning, and that it takes a lot more preparation and thought. A project that is really well-crafted can be very powerful for students.

While eight teachers reported concerns about meeting content standards at the beginning of the study, this was less of a concern for all but three of the teachers by the end of the study. Of the ten teachers involved in the study, five were regularly planning with project-, problem- or unit-based objectives in mind by the end of the study and were regularly incorporating inquiry-based instruction. While their concerns about meeting content standards still existed, they were less concerned about planning for the purposes of covering all standards and more concerned about planning to ensure that students were making real world connections, were engaged, thinking critically, making interdisciplinary connections, problem solving and transferring knowledge across different contexts. As one teacher reported:

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Now I see how much it can deepen their understanding and challenge their problem-solving

skills. That's the greatest improvement I've seen in my students. They are starting to be able to

reason and be more responsible for their own learning.

By the end of the study, teachers who began planning with project-based objectives in

mind, rather than one or two standards, found it easier to "pull" multiple standards across the

frameworks into their unit and lesson planning. They discussed how it made their learning more

relevant, purposeful, and real world to the students. By grouping standards together in order to

meet big idea goals, driving questions, or to solve problems, teachers reported that it was easier

to justify and explain to students why they were learning what they were learning, and that the

students could communicate the relevance of the learning. A teacher in an integrated history and

English course explains the challenge of frameworks:

A challenge that I feel we faced relates to the standards. Current state frameworks are rigid and

numerous. When sharing time with another discipline and dividing the course into project-based

units, I was concerned about the mastery of all/most of the standards…. I still haven't quite

reconciled myself to this challenge, but believe that Common Core will help.

She continues later by discussing her goals, which have changed to incorporate a bigger vision:

And that, I believe, is our ultimate goal: teach a little history along with a whole lot of creativity,

collaboration, problem-solving, and critical thinking.

A teacher describes reflecting on content standards and skills with the students during instruction

and after they've finished a unit or project.

A big part of the rubric design is grouping the standards during planning. We look at where they

are at during the project using the rubric. We look at what all we did. We talk about it. I ask

them, what did you learn? We also talk about the 21st century skills they have acquired.

Another teacher explains how her unit plans reflect the purpose of instruction and incorporate the standards:

We discuss the purpose of our activities and projects. We make it real world and relevant to the students. We show them that they have to be able to make informed decisions. Explicitly or subtly, we tie everything to the real world. We have to get them to ask, why is this a standard, why do you think we need to learn this?

Described by a different teacher:

I think creating a "project" and an end-product are relatively easy, but actually forming it into a student-led, inquiry-based project is tricky and not something that I was encouraged to do earlier in my teaching. That has been a big challenge for me.

Successes: Student Work and engagement

Over the course of the study, student work changed, both in the types assessments and activities that teachers planned and implemented and the quality of work submitted by students. Lesson plans and copies of classroom documents were examined to determine the type of assessment or activity. Quality of student work was determined by analyzing completed assignments and projects based off rubric expectations. Teachers were also asked throughout the study about the assessments and activities they were planning and the quality of student work. In the beginning of the study, much of the student work was focused on a product, or a single assessment. By the end of the study, all of the student-centered inquiry-based teachers were using multiple activities and assessments to scaffold student learning of the inquiry process and they were focusing on the process of learning, rather than products. As stated by one teacher:

Now I see how much it can deepen their understanding and challenge their problem-solving

skills. That's the greatest improvement I've seen in my students. They are starting to be able to reason and be more responsible for their own learning.

Recommendations by Teachers

Recommendations were focused on helping teachers meet challenges. For the majority of the teachers, meeting content standards and planning lessons or projects was a challenge. Their recommendation matched the challenge, all eight teachers agreed that having someone available to work with on-site who could help them plan their project to meet multiple standards and providing the "work time" to do so was crucial to their success. Several teachers, five of the eight, mentioned having someone from their content area to help them plan was also a recommendation they would give to future implementation efforts. As stated by one teacher:

Having any time to collaborate and throw ideas around with other teachers is extremely beneficial. I would like to have more time to work with other teachers (in addition to my partner) to collaborate and get ideas.

Another recommendation by five of the nine teachers who reported classroom management was to think about classroom management issues as a planning issue. If students are off task, it is probably because the expectations for the task are not clear, they need support in accomplishing the task, or they do not feel that they are held accountable for the task. Teachers implemented a variety of strategies to meet these challenges that they recommended for future efforts. Creating task organizers, rubrics that focused on processes, such as collaboration, as well as content, and creating group and individual contracts that detailed overall and daily work expectations was another recommendation. More recommendations, with specific examples illustrated by teachers, are provided as a part of the case studies.

CHAPTER 5

CONCLUSION & DISCUSSION

Based on the literature reviewed, I began the study prepared to support teachers with the following challenges. Regardless of experience, I expected all teachers to express difficulty and lack of understanding in implementing inquiry-based methods within the social studies and that some, if not most, would primarily be coming from a teacher-centered perspective of teaching and learning. In addition to the challenges stemming from lack of understanding and experience with the methods, I also expected challenges such as teacher content knowledge, teacher cognitive flexibility, and classroom management would be identified. However, when provided with necessary materials, including a co-constructed inquiry-based unit and on-going support, I believed that teachers would be more willing to incorporate the use of inquiry-based methods in future lessons and would report an overall change in instruction, from a more traditional teacher-centered form of instruction to a more student-centered form of instruction that regularly included inquiry-based instruction.

Several themes emerged from the findings and centered around the challenges that teachers faced, including perceptions, classroom management, and the interaction between content and skills. The primary challenge that teachers faced was their own beliefs, or perceptions, about teaching and learning, and this theme is considered central because it impacted all other challenges. The chapter concludes with a brief description of each teacher's experience, in a detailed case study that includes samples of classroom documents, including student work in some cases.

Perspectives

In order to implement inquiry-based instruction on their own, teachers had to start changing their principles from teacher-centered to learner-centered. The first inquiry-based unit was developed with me and implemented with regular support. For teachers who were already student-centered, or emerging student-centered, the challenges they faced, while not different from the other teachers, were met with more confidence. While they may not have expected a specific challenge, they had experience problem-solving along with the students, and were solution-oriented. They knew that they could change something about the instruction that would elicit the behaviors they wanted from the student.

Concerns over placing too much emphasis on providing curriculum and materials while not considering beliefs, views, and perspectives, was labeled as an issue by others in the field. Regardless of the preparation, tools, and resources provided to teachers, if they do not embrace a change in how and what they teach, they will react as "curricular-instructional gatekeepers" (Thornton, 2001, p. 72). For example, regardless of a teacher's content knowledge, if she or he was not comfortable relinquishing control to students, it was more difficult to create an environment necessary for inquiry-based learning. As with views on content, the perspective that teachers held in the classroom had a huge impact on classroom management.

Classroom management

Classroom management was reported as an issue for all but one teacher. One of the themes that emerged throughout the study, particularly as teachers moved from a teacher-centered to a student-centered environment, was classroom and task management. Students were not on task, they were disengaged, and they either could not articulate how they would be assessed or they rushed to complete assessments so that they could be finished. Many teachers who had "tried" to use inquiry-based instruction, typically in the form of projects, felt that the challenges were an

unavoidable part of the instruction. Teachers who started the study with a student-centered perspective were more likely to feel that they could improve the environment, whereas teachers with a teacher-centered perspective were hesitant to try new methods that disrupted classroom orderliness.

Content Pedagogy

The challenge to scaffold the interaction between content and skills, for the teachers and the students, persisted throughout the study. Few teachers started the study with a deep enough understanding of both content and pedagogy, or content pedagogy, to allow them to plan, model, facilitate and assess the processes of the classroom that enabled inquiry-based skills and content knowledge to blend. Teachers' primary role during the inquiry-process was in scaffolding reflective and productive engagement with tasks, resources, and peers. When this happened, students started seeing learning as process, and quit rushing to produce products.

Teachers who were teacher-centered had to experience success—for themselves and their students. They had to see that there were things they could change—particularly that they could help students develop skills so that students would complete tasks that met the teacher's vision. Teachers began to realize that if students were not completing the task at hand, it was probably because they were not prepared to do so. Either they were not getting the content, the skill, or the process, or expectations were not clear. As can be seen in several of the teacher case studies, one of the successful practices for this challenge was to focus on one or two skills or processes at a time. For example, in an early unit, Teacher 3 focused on building research and collaborative skills, and more heavily directed and facilitated the inquiry. In doing this, the teacher established the foundation for skills (research) and processes (collaboration) that she wanted to see throughout the school year. In later projects, she was then able to devote more time to helping

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students research and develop their own questions for inquiry.

For example, in the case of one teacher, she was using a product rubric for the first time and the product was tied to an activity that required students to create a task list from the rubric. The rubric, however, required much interpretation and for the task analysis to take place, required some background knowledge on the content. Once the teacher provided some background knowledge and provided a model, most students completed the assignment successfully.

In the case of another teacher, she wanted students to give feedback to each other and she realized that she needed to model that more. Once she began making her feedback explicit to the objectives for the day, the students began mimicking her feedback. As mentioned by one teacher: *Not having immediate feedback from the teacher is ok now because of the collaborative process that has developed.*

Incidentally, the teachers needed the same sort of immediate feedback that the students needed. Feedback given immediately after the lesson, or in some cases during the lesson, provided valuable insights for teachers, and for most resulted in an immediate change in teaching behaviors. Immediate feedback was a crucial part of the support offered to teachers and immediate changes in practice took place when teachers were provided feedback during or immediately after the lesson. In the beginning, feedback was offered immediately after the lesson, but for several teachers, feedback during the lesson, especially when the lesson was not going as planned, was incorporated and appreciated by the teachers.

Ideas about why we teach social studies, the purpose of social studies, changed as teachers used the inquiry process more regularly. As part of the study, teachers had to inquire more with the content to be able to guide students in inquiry. As they did so, and as they worked with

driving questions, some of them began to question their content as static information to be memorized. They were a part of their students' research efforts, which brought multiple points of view to the table, and they, along with their students, began to question the nature of their discipline.

While the literature review helped frame the research questions and helped prepare to support teachers in the process, it did not exhaustively describe the experience of teachers as they implemented inquiry-based instruction. Because the data were looked at inductively and the questions and supports changed to meet each teachers' individual needs, it allowed new ideas to be generated from the data. While the literature discussed the content and pedagological skills that would be needed of teachers, one of the major findings was that teachers were not prepared to train students in the inquiry process because the processes required for students were new to teachers, just as they were new to students.

Background on Challenges

One of the findings expected, based on the literature reviewed, was that if teachers held a teacher-centered perspective and saw history as a transmission of knowledge, that it would be difficult to change their daily teaching practice. While this was true in the case of one teacher, this teacher also lacked considerable content knowledge. In this teacher's classroom, instruction was heavily teacher-centered and focused more on transmission of knowledge, and less on construction of knowledge. While the teacher incorporated the inquiry-based lessons that were co-constructed as a part of the study to her classes, she still felt it was very difficult to plan these independently, and continued to report, throughout the study, that it was in part because of content knowledge. Previous research in the social studies, as well as other content areas, supports this finding and the theory of cognitive flexibility illustrates this finding. Instruction

should be case-based and emphasize knowledge construction, not transmission of information. When teachers focus on teaching information piece by piece, information is compartmentalized and lacks connections and does not transfer to new situations. By focusing too much on memorization of existing schema, students miss the opportunity to create "schema of the moment" for new situations (Spiro, Collins, Thota, & Feltovich, 2003, p. 8).

If teachers do not think of the content as connected, because of lack of content knowledge, and do not support student-centered instruction, it may be very difficult to change their practice. Increasing their own content knowledge through course enrollments, professional development sessions, or independent practice may provide them the big picture they will need to plan and implement inquiry-based instruction.

Practices following the conclusion of the study

Three weeks following the conclusion of the study, I revisited teachers' classrooms and looked over lesson plans and found that six of the ten participants were currently incorporating inquiry-based instruction in their lessons sometime during that week. Two of the participants reported that they were in the process of planning units to incorporate inquiry-based activities. Furthermore, the teachers have continued to approach each other and me about challenges and successes they are seeing in their continued work with student-centered inquiry-based instruction. Despite the end of the study, we are still carrying on at the school, working together and collaborating, trying to incorporate research-based, student-centered practices. We are analyzing student work and student engagement, discussing classroom management, and looking for ways to collaborate across disciplines. One of the teachers in the study recently started an after-school work day, one day a week, where teachers can meet to share lesson ideas, projects, and successful practices. In short, the momentum for change has continued, weeks beyond the

scope of the study and does not show signs of slowing down.

Limitations of the study

As mentioned previously in Chapter 1, I work as a part-time educator/part-time administrator in the same school as the participants. As the primary collection tool, I conducted all of the interviews and collected and analyzed all of the data. To help address the subjectivity this proposed, a peer, outside of the school, checked the coding and on the themes and reviewed the findings. I also served as the model for inquiry-based instruction during workshops on campus and in classrooms and provided support for teachers as they planned and implemented inquiry-based instruction. My role as a participant observer may have biased the results. Furthermore, the study was not intended to assess the impact of inquiry-based instruction on student learning in the classroom. Despite the need for this type of research, again, it is argued that if inquiry-based instruction is not implemented with fidelity, confidence, and consistency in the classroom by the teacher then we cannot, with validity, measure the impact on student learning.

While studies that include well-trained and experienced teachers using inquiry-based instruction could be designed to measure the impact on student learning, the literature reviewed indicates that many teachers in the field are not prepared and have not made the shift in their thinking that such instruction requires (Brush & Saye, 2005; Yilmaz, 2008). Therefore, identifying teacher challenges and required supports, in order to better impact change, is a necessity in this process. Future research could build on the findings, particularly the challenges and successes identified by teachers from the classroom. If we can meet their needs and build on their successes, then we can continue with the change process and begin identifying the impact on student learning.

Future Research

Another study is planned for the fall, with several of the same high-level implementers, to research the impact on student achievement. The research from this study will be presented to a state (accepted) and national conference (proposed) within the next year. Because of the core finding that emerged, concerning a teachers' perceptions of instruction, I intend to conduct another qualitative study with teachers who are identified as teacher-centered to examine additional processes for impacting instructional change.

Case Studies

The study employed qualitative and case study research using a generative design model in order to identify common themes that surfaced across the findings and one general overarching theme, while also detailing the experiences of individual teachers in a case study format. Case studies were chosen as a way to provide depth to the study. The nature of my research questions demanded that I go beyond the "what works" for teachers. In order to foster future implementation efforts more successfully, I focused on the "how, when, and why" of how it works and of what "exactly 'it' is" (Cobb & Confrey, 2003, p. 9). In an effort to focus on "what worked and how," the case studies are designed to illustrate the "it" or major challenges that were faced by each teacher and the process that allowed teachers to address said challenges. Because the study took place in a small school system, certain information, such as grade level and specific courses taught by teachers, are not revealed in the case studies. A brief case study for each of the ten teachers is included in the following section.

The studies are designed to illustrate the findings and are based on the research questions. Each study introduces the teacher's perception of teaching and inquiry-based instruction and a brief description of their practices at the beginning of the study, the changes that occurred in their instruction and the supports that were provided throughout the study, and details about the challenges and successes they reported during and at the end of study. Each case study ends with recommendations teachers have, which often involve what they saw as "necessary supports" during the study, or additional supports they know they will need in the future.

Teacher 1

Perception and Practices

Teacher 1 has over five years of teaching experience at the secondary level. In the interview conducted at the beginning of the study, Teacher 1 described her role in the classroom as a facilitator, or someone who could guide students as they learn "that they have to be able to make informed decisions." Teacher 1 felt that students should be able to question what they learn in the classroom, that "why do you think we need to learn this" is a valuable question for students and teachers to ask of each other on a daily basis. When asked how this type of questioning and relevancy is planned in the classroom, the teacher described using real world issues and strategies to get students involved, such as using "questioning to confront prejudice and ignorance, about religion for example."

Following the first interview, the teacher's perceptions were categorized as student-centered. Following the initial planning session and classroom observation, her practices were categorized as emerging student-centered. The first lesson I worked on with Teacher 1 involved students inferring what their project would be about based on the "Driving Question" in small groups, and then as a whole groups, and determining what else they needed to know to get started on the project.

Changes, Challenges, Support, and Successes

Prior to the study, the teacher was focused on providing and planning for student-centered instruction, but often took the lead on activities that required inquiry. Because of other challenges, including classroom management, determining needed scaffolds for student learning, problems with grouping, including placement, management and accountability, the teacher was still in charge, particularly of higher level tasks, at least half of the time. Lecturing was not

common, but the students were not planning their own inquiry. Throughout the study, as the teacher focused on experimenting with the challenges, which included a lot of collaboration with me and the other teachers involved in the study, the teacher began to hand over more control to students, and students, in turn, began directing their own inquiry and learning.

The primary support offered to this teacher was point-in-time assistance. In other words, being in the classroom as often as possible, usually at least once a week throughout the entire study, to offer suggestions, ask questions, or quickly model an idea to address a challenge. Oftentimes, support included after-school brainstorming sessions, external research synopsis and delivery, or collaborative sessions with other teachers. Modeling from bell-to-bell was not a needed support by this teacher, but was provided on four occasions. Co-teaching was provided, both formally and informally on numerous occasions. Because this teacher started off ready and wanting to provide inquiry-based instruction, the challenges faced during the study were viewed as temporary hurdles to overcome. Teacher 1 was able to quickly adjust to using more inquiry-based teaching methods and felt throughout the study that changes in her instruction would eventually result in the changes she wanted to see in student behavior, engagement, accountability, and critical thinking.

When asked at the end of the study to describe how her instruction had changed, she reported, "My practices involve a higher degree of student-driven instruction. What I mean is, the course that I teach is primarily organized around the questions and needs that the students themselves present. While my co-teacher and I of course guide them to ask certain questions, there is a much higher level of collaboration and problem solving expected from the students."

Recommendations

The primary recommendations offered by Teacher 1 were based on challenges that were met during the study. For example, one of the other challenges faced by Teacher 1 was finding adequate time to plan for inquiry-based lessons, which required much more time than teacher-centered lessons. The teacher recommended that districts, when looking to implement student-centered and inquiry-based instruction provide "protected planning time and fewer course preps." The teacher also felt that a "commitment to consistency" in teaching expectations made by districts would improve buy-in, for teachers and students. Another challenge was meeting "Current state frameworks…that are rigid and numerous." The teacher hoped that the move to the Common Core would alleviate some of the curricular challenges she faced. As she stated, "I still haven't quite reconciled myself to this challenge, but believe that Common Core will help."

Another recommendation from the teacher was to find ways to include multiple standards in one activity, particularly in history. The teacher accomplished this by asking "big" questions, that spanned across time periods and concepts, and then creating smaller daily activities to help connect the different concepts. However, the teacher found that a lot of scaffolding of student learning, or small steps with modeling and guided practice, was necessary for students to be successful. A sample of student work the teacher used and her description of the activity are included below.

Student Work for Teacher 1: Octagon Activity

Prior to the Octagon activity: Students researched and created historical timelines of eight topics. They started with individual timelines, then combined them to create one huge one. Our idea was that this activity would help to develop some background knowledge for the project.

Next we used the Octagon Activity: The student groups identified connections between eight

topics and illustrated those connections by drawing lines and writing down the connection they

identified. Then the groups rotated around the room to look at each others' octagons and identify

at least one connection that they liked that they had NOT included on their own. This helped

illustrate the relationship between the periods in art, music, literature, religion, role of women,

race relations, science/technology and transportation/communication. It was also establishing

some background knowledge before we rolled out the project itself, which included having

students answer their own questions and a central driving question for the unit.

Figure 1: Sample of Student Work
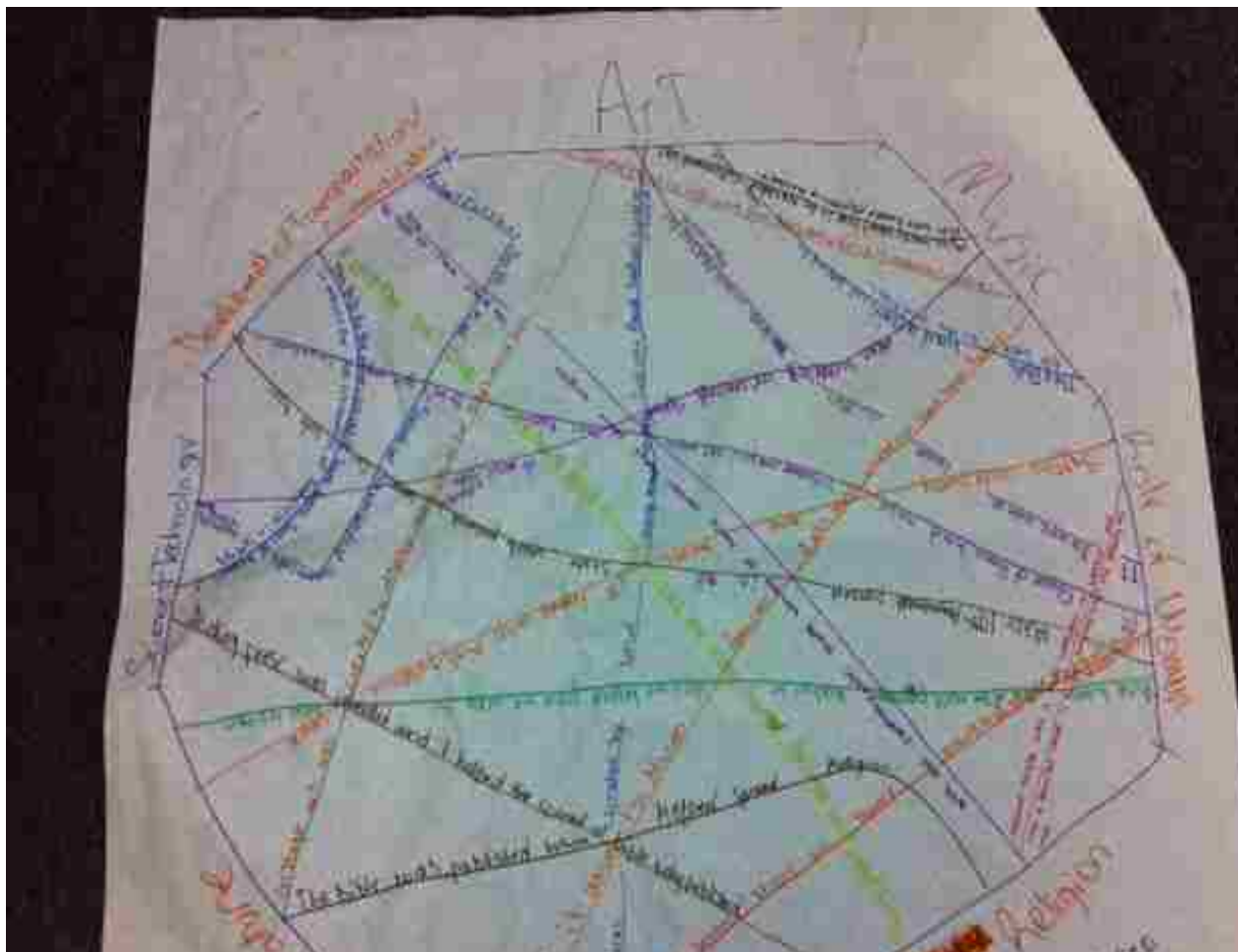
Teacher 2

Perception and Practices

Teacher 2 has over five years of teaching experience at the secondary level. In the interview conducted at the beginning of the study, Teacher 2 described her classroom as student-centered at the beginning of the study and by the end of the study stated that "my instructional practices have become more student-focused, which is funny because I thought I was already student-centered. I have learned a lot about really knowing each of my students and their needs and about how this should be the sole focus of my instruction." Teacher 2 felt that students should be able to make informed decisions by interpreting events and information, she stated that students' "interpretation needs to be informed, which is where the depth of content comes in."

Following the first interview, the teacher's perceptions were categorized as student-centered. Following the initial planning session and classroom observation, her practices were categorized as emerging student-centered. The first lesson I worked on Teacher 2 with was a part of a project. The overall project objective was for students to "explain the effect of historical figures on world events by creating a movie that imagines a world in which the historical figure had never existed or never made a key decision. In one of the lessons observed, students were tasked to define, in their own words, the concept of historical conflict (a theme throughout the class) and applying that to timelines they had been working on. The following is a task list posted for students the day of the observation:

a.   As a class, create a definition of historical conflict by listing and categorizing causes of
        conflict based on war, depression, genocide, religion, etc.
b.   In groups, use your background knowledge and the Internet to find examples of
        conflict that fit each category.

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c.   As a class, discuss why it's important to learn about conflict. What consequences exist

        if we ignore historical conflicts?

The formative assessment for the lesson required students to go back to timelines they had created, to star or circle instances of conflict and label the cause of conflict based on their research and their discussions from class. The lesson observed was part of a blocked class (two periods, a total of 92 minutes) and spanned into the next class meeting. During the observation of the lesson, the teacher challenged students to discuss the Driving Question, "What consequences exist if we ignore historical conflicts" in their groups before the class discussion. The summative assessment required students to create presentations that answered the driving question in the context of a historical conflict, while making connections to modern day conflicts.

Changes, Challenges, Support, and Successes

Prior to the study, the teacher was focused on providing and planning for student-centered instruction, but faced challenges planning assessments that "are most successful in showing me true student learning mastery." The teacher, over the course of the semester, experimented with assessment by using more formative (formal and informal) assessments and regularly changed lessons mid-week based on those assessments. The teacher also started creating rubrics that were content- and skills-based, and were connected to important outcomes she wanted students to master, such as oral presentation and collaboration. She also began using rubrics for individual and group work, which allowed her to better assess group processes while still promoting individual accountability and mastery of content. As she states, "refocusing the way I teach to better inform and assess students has been a challenge. I've learned so much about creating assessments through rubrics, etc."

The primary support offered to this teacher was also point-in-time assistance, but it was more in planning and reflecting on the materials she was using for the class, than it was in the classroom modeling or offering instructional suggestions. While I was in the class at least once a week throughout the study, I typically focused on the materials she was using, the group collaboration processes, and the students' interactions with the materials they were expected to use. To help this teacher, my role was to ask students to explain what they were doing with a resource, to elaborate on how it would help them meet the end product, or to explain what their role was for the day and for the end product. It was when they couldn't answer these questions that I offered the most support to this teacher, typically immediately following the lesson.

For example, during one lesson I observed during the second cycle of the study, the students had been tasked with explaining how the historical figure they chose to research contributed to and changed the world by creating a thesis statement with supporting details. The focus on coming up with a thesis statement and supporting details was the method the teacher used to help focus students' research and she chose resources and materials, both in her model, and for students, that were clear and easy to use. The teacher noticed, that once students did their research, they did not know how to effectively organize it into a presentation, and that they were collecting too much information, much of which did not tie back to the purpose of the project, which was to "show how one person can change the world through their beliefs and/or accomplishments by creating a poster representing that person as an inspiration, and by presenting that poster through an oral presentation in class." Therefore, the teacher created a task to help students focus, using resources the students were familiar with from former lessons, so that they could focus on relevant research.

The teacher modeled using all of the resources and then had students work in their groups to create the thesis and supporting details. Students then sifted through the research they collected to see which pieces would support their details and thesis. They collected their details using a graphic organizer that categorized the thesis, details, and evidence from research. Using the graphic, students wrote a complete thesis, which answered the Driving Question for the project, which was, "How can one person's beliefs and convictions influence their time and future generations?" The following day, students were tasked with creating an outline for their Keynote Presentation. The instructions and resource, as they looked to students, are shown in Figure 2.

Figure 2. Resource for Keynote Outline

Using what you learned yesterday, start to outline your Keynote
- Thesis
  - Categories
    - Evidence/research facts/slides'
  - How they influenced our lives today
    - Evidence/research facts/slides
Circle the category that needs more research. Write a question that might help direct your research.
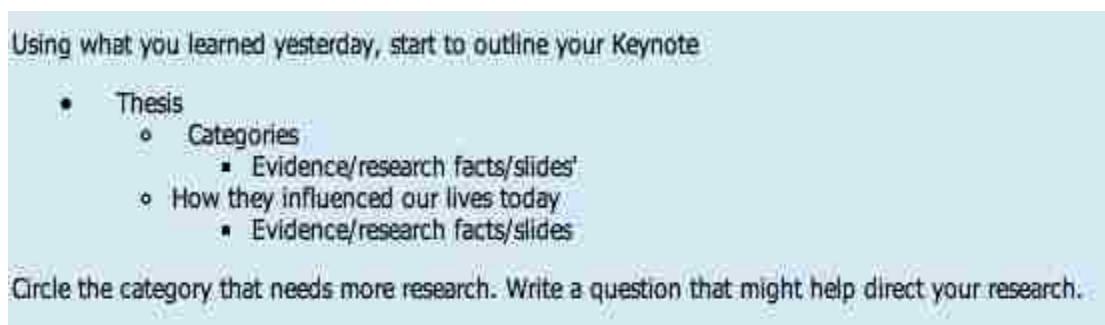
Teacher 2 was incorporating many student-centered instructional practices before the study began and was able to quickly adjust to using more inquiry-based teaching resources. Teacher 2 felt that her use of resources (in planning, selecting, and modeling) would eventually result in the changes she wanted to see in student learning, engagement, accountability, and critical thinking.

When asked at the end of the study to describe how her instruction and feelings towards inquiry-based instruction had changed, she reported, "My feelings have only changed in that

where I once thought it was great because it helped students collaborate, now I see how much it can deepen their understanding and challenge their problem-solving skills. That's the greatest improvement I've seen in my students - they are starting to be able to reason and be more responsible for their own learning."
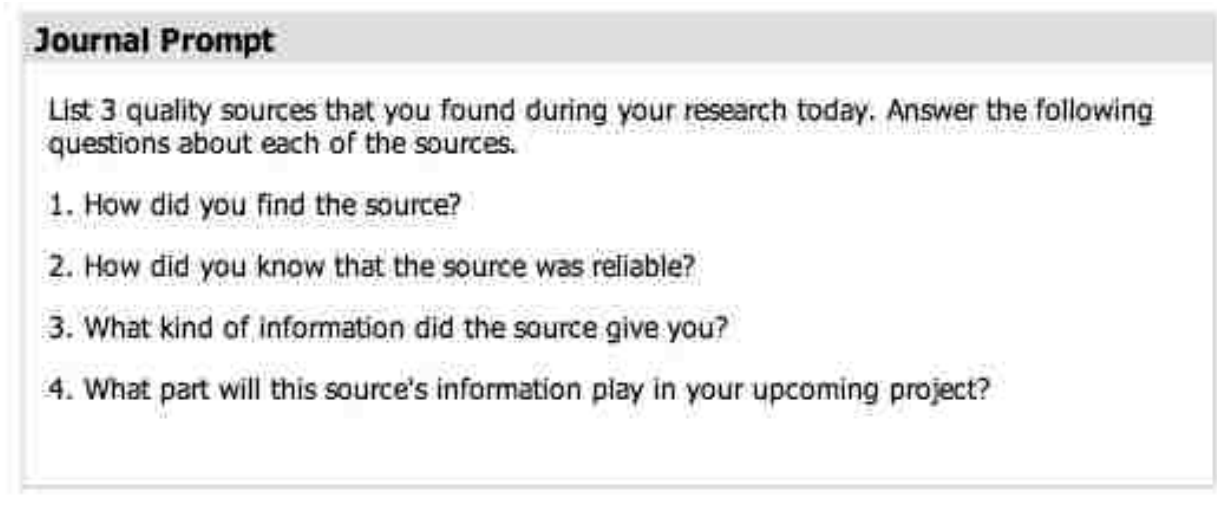
Recommendations

The primary recommendations offered by Teacher 2 were based on challenges that were met during the study. For example, one of the other challenges faced by Teacher 2 was planning assessments that measured content and skills, and separating the two so that she could better measure where students were in the process of learning. She strongly recommended guiding teachers to think not just about how they are assessing content, but how they are assessing the skills and processes that are a part of the learning. Subsequently, the teacher recommended helping teachers think about this process during the planning, the earlier the better, as it would help the teacher design checkpoints, scaffolds, and ways to formatively assess throughout the lesson or project. The primary recommendation from the teacher throughout the study was to constantly think about the students' needs through ongoing assessment—are they getting the process, are they applying the skill at a high level, are they using both of these to better access, grapple, question, and make connections with the content?

One of the methods for doing this was consistently asking students to reflect on their learning and the process behind that learning. As can be seen in Figure 3, the teacher provided a set of questioning prompts, following a lesson on evaluating sources, to assess not just the information the students gathered from the research, but the thinking, or metacognitive processes, behind source selection.

Student Work for Teacher 2: Evaluating Sources

As a part of the planning, and previous experience with student needs during open-ended

research, the teacher knew students would have to be tasked with purposefully thinking about the

credibility of the resources they found for their research and the purpose of the resources. To

guide students through this process, the teacher modeled evaluating resources and used a

resource as a model to answer the reflection questions. The students then practiced using one

resource in their project groups and then had to complete the process on their own with two more

pieces of resource. Figure 3 contains a snapshot of the journal reflection prompt and a sample of

student work.

Figure 3. Journal Prompt and Sample Student Response

Journal Prompt

List 3 quality sources that you found during your research today. Answer the following
questions about each of the sources.

1. How did you find the source?

2. How did you know that the source was reliable?

3. What kind of information did the source give you?

4. What part will this source's information play in your upcoming project?

Following this activity, students sifted through the research they collected to see which pieces would support their details and thesis, following a teacher model of the process. They collected their details using a graphic organizer that categorized the thesis, details, and evidence from research. Using the graphic, students wrote a complete thesis, which answered the Driving Question for the project, which was, "How can one person's beliefs and convictions influence their time and future generations?" The following day, students were tasked with creating an outline for their Keynote Presentation.

Teacher 3

Perception and Practices

Teacher 3 has over five years of teaching experience at the secondary level. In the interview conducted at the beginning of the study, Teacher 3 described her role in the classroom as a guide, someone who could assist students in learning how "to help others, be lifelong learners." Teacher 3 started experimenting with using projects as the primary mode of instruction for two years before the study began, and the year before the study began she started working extensively with Project Based Learning primarily through the use of resources from the Buck Institute. In 2011, she began working with an educational organization to help bring more Project-Based Learning to the school district, and currently serves as a facilitator for this initiative and as a teacher at the high school. As would be expected from her leadership role, she was the most knowledgeable of inquiry-based instruction, which is a tenet of Project Based Learning. Her primary challenges were creating projects and lessons that were inquiry-based, "real-world," and standards-based.

Following the first interview, the teacher was categorized as student-centered, and this was confirmed following the initial planning session and classroom observation. The first lesson I worked on with this teacher involved incorporating more on-demand teaching and differentiation of instruction. She was experimenting with pull-out mini-lessons, or workshops, as students needed them. For example, in the first project unit, students were learning to use the Internet to research to create a press release for a historical event, with a modern day spin. The modern day spin was that the press release would be the advertisement for an exhibit scheduled to open sometime in the near future, over a culture of the student's choice from ancient history. Students had to develop an overriding question, or so what, for the press release, to engage their

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audience. Students were required to cite their sources and follow the standard format for a press release. While some groups were able to use the model of a standard press release, choose appropriate sources to use, and incorporate MLA citations, the teacher knew that some groups would require more assistance. The lesson for the day of the press release and a sample of a student press release can be seen in Figure 3.

As a part of the planning process, the teacher identified groups she thought would need help, students who had been absent, or students who asked for additional help. After she presented the task for the day, she ran two mini lessons, or workshops, at the front of the class, each for about fifteen minutes, while the rest of the class worked. The first lesson involved the teacher modeling thinking about the resources she had chosen to include in her press release. She asked questions such as, "Will this resource help me develop the theme of my press release" and "will this resource help me answer my research question?" The teacher also illustrated the features of a standard press release and walked students through how to set those features in a word processing program. The second lesson showed students how to use an electronic bibliographic program to cite sources in MLA format. The second lesson also required the teacher to discuss the different types of sources so that students could categorize them to use the program.

Changes, Challenges, Support, and Successes

Prior to the study, the teacher had more than two years of experience with inquiry-based instruction, but was still working to improve certain components, such as collaboration and differentiation. While the teacher had given up control of the classroom, and was rarely providing direct instruction to the whole class, she was challenged with keeping students on task and creating an environment where students were self-directed during inquiry and project

creation. The teacher felt that improving differentiation and collaboration would help meet these challenges. One of the reasons students disengage, according to the teacher, is because they don't know how to do the task asked or they don't know what the next steps are, therefore she spent a lot of time modeling these processes, and developing opportunities for differentiated instruction, as mentioned above, so that students could learn to seek help and self-monitor. Throughout the study, as the teacher focused on experimenting with the challenges, which included a lot of collaboration with myself and other teachers involved in the study, the teacher began to experience students more readily asking for help, from her and other students, and more students completing tasks on time.

The primary support offered to this teacher was assistance in the classroom and during and after lessons for reflections. In other words, being in the classroom as often as possible, usually at least once a week throughout the entire study, to offer suggestions. During a workshop day, for example, I recorded the teacher's lesson and we looked back over the video and scored it together using the inquiry-based rubrics to reflect on how it met students' different needs and how it met the instructional rubrics. We looked over student work together and talked about the questions students asked during the workshops. We also looked to see if some students should be directed towards the pull-out lessons, or workshops, even when they don't request them or have not been absent. The lesson, resources and associated student work for this day are shown below in Figure 3. On a few occasions, support included after-school planning sessions, external research or collaborative sessions with other teachers.

Modeling from bell-to-bell was not a needed support by this teacher, but was provided on two occasions. Co-teaching was provided, both formally and informally on several occasions. Because this teacher started off wanting to improve inquiry-based instruction, the challenges

faced during the study were viewed as temporary. When asked at the end of the study to describe how her instruction had changed, she reported that managing the process and meeting student needs had become easier.

Recommendations

The primary recommendations offered by Teacher 3 were to make sure the teacher has the resources, time for planning and reflecting on inquiry-based units, and the technology access and knowledge to implement. For example, one of the other challenges faced by Teacher 3 was finding adequate time to plan and reflect on inquiry-based lessons, which required much more time than the teacher-centered lessons she had focused on the first few years of her teaching experience. Even though she was more experienced than other teachers in the study, she still spent more than one preparation period a day planning and reflecting on lessons, and evaluating student work. The teacher recommended that districts and schools, when looking to implement student-centered and inquiry-based instruction, provide teachers additional "time to plan."

Student Work for Teacher 3: Workshop on Creating a Press Release

Prior to the Press Release lesson: Prior to the press release lesson, students found resources to answer the project question, which they created, and created annotated bibliographies. The teacher provided a list of sources students could use for their research, as this was early in the school year and the focus was not yet on evaluating sources, and had modeled coming up with a research question to drive the creation of the press release. The research question was intended to provide the "so what" for their press release. The teacher challenged students to ask, what is so interesting about this culture that people would want to come to an exhibit about it?

Press Release Activity: The lesson plan objective was for students to be able to describe the

characteristics of a "civilization by creating a press release." A sample of the questions the

teacher posed to guide student work and a sample student work is included below. One of the

scaffolding activities the teacher required from students was a rough outline before they started

the press release. The teacher provided immediate feedback on the outline during class time.

During the model, the teacher showed students sample outlines and referred the points of the

outline back to the questions and a sample annotated bibliography. Later, the teacher used the

exhibit as a way to look for similarities and differences across cultures, and challenged students

to ask their own questions to the exhibitors for further research. While the inquiry was structured

and heavily facilitated by the teacher, the skills and processes students learned, including

questioning, collaborating and researching, were used in later more inquiry- and student-centered

projects.

Figure 3. Questions posed by the teacher during the Press Release Creation and Student Work

2. Workday - begin to outline your press release. Your outline should reflect how you plan to answer the following questions:

- How are you going to convince someone to come see the exhibit?
- What critiques (positive or negative) do you have about the exhibit?
- Have you included a quote from the creator of the exhibit?
- Have you included information about all 5 characteristics of a civilization?
- Have you given details from your exhibit to support each characteristic?

Somewhere High School Presents The Opening of a Museum Exhibit

FOR IMMEDIATE RELEASE

Somewhere, AR - November 10, 2011 will be the opening of the brand new exhibit of Ancient Egypt's civilization in Somewhere High School's library, created by students from Somewhere High

There are very many exhibits stretched across this library/museum about ancient civilizations but the one on Ancient Egypt is astonishing. It includes stunning information. It's full of color, life, excitement, and breath-taking facts. Because the exhibit is new, it is not very familiar to too many people. I am here to tell you it will be open on November 10, 2011. Come and visit it and you will be amazed!

This exhibit does the best job of accurately presenting the writing, government, and technology of this civilization, which is only three of the five main characteristics of a civilization. For the government part of this exhibit, they did a very vivid list of the Pharaohs through out there civilization's history. The reason they use a list of the pharaohs is because they were the government of the civilization. The pharaohs ruled like kings or like the president. In the section of the technology they show pictures and give very detailed descriptions on how they contributed to the wold today. The display accurately shows the hieroglyphics, which is pictographic script, symbols or recognizable pictures of the things represented. It also includes the works of literature like the Book of the Dead, which is the perfect example of literature.

Teacher 4

Perception and Practices

Teacher 4 has nearly ten years of teaching experience at the secondary level. In the interview conducted at the beginning of the study, Teacher 4 described her main goal for students, which was to help them start "taking ownership of their learning" and "creating." Teacher 4 felt that students should be able to connect what they are learning to "community service" and wanted students "giving back to the community and making those connections" as often as possible.

Following the first interview, the teacher's perceptions were categorized as student-centered. Following the initial planning session her practices were confirmed as student-centered. Teacher 4 was in her second year of working with inquiry- and project-based instruction. Teacher 4 described a typical lesson in her classroom during the interview as follows: "I start off posing questions, making them see that they have to inquire on their own. There is a lot of brainstorming involved. They get in groups and come up with ideas and then we come back together as a whole group and share out. I'm constantly questioning them. I also have to show them pre-planning and pre-writing as a part of the inquiry process."

Changes, Challenges, Support, and Successes

Prior to the study, the teacher had been working to improve project planning, assessment, and group and individual accountability. She described her instructional practices before inquiry-based instruction as textbook dependent, with "a few hands-on activities." She described trying "to augment with current event readings and a few games during review time" but felt, overall, she had "a pretty boring classroom." This led to her interest in designing projects that "centered around the real-world, and allowed students to make choices."

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During the study, we focused primarily on improving group and individual accountability, and differentiation, as a part of the inquiry process. One of the ways the teacher improved accountability, was by designing group and individual grades for the research and by using rubrics. For example, when reading *The Diary of Anne Frank,* the students were required to generate their own questions as "investigative reporters," but were then directed to work together to develop broader, World War II, based questions that would allow for more extensive inquiry. The teacher also built in regular checkpoints during the inquiry process, such as note-fact checking, modeling the use of graphic organizers during research, and connecting information found back to the research question. The overall project rubric required students to imagine "possible alternatives to history" as a part of their research, and a snapshot of one of the lessons is shown in Figure 4.

The primary support offered to this teacher was resources and help planning. Because this teacher started with experience providing inquiry-based instruction, the challenges faced during the study were viewed as temporary hurdles to overcome. Teacher 4 was able to quickly improve and expand on the inquiry-based teaching methods she was previously using and felt throughout the study that changes in her instruction would eventually result in the changes she wanted to see in student accountability, ownership and learning. When asked at the end of the study to describe how her instruction toward inquiry-based learning had changed, she reported, "I'm more eager than ever…each time I do it, the results improve."

Recommendations

The primary recommendations offered by Teacher 4 were based on the supports that she felt had made her successful, before and during the study. For example, one of the early challenges she faced was access to technology. As access improved, she felt that she was able to

offer her students tools that provide "more control over their learning." Another challenge faced by Teacher 4 was finding resources with the help of instructional leaders in a timely manner that would help her meet her challenges. She appreciated being able to collaborate via email and share ideas with other teachers as a part of the study, and felt that this was also useful.

Lesson Sample from Teacher 4: The purpose of the project was for students to take the role of an "investigative reporter" and create a newspaper article about a topic, of their own choice, from World War II. The lesson sample below includes a teacher model of the use of the graphic organizer and contains several methods for differentiation.

Figure 4. Lesson from WWII Project

Activities: Students will fill in a graphic organizer with notes for their sources.

Materials: Student-generated questions, Internet, student-research-center, magazines, books, graphic organizer

Assessment: Students will have notes for at least 2 sources. Ongoing: Student notes will be used to create their newspaper article.

Differentation: Student selection of question based on interest, student choice of reading, KidsSearch available, online matieral may be read aloud by computer.

Teacher 5

Perception and Practices

Teacher 5 has more than ten years of teaching experience at the secondary level. In the interview conducted at the beginning of the study, Teacher 5's focus for the year was learning how to create projects that were inquiry-based and forced the students to think for themselves. Following the first interview, the teacher's perceptions were categorized as student-centered. Following the initial planning session and classroom observation, her practices were categorized as emerging student-centered. Teacher 5 was in her first year of working with inquiry and project-based instruction.

Changes, Challenges, Support, and Successes

Teacher 5 described her primary challenge as planning projects that were inquiry-based. As she stated, "I think creating a 'project' and an end-product are relatively easy, but actually forming it into a student-led, inquiry-based project is tricky." The teacher felt that she had not been taught nor encouraged to do inquiry-based teaching in her earlier teaching assignments. Therefore, the primary support offered to the teacher was assistance in planning and reflecting on lessons. During the beginning of the study, I spent a lot of time in the teacher's classroom watching and reflecting on teaching strategies and lessons. One of the first practices the teacher wanted to work on was student-led questioning. She knew that if students improved their questioning, they would become more comfortable with inquiry-based learning.

One of the first methods the teacher used to help students develop their questioning skills was a Socratic Seminar. According to ReadWriteThink.org, a resource commonly used throughout the study, "Socratic seminars are named for their embodiment of Socrates' belief in the power of asking questions, prize inquiry over information and discussion over debate."

During the first seminar the teacher worked on with the students, I sat in and listened and later reflected with the teacher and the students. Because the teacher chose to use a text that was connected to the content of the project she was about to start, she found it was easier for students to make connections quickly once she started. The teacher continued to incorporate questioning strategies throughout the study, and challenged students to continually question what they were learning and to look for the connections between information, globally, and across time. The steps to the Socratic Seminar are listed in Figure 5.

The primary support offered to this teacher was resources and planning processes. Because this teacher was experienced designing projects, the move to inquiry-based instruction while challenging, was easier than it was for teachers who started off with a teacher-centered classroom. By the end of the study, the teacher was using inquiry-based projects more half of the time. Often her projects began with students working together to select topics of interest within a certain theme, such as revolutions, and involved them asking questions, conducting research, and synthesizing information across time and nations.

Recommendations

The primary recommendations offered by Teacher 5 were based on the supports that she felt had made her successful, before and during the study. For example, one of the challenges she faced was planning projects that were inquiry-based and student-led. The primary support that helped her meet this challenge was being able to collaborate with other teachers and myself during the study, being able to see practices in other teachers' classrooms, and having access to someone who would observe and reflect with her on lesson plans, student work and projects in a timely fashion. As she explained, "Having any time to collaborate and throw ideas around with

other teachers is extremely beneficial" and "I would like to have more time to work with other teachers."

Lesson Sample from Teacher 5: The purpose of the Socratic Seminar was to help students become accustomed to asking open-ended questions. As previously discussed, a central tenet of inquiry-based instruction is open-ended questioning by students that leads to further research.

Figure 5. Socratic Seminar

Strategy in Practice   ≡↑ back to top

- **Choosing a text:** Socratic seminars work best with authentic texts that invite authentic inquiry—an ambiguous and appealing short story, a pair of contrasting primary documents in social studies, or an article on a controversial approach to an ongoing scientific problem.

- **Preparing the students:** While students should read carefully and prepare well for every class session, it is usually best to tell students ahead of time when they will be expected to participate in a Socratic seminar. Because seminars ask students to keep focusing back on the text, you may distribute sticky notes for students to use to annotate the text as they read.

- **Preparing the questions:** Though students may eventually be given responsibility for running the entire session, the teacher usually fills the role of discussion leader as students learn about seminars and questioning. Generate as many open-ended questions as possible, aiming for questions whose value lies in their exploration, not their answer. Elfie Israel recommends starting and ending with questions that relate more directly to students' lives so the entire conversation is rooted in the context of their real experiences.

- **Establishing student expectations:** Because student inquiry and thinking are central to the philosophy of Socratic seminars, it is an authentic move to include students integrally in the establishment of norms for the seminar. Begin by asking students to differentiate between behaviors that characterize debate (persuasion, prepared rebuttals, clear sides) and those that characterize discussion (inquiry, responses that grow from the thoughts of others, communal spirit). Ask students to hold themselves accountable for the norms they agree upon.

- **Establishing your role:** Though you may assume leadership through determining which open-ended questions students will explore (at first), the teacher should not see him or herself as a significant participant in the pursuit of those questions. You may find it useful to limit your intrusions to helpful reminders about procedures (e.g. "Maybe this is a good time to turn our attention back the text?" "Do we feel ready to explore a different aspect of the text?"). Resist the urge to correct or redirect, relying instead on other students to respectfully challenge their peers' interpretations or offer alternative views.

- **Assessing effectiveness:** Socratic seminars require assessment that respects the central nature of student-centered inquiry to their success. The most global measure of success is reflection, both on the part of the teacher and students, on the degree to which text-centered student talk dominated the time and work of the session. Reflective writing asking students to describe their participation and set their own goals for future seminars can be effective as well. Understand that, like the seminars themselves, the process of gaining capacity for inquiring into text is more important than "getting it right" at any particular point.

Teacher 6

Perception and Practices

Teacher 6 has more than five years of teaching experience at the secondary level. In the interview conducted at the beginning of the study, Teacher 6 described one of her main goals for students was for them to learn how to become "informed about the US and the world" and be able to make decisions. Before regularly incorporating inquiry-based learning, the teacher described her class as regularly having projects, but the projects were more of a culminating product of knowledge learned versus an inquiry-based process of student-led research, collaboration and reflection, which was more reflective of her classroom by the end of the study.

Following the first interview, the teacher's perceptions were categorized as student-centered. Following the initial planning session, her practices were categorized as emerging student-centered. Teacher 6 was most interested in designing inquiry-based projects that incorporated multiple state standards and allowed for significant student choice and depth of content.

Changes, Challenges, Support, and Successes

During the study, we focused primarily on planning units based around many state standards that were inquiry- and theme-based. Based on the first interview, the teacher's biggest concern about implementation was "meeting content standards while also teaching the process of inquiry." As many other teachers voiced at the beginning of the study, she was concerned that students would not be able to make it through all of the content because of time spent on teaching processes and skills.

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One way to meet this challenge was by designing projects or units centered around Driving Questions that spanned across time and place. In one of the early projects, the teacher developed a driving question that looked at the causes and effects of migration across time. The teacher included standards that addressed exploration across several centuries, trade patterns, the rise of colonies, and the development of different economies. Students were placed in the role of explorers themselves and had to research their role and their impact. As a way to ensure that students learned more than the content they researched, they interviewed each other worked and with the teacher to answer the driving question. A sample of the interview questions the students used can be seen in Figure 6.

The supports provided to this teacher were time in the classroom to model, co-teaching and helping develop and reflect on lessons. Because this teacher started with experience providing student-centered instruction, she knew that she would encounter challenges both in planning and in the classroom, but as she saw the level of work, critical thinking, and questioning emerge and grow with her students, she became dedicated to the process. As she stated at the end of the study, by designing instruction that requires "research and the creation of original ideas I believe that I am helping students become informed and educated problem solvers." By the end of the study, the teacher was using inquiry-based methods more than half of the time in all of her classes and reported that she had never been "more proud" of her students' achievements and her confidence in their ability to "tackle obstacles of life" while taking a more "active role in society."

Recommendations

The primary recommendations offered by Teacher 6 were to give teachers additional time to plan for this type of instruction, especially in the beginning phases, as she stated "having an

adequate amount of time to plan is a critical attribute." She also recommended that teachers be provided time to collaborate after a unit so that they can reflect on what worked and what did not, so that they did not continue to use unsuccessful practices. While many of the collaboration opportunities occurred informally as the study progressed, including an after-school "support group," the teacher recommended that such practices be made a formal part of any attempt to implement inquiry-based instruction.

Teacher 6 Sample of student work: Before the explorer interview activity, students were tasked with the following Driving Question: "What were the social, political and economic effects of European migration and settlement on the Americas and Africa?" As a part of the project, students had to research different explorers, and take on their role. As a part of taking on their role, they had to use the following questions as a framework for studying the explorers. The purpose of the interview questions was for students to research the explorer of their choice, while also interviewing other student "explorers" to learn about the point of view of others. The culminating activity involved synthesizing the research about multiple explorers in order to examine social, political and economic effects of exploration.

Figure 6. Explorer Interview Questions

Explorer Interview Questions

1. What is your name?
2. Did your childhood have an impact on your decision to become an explorer?
3. Where did you travel and for what purpose?
4. Was their an economic or political motive behind your exploration? What was it?
5. What was life like on the ship? (sanitation, food, sleeping quarters)
6. Describe the route you took using the map.
7. What was the immediate impact of your trip?
8. Were any colonies established as a result of your journey/discovery?
9. How were the indigenous people of the area impacted?
10. Describe the long term implications of your journey. What does the area look like today?

Teacher 7

Perception and Practices

Teacher 7 was in the final teacher-training assignment of her program. In the interview conducted at the beginning of the study, Teacher 7 said her main goal for students was to bring them to some essential understandings, such as "how the past affects us today, that we change over time, that things are not static, we may make things better but we may make things worse, and we are always trying to improve." Teacher 7 felt that students should be able to connect what they are learning to the past, present and future so that they could make informed decisions.

Following the first interview, the teacher's perceptions were categorized as teacher centered. Following the initial planning session, her practices were confirmed as teacher-centered. Teacher 7 was new to many of the instructional practices presented during the study. In working with the teacher on a daily basis, I attributed her lack of knowledge and experience to her perception, because as she was exposed to more student-centered and inquiry-based instruction, her perceptions and practices quickly changed. However, because she had such little experience, she was quick to "fall back" on what she was comfortable with, which was primarily lecture.

Teacher 7 was particularly influenced and motivated to change, however, because of the changes she saw in her students, and reiterated this at the end of the study. When asked how the change in instruction was impacting her classroom, she remarked that students are now coming up with "their own scenarios and they're seeing that 'oh this is related to this' and they start discussing amongst themselves. I can see that they are really making connections, and that's impressive that they are realizing things."

Changes, Challenges, Support, and Successes

   Prior to the study, the teacher had little experience with student-centered and inquiry-based instruction. Many of the practices modeled for her, including processes to activate background knowledge and scaffold research and student questioning, she had not seen before. She had experience with unit and lesson planning, but her planning focused on traditional teacher centered delivery of content. In the first lesson I observed for this teacher, the students took notes while she presented material from a PowerPoint. There was little student questioning, and the activity at the end lasted fewer than 10 minutes and required little higher-level thinking or student collaboration. After this lesson, we decided to focus on two objectives before her next lesson.

   The two objectives we focused on were to make her lessons more relevant to the students and to require them to do more of the thinking and questioning than the teacher. As we planned lessons, we decided that we would focus on a couple of objectives at a time and as she felt more comfortable, we would work to incorporate more student-centered practices, with the goal of conducting one inquiry-based lesson by the end of the study. One of the ways the teacher met the first two objectives was by scripting and reflecting on model lessons. She observed several teachers within the school and reflected on their lessons immediately afterwards. She used the same rubrics incorporated in the study to help gauge the level of inquiry that she saw in the model lessons. In addition to watching model lessons, we accessed all of the resources used by the teacher to develop and implement the model lesson, and we immediately applied those findings to upcoming lessons to be conducted by Teacher 7.

   Once Teacher 7 had watched several lessons and planned a detailed unit, I began working with her in the classroom, primarily providing point-in-time feedback, time for reflection, and on

the spot co-teaching opportunities. The first two lessons she conducted on her own, but I observed her and we reflected immediately, before she was scheduled to teach the lesson again. The teacher incorporated these reflections and I observed her "new and improved" lesson and we reflected again. Once the teacher was comfortable with post-lesson reflection and application, I began providing feedback during the lesson, and would occasionally request that we re-teach a segment of her lesson as co-teachers. This was particularly useful for segments of the lesson that needed to be modeled.

For example, one of the lessons the teacher conducted required students to come up with questions they had about the impact of the Civil Rights Movement and to present their findings to the class. Once students identified the major events of the movement, they were instructed to choose an event and present to the class how the event contributed to the movement as a whole, and the social impact the event had, using their research questions. Students were given a lot of freedom in how they chose to present both, but the teacher provided a framework of questions to guide background knowledge she knew they would need to guide their own questions and research.

What she found was that most of the students rushed to answer the questions she provided and did little to no additional inquiry on their own, and that most of the groups, even though they could answer the questions she provided, could not fully answer the questions about the event's contribution as a whole or the impact overall. She also found that students did not work in the groups to divide up tasks, and that within each group only about half the students were engaged. To help students with this, the teacher and I took a sample event and modeled dividing up the research tasks, bringing the research together, and then using background knowledge and self-and peer-questioning, to tie the event back to the overarching questions

about the movement. The tool used for this process was a graphic organizer, which can be viewed in Figure 7. Essentially, until they were provided a model, the students were unsure of how to go from primarily knowledge-level information (collected by answering the teacher's questions) about one event to thinking about the movement and its impact as a whole.

Recommendations

The primary recommendations offered by Teacher 7 were based on the challenges and supports she received during the study. One of the major challenges the teacher had was providing more student-centered and inquiry-based instruction. Even once she had planned lessons to be more student-centered, she found it was difficult to anticipate student needs. It was especially difficult for her when the lessons required students to inquire, research, and develop ideas on their own. Therefore, students were often off task or relied on someone else to do their work for them. Teacher 7 recommended that "teachers take feedback from the students about what they need to be more successful." Questioning before, during and after a lesson to determine student needs and really analyzing student work was another recommendation. Teacher 7 also felt that the point-in-time support she received during her lessons as a result of the study were crucial to her ability to implement new instructional practices.

Figure 7. Instructional Tool

Event: Brown vs. Board

Question about the Event (provided by teacher)	Person Responsible	Information & Source Citation	Impact to Civil Rights Movement overall
Outcome of the event	Student A	Court ruled that even if facilities, teachers and supplies were equal, separation itself was inherently unequal and a violation of the 14th amendment Overturned *Plessy v. Ferguson* (civilrights.org)	Led to desegregation efforts across the United States Upheld the education for all is a crucial component of a democratic nation Relied on evidence from social scientists that segregation was harmful to society Made people across the U.S. face racism and discriminatory practices—social transformation (http://www.npr.org/storyId=1547570) Boycotts, sit-ins, violence and Civil Rights Act of 1964

Teacher 8

Perception and Practices

Teacher 8 had fewer three years of teaching experience at the time of the study. In the first interview, the teacher indicated that his goal was to cause "students to think and make connections." Following the first interview, the teacher's perceptions were categorized as teacher centered but it was noted that the teacher expressed great interest in making his instruction more student-centered. Following the initial planning session his practices were confirmed as teacher centered, but by the middle of the study, the teacher was incorporating inquiry-based activities, such as Socratic Seminars, on a regular basis. However, the teacher remained at emerging student-centered because his day-to-day practices were still heavily teacher-centered most of the time, and the lessons that were more student-centered and inquiry-based tended to be culminating activities rather than activities that were a part of developing and constructing student knowledge. It is important to note, however, that due to scheduling conflicts, I was unable to conduct a final interview with this teacher. Therefore, the findings described in the case study apply to data collected from the beginning and during the middle of the study.

Changes, Challenges, Support, and Successes

Prior to the study, the teacher had been working to incorporate more activities that caused students to think and make connections. The teacher was particularly interested in helping students ask questions that applied to both the past and present. In one of the early lessons, the teacher was using the work of literature from the Puritan time period to help students visualize the social environment of the time. In order to incorporate inquiry-based instruction and relevancy into this unit, the teacher decided to utilize a Socratic Seminar, followed by the reading of a modern day text and re-analysis using a graphic organizer. The teacher hoped that

using the Socratic Seminar would incorporate more collaboration and student-generated questioning.

During the study, we focused primarily on reflecting on the level of student inquiry in lessons observed. The primary support offered to this teacher was modeling grouping and questioning strategies, providing time for post-lesson reflection, and assisting with the analysis of student work. While the teacher experienced success with the Socratic Seminars, the teacher continued to spend a lot of time constructing knowledge for, rather than with, students. One of the challenges in this change, according to the teacher, was trying to meet state content standards. While the teacher did not complete the final interview, based on informal conversations, lesson plans, and planning sessions with the teacher, the primary challenge for the teacher will be trying to plan units that incorporate multiple standards. The teacher had also participated in a site visit of other inquiry-based classrooms, and felt that this was a successful practice that allowed him to visualize what more student-centered instruction would look like in the classroom.

Recommendations

The primary recommendations offered by Teacher 8 were time to collaborate and reflect with other educators and opportunities to see model classrooms and model lessons. The teacher was also interested in looking at the Common Core standards in order to think about how that may change the concerns he had over state standards. Because this teacher relied heavily on the use of primary sources in the classroom, such as works of literature from the time period, he also recommended that teachers take the time to model for the students how to interpret and analyze primary sources, through questioning and comparing and contrasting information. The final unit the teacher was working on during the study involved students selecting a reading of their own

and connecting it to "events in the real world" after they had developed questions. As part of the project, students had to use the Internet to research. One of the scaffolding tools the teacher used to guide students in using the Internet for researching can be seen in Figure 8.

Prior to the lesson: Students participated in a Socratic Seminar to come up with potential open ended research questions. Next, the teacher modeled going from a broad, open-ended question, or Driving Question, into smaller questions, suitable for research. As part of this lesson, students had to evaluate web sites for their research. Figure 9 includes a sample of student work using the "Web site for Research Rubric" and a blank copy of the rubric, that more clearly shows the rubric indicators.

Figure 8. Sample of Student Work & Rubric*

Evaluating a Web Site for Research Rubric

Directions: Use this rubric to determine if an Internet site is suitable for research.
You do *not* need to use this rubric for sources that are provided through our *subscription* databases.

	0	1	2	3
Check the **author's** credentials and affiliation. Is the author an expert in the field? Score: ___	The author is probably a student. Spelling and other errors indicate that the author is not an expert.	The author is unnamed and/or no credentials are given.	The author is named but credentials and contact information is incomplete.	The author's credentials are given and indicate that he/she is an expert in the field. The author provides an email address and/or contact information.
Does the resource have a **reputable** organization behind it? (If you can't tell right away, strip the URL from the right side until you get to a home page.) Score: ___	The page is hosted by an individual. (The home page is a personal page hosted by an Internet service provider such as AOL, Yahoo, or Juno.)	Any of these: • The home page is a K-12 site • The home page is a student's folder on a .edu site. • The home page is an unknown .com or .org	The home page is sponsored by a known business, professional association, organization, museum, or university.	A United States government department or agency is the home page.
Are the site's **sources of information** stated? Are photos clearly labeled and sources cited? Score: ___	No sources or works cited is given.	There is a general statement about the source of the information, but no specific works cited list.	There is a works cited list and/or a bibliography for further information.	There is a works cited list and/or a bibliography for further information. Photos are labeled and cited.
How current is the site? Score: ___	There is no indication of when the site was created or revised.	The date given for the site's creation is over 3 years old and there is no date of revision or update.	The site has been created or updated within the last 3 years.	The site has been created or updated within the last 6 months. If there is a bibliography, the sources that are referenced are current.
What is the **domain** in the URL? Score: ___	The domain is .com or .edu but it is clearly the work of students or individuals without authority.	The domain is .com and there are a lot of pop up menus and items for sale or the domain is .org and the organization behind the site is unrecognized.	The domain is .edu, .com, .info, .net, or .org and has been reviewed by a reputable subject directory such as The Internet Public Library, Dewey Browse, Yahoo.com subject directory, etc.	Any of these: • The domain is .gov • The domain is .com, .info, .net, or .org and is posted by a well-known, reputable organization or company. • The domain is .edu and university or college faculty, not students, maintain the site.
What is the **purpose** of the site? Is the information mostly fact or opinion? Score: ___	The purpose is personal.	The purpose is to sell something, persuade, offer assistance, or give a point of view. There may be some factual information or useful pictures but the focus of the site is to promote something.	The purpose is to offer factual information. Some opinion may be included.	The purpose is to support scholarly research with factual information.
Total Score: ___				
What does this score mean?	0 to 6 pts Highly questionable source.	7 to 10 pts Site is useful for ideas or casual projects. Do not cite as a reference for a research paper	11 to 14 pts Good source for a research paper or academic project. Confirm with other sources.	15 to 18 pts Excellent source for research.

*Created by Diane C. Bearman, accessible at

http://www.unk.edu/uploadedFiles/academics/library/ref/rubric.pdf

Teacher 9

Perception and Practices

Teacher 9 has over ten years of teaching experience. The teacher's purpose in teaching social studies was "to get students to think by starting with a survey of information and then training them to inquire." Following the first interview, the teacher's perceptions were categorized as teacher-centered. Following the initial planning session and classroom observation, his practices were confirmed as teacher-centered. Teacher 8 described a typical lesson in his classroom as having a lot of questions, often centered on issues that can be linked to modern times and "historically shattering" events. While the teacher's goal was to engage students in inquiring on their own, because the course had so many standards and so much to cover, he felt that "You have to cover a little bit about a lot," which made it difficult to go into the depth required for inquiry.

Changes, Challenges, Support, and Successes

Prior to the study, the teacher had been working to incorporate more inquiry-based activities for students, but felt that having to meet the standards always pushed him back into more traditional instruction. Unlike the other teacher-centered participants, he was aware of why he delivered content the way he did, was aware of more student-centered practices, but did not feel that he had the time to meet content demands in a primarily student-centered classroom. Most of his decisions were based on ensuring that students were exposed to the content that he was required to teach.

During the study, we focused on ways he could meet many standards in lessons by looking at themes in history. One of the projects the participants planned with the teacher was using political cartoons across time to look at propaganda over time. Students would have access

to political cartoons and would have to create inquiry-based questions centered around the cartoons. The cartoons chosen by the teacher carefully displayed information the students would have to know historically, to understand the modern day significance of the cartoon, thus requiring students to research two different time periods and come to conclusions on their own about the similarities or themes revealed in the cartoons. The primary support offered to this teacher were planning units or projects around multiple standards, and modeling instructional practices to help students better access content as a part of those units or projects. Because the teacher was concerned about time, several of the strategies modeled were designed to scaffold content readings so that students had time to develop and research questions they had about content.

For example, one of the models the teacher felt was successful was showing students how to outline content in order to address a research question. As a part of the model, students were shown how they could turn their own broad research questions into thesis statements. From there, students selected more in-depth research topics that would address their research question and organized their sources into outlines. Because the teacher had scaffolded the content and the research, he felt he had more time to allow students to interact with primary source material and develop further inquiry questions of their own.

Recommendations

The primary recommendations offered by Teacher 8 were centered around the challenge of meeting state standards. While the teacher was still not comfortable using inquiry-based approaches on a regular basis, because of content demands, he was willing to continue experimenting with new strategies. One of the final recommendations offered to the teacher was to consider looking at themes in history, and designing units around those themes, rather than

chronologically. A sample of a theme-based curriculum design based off of AP US History

curriculum can be seen in Figure 9.

Figure 9. Theme-based design

AMERICAN DIVERSITY – diversity of the American people and the relationships among different groups… roles of race, class, ethnicity, and gender in US History

AMERICAN IDENTITY – views of American national character and ideas about American exceptionalism. Recognizing differences in context of what it means to be American.

CULTURE – diverse individual and collective expressions through literature, art, philosophy, music, theatre, film throughout US History including cultural conflict within society.

DEMOGRAPHIC CHANGES – Changes in birth, marriage, and death rates, population size and density. Effects of immigration, internal migration, migration networks on society.

ECONOMIC TRANSFORMATIONS – Changes in trade, commerce, and technology across time. Effects of capitalist development, labor and unions, and consumerism on society.

ENVIRONMENT – Consumption and conservation of natural resources, impact of population growth, industrialization, pollution, urban and suburban expansion.

GLOBALIZATION – Engagement with the rest of the world from the 15th century to the present: colonization, mercantilism, global hegemony, market development, imperialism, cultural change.

POLITICS AND CITIZENSHIP – Colonial and revolutionary legacies, American political traditions, growth of democracy, development of the government. Defining citizenship and struggles for civil rights.

REFORM – Diverse movements focusing on broad range of issues (anti-slavery, education, labor, temperance, women's rights, civil rights, gay rights, wars, public health, and government).

RELIGION – The variety of religious beliefs and practices in America from prehistory to 21st Century, influences of religion on politics, economics, and society.

SLAVERY AND ITS LEGACIES IN NORTH AMERICA – Systems of slave labor and other forms of unfree labor (indentured servitude, contract labor, etc…) in North American societies, the Atlantic World, and the American South and West. Includes patterns of resistance and long term effects of slavery.

WAR AND DIPLOMACY – Armed conflict from pre-colonial period to the 21st Century and the impact of war on American foreign policy and on politics, economy, and society.

Teacher 10

Perception and Practices

Teacher 10 had over five years of teaching experience at the time of the study. Teacher 10 was certified to teach multiple subjects and was teaching social studies for the first time. Teacher 10 felt that her role in teaching social studies was fundamental to students' "ability to be successful in society" and she felt that if she could make the content relevant, students would be more engaged. Following the first interview, the teacher's perceptions about teaching social studies were categorized as teacher-centered. Following the initial planning session her practices were confirmed as teacher-centered.

Changes, Challenges, Support, and Successes

Prior to the study, the teacher had been working to improve project planning, classroom management, and group and individual accountability. She described her instructional practices as based around questioning students, but felt that her students did not have the background knowledge to answer the questions. She did not feel confident in her content preparation and did not have "the necessary tools" or resources to plan or to scaffold student learning. In the interviews and planning session, she described using primarily videos and lectures for students. Following a planning session for having students create a newspaper, the teacher decided to focus on teaching one revolution, rather than teaching revolutions as a theme.

The primary challenge that emerged from working with this teacher was low expectations. The teacher felt overwhelmed by the lack of resources and her students "lack of background knowledge," and had been frustrated with her content and her classes months before the study began. She felt that the pacing guide that followed the standards for her grade made unrealistic assumptions about student background knowledge and she did not think it was

feasible to meet content demands unless she delivered content traditionally. She also felt that because her students lacked background knowledge, that most of them were not capable of the inquiry-based models provided during the study. In the final interview with the teacher, she indicated that she did not think students would be successful with inquiry-based instruction because she felt that if she did not "give them direct instruction they don't get it." The teacher also felt she lacked experience with content-based instructional practices in addition to classroom management issues.

The primary supports offered to this teacher were planning, resources, and modeling. Unfortunately, this teacher started the study a month late, because of scheduling difficulties. However, she was still provided the same training and planning that other participants were offered. It is unclear if the teacher would have been more successful with more time, but definitely possible. Also, because the teacher was already frustrated with her content and classes when the study began, it is possible that an early intervention may have helped. At the end of the study, the teacher confirmed that she did not think her students would be successful in an inquiry-based environment.

Recommendations

The recommendations made by this teacher, other than access to resources, were out of the control of the research study, but were valid recommendations. The teacher recommended that the standards and pacing guide for her courses be revisited and that students be grouped differently in future classes.

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Appendix A

Table 2-6. Essential Features of Classroom Inquiry and Their Variations

Essential Feature	Variations			
1. Learner engages in scientifically oriented questions	Learner poses a question	Learner selects among questions, poses new questions	Learner sharpens or clarifies question provided by teacher, materials, or other source	Learner engages in question provided by teacher, materials, or other source
2. Learner gives priority to evidence in responding to questions	Learner determines what constitutes evidence and collects it	Learner directed to collect certain data	Learner given data and asked to analyze	Learner given data and told how to analyze
3. Learner formulates explanations from evidence	Learner formulates explanation after summarizing evidence	Learner guided in process of formulating explanations from evidence	Learner given possible ways to use evidence to formulate explanation	Learner provided with evidence
4. Learner connects explanations to scientific knowledge	Learner independently examines other resources and forms the links to explanations	Learner directed toward areas and sources of scientific knowledge	Learner given possible connections	
5. Learner communicates and justifies explanations	Learner forms reasonable and logical argument to communicate explanations	Learner coached in development of communication	Learner provided broad guidelines to use sharpen communication	Learner given steps and procedures for communication

More ——————————— Amount of Learner Self-Direction ——————————— Less

Less ——————————— Amount of Direction from Teacher or Material ——————————— More

Excerpted from *Inquiry and the National Science Education Standards*, NRC (2000) p. 29

Appendix B

4.2 Check-lists, Miles & Huberman (1994:105)

☞ Usage: Detailed summary for an analysis of an important variable

Example: "external support is important for succeeding a reform project

Examples for external support	At counselor level	At teacher level
Analysis of deficiencies	Fill in each cell as below	
Teaching training		
Change monitoring		
Incentives		
Group dynamics	adequate: "we have met an organizer 3 times and it has helped us" (ENT-12:10)	not adequate: "we just have informed" (ENT-13:20)
etc. ..		

- such a table displays various dimensions of and important variable (external support), e.g. in the example = left column
- in the other columns we insert summarized *facts* as reported by different roles.
- Question: Imagine how you would build such a grid to summarize teacher's, student's and assistant's opinion about technical support for an e-learning platform

Appendix C

High-level findings summary with index pointers into original notes (partial)	Finding	Participants supporting this finding	Page # in protocol
	• The [X] home page graphics give the page a cluttered, busy, or "overwhelming" feel.	P1, P2, P3, P4, P6, P8	7
	• Prefers the [Y] home page banner graphic over the [X] banner graphic, but says the other graphics still give the page a busy feel.	P1, P3, P4, P8	7
	• Did NOT notice or use the new "shortcut" product links feature.	P2, P3, P4, P5, P6, P7	8
	• Easily used "Shortcut" product links, once shown the new feature (Except P1 and P8 who DID notice them) and were satisfied with the interaction and results.	P1, P3, P4, P5, P6, P7, P8	8, 14, 20
	• P2 did not use the Shortcut links, preferring to always search or use the Product category.		
	• Began all three look-up tasks using Search, rather than [product] categories.	P1, P2, P7	8, 14, 20
	• P1 and P7 also tried the Shortcut links after Search results were unsatisfactory.		

Based on Kanter, 2005.

Appendix D

IRB Approval

UNIVERSITY OF
ARKANSAS

March 9, 2012

MEMORANDUM

TO: Crystal Beshears
               Mounir Farah

FROM: Ro Windwalker
               IRB Coordinator

RE: PROJECT CONTINUATION

IRB Protocol #: 11-02-483

Protocol Title: Digging Digitally: Using Inquiry-Based Instruction and Digital
                 Resources to Learn About the Past: Success and Barriers Faced
                 by Social Studies Teachers

Review Type: ☒ EXEMPT   ☐ EXPEDITED   ☐ FULL IRB

Previous Approval Period: Start Date: 03/03/2011 Expiration Date: 03/02/2012

New Expiration Date: 03/02/2013

Your request to extend the referenced protocol has been approved by the IRB. If at the end of
this period you wish to continue the project, you must submit a request using the form
Continuing Review for IRB Approved Projects, prior to the expiration date. Failure to obtain
approval for a continuation on or prior to this new expiration date will result in termination of the
protocol and you will be required to submit a new protocol to the IRB before continuing the
project. Data collected past the protocol expiration date may need to be eliminated from the
dataset should you wish to publish. Only data collected under a currently approved protocol can
be certified by the IRB for any purpose.

This protocol has been approved for 30 total participants. If you wish to make any
modifications in the approved protocol, including enrolling more than this number, you must
seek approval *prior to* implementing those changes. All modifications should be requested in
writing (email is acceptable) and must provide sufficient detail to assess the impact of the
change.

If you have questions or need any assistance from the IRB, please contact me at 210
Administration Building, 5-2208, or irb@uark.edu.