Title

Designing for Travel: A Design Research Collaboration to Develop Practical Knowledge about Disciplinary Reading Instruction

Author

Mancevice, Nicole Anne

Publication Date

2018

Peer reviewed|Thesis/dissertation

UNIVERSITY OF CALIFORNIA

Los Angeles

Designing for Travel: A Design Research Collaboration to Develop Practical Knowledge about Disciplinary Reading Instruction

A dissertation submitted in partial satisfaction of the

requirements for the degree Doctor of Philosophy

in Education

by

Nicole Anne Mancevice

2018

ABSTRACT OF THE DISSERTATION

Designing for Travel: A Design Research Collaboration to Develop Practical Knowledge about Disciplinary Reading Instruction

by

Nicole Anne Mancevice

Doctor of Philosophy in Education

University of California, Los Angeles, 2018

Professor Kimberley Gomez, Chair

Students encounter an increasing number and variety of texts as they advance from kindergarten to twelfth grade. Among literacy researchers and educators, there is growing recognition that elementary and secondary students need instruction to know how to evaluate these different types of texts and synthesize information across them. One instructional approach is to teach students the disciplinary reading practices that experts use. These disciplinary literacy expectations are now reflected in a number of state learning standards and curriculum frameworks. A disciplinary literacy approach to instruction requires educators to rethink what it means to teach reading comprehension as part of subject matter curricula, such as science and social studies. My dissertation study explored how fifth- and sixth-grade teachers incorporated disciplinary reading practices within their grade-level curricula. I used a collaborative design-based research approach to study how teachers configured, and reconfigured, reading instruction to teach disciplinary reading practices as part of social studies lessons.

Across three cumulative phases of research and design, I partnered with fifth- and sixth-grade teachers at two elementary schools. I focused on the ways the collaborative design process leveraged teachers' expertise and local curricula while concurrently generating knowledge about practice. In the first phase of the study, I explored how teachers structured reading activities as part of multiple subject area lessons at one school. In the second phase, I worked with the same teachers to design and study instructional routines for teaching students to evaluate and corroborate sources of information about history. In the third phase of the study, I examined how a teacher at a second school incorporated one instructional routine into the social studies curriculum. I attended to how the design process supported the travel of the instructional routine to the second school. This study contributes to our understanding of how elementary school teachers can reorganize social studies lessons to help students become active and critical readers of texts about history, how researchers can support teachers to incorporate historical reading practices into their social studies curriculum, and the ways a collaborative design process can build local capacity for instructional change and improvement.

The dissertation of Nicole Anne Mancevice is approved.

Amanda Datnow

Louis M. Gomez

José Felipe Martinez

Teresa L. McCarty

Kimberley Gomez, Committee Chair

University of California, Los Angeles

2018

TABLE OF CONTENTS

CHAPTER 1: INTRODUCTION ……..…….. 1

Conceptual Framework ……...… 5

Research Design ……..……. 10

Overview of the Dissertation …… 22

CHAPTER 2: READERS, WRITERS, PALEONTOLOGISTS, AND HISTORIANS ……... 24

Conceptual Framework ……..…… 25

Research Methods ……..…… 34

Findings …… 49

Discussion ……..…….. 67

Conclusion …… 75

CHAPTER 3: DESIGNING A MAP FOR INSTRUCTION ……..…….. 77

Conceptual Framework ……..…… 79

Research Methods ……. 87

Findings ……..…….. 95

Discussion ……..…. 106

Conclusion …….……. 109

CHAPTER 4: ASKING QUESTIONS AND PLANTING SEEDS ……..….. 110

Conceptual Framework ……...…… 111

Research Methods ……..…….. 119

Findings ……..…… 132

Discussion …….. 141

Conclusion …….……. 148

CHAPTER 5: CONCLUSION ……... 150

APPENDICES ……..…… 157

Appendix A: Types of Informal Questions for Students …….…….…… 157

Appendix B: Teacher Interview Questions ……...… 158

Appendix C: Connecting Historical Thinking Practices with Fifth-Grade Learning Standards 160

Appendix D: Summary of Teacher Interests ……. 161

REFERENCES ……..... 162

LIST OF FIGURES

Figure 1. Sample Conjecture Map ……...… 86

Figure 2. Note-taking Tool …….……... 101

LIST OF TABLES

Table 1. Number of Classroom Observations by School Subject ……..….. 41

ACKNOWLEDGEMENTS

This dissertation study was possible because of a wide network of support from mentors, friends, and family members. I want to begin by acknowledging their important contributions to this dissertation and my development as a scholar.

I am grateful to the teachers who welcomed me into their classrooms. Without their partnership, I could not have conducted the research reported in the following pages. They graciously agreed to share their expertise. I learned so much from each of them about curriculum, pedagogy, and professional collaboration. I hope this dissertation fully reflects my respect for the work they do and the teaching profession.

From the early stages of a proposal to the final draft, I was fortunate to have the support and guidance of an exceptional dissertation committee: Kimberley Gomez, Louis Gomez, Felipe Martinez, Teresa McCarty, and Amanda Datnow. Each committee member shared key advice and feedback on the study design, data collection and analysis, and writing. They asked questions to help me clarify my research goals, questions, and design process. They offered practical suggestions about data collection and organization. They expanded my understanding of research methods and ways to study teachers' practice. I am honored by their academic generosity.

I have had the support and guidance of many wonderful faculty members and researchers at UCLA. Kathryn Anderson-Levitt was my first qualitative research methods professor. Whenever I write field notes or conduct interviews, I think of her advice in that first class and challenge myself to do better. Noel Enyedy, Megan Franke, and Karen Hunter Quartz taught me how to work collaboratively with educators in research-practice partnerships. Joan Herman has been a researcher role model. She shared her expertise in assessment, and she demonstrated how research can be applied to practice in useful and important ways. Each of these mentors modeled

what it means to be a thoughtful and ethical researcher who is dedicated to scholarship that makes a positive difference. It has been a privilege to learn from them.

During my time in Moore Hall, I have met fellow students and co-workers whom I now count as friends and colleagues. Sandy Chang has been an important mentor and friend. Her words of encouragement and perspective have helped me stay focused. Sebastian Lemire and Glory Tobiason are dear friends and writing partners. They have offered insightful and honest feedback on writing and life. I cannot imagine graduate school without Maritza Lozano and Benjamin Cooper, and I am honored to call them my academic family. For their friendship and support, I also thank Jennifer Ayscue, Sarah Jean Johnson, Christine Lee, Juliet Lee, Priscilla Liu, Emily Pressman, Michelle Smith, and Talia Stol. I look forward to many more conversations, writers' group meetings, and cups of coffee in the future.

I am also thankful for many friends and friends on the East Coast. Although we were three hours and many miles apart, their calls, cards, and visits have helped me not feel so far away from home. My parents, Kathryn and Jeffrey Mancevice, have encouraged me since the beginning of this educational adventure. When I started kindergarten, I declared to my parents that I did not need to go to school. But, of course, they made me go. Through their words and actions, my parents have taught me to work hard and be curious about the world. As I complete my last quarter of graduate school, I humbly admit just how much I still have to learn.

Finally, I acknowledge the funding and support I received from UCLA Graduate School of Education and Information Studies and the Urban Schooling Division. I appreciate each of the research and teaching positions I have had during my time at UCLA. These work experiences helped me learn how to be a researcher and teacher.

VITA

EDUCATION

2005 Ed.M. Language and Literacy
Harvard University Graduate School of Education

2002 B.A., English
Connecticut College

SELECTED PROFESSIONAL EXPERIENCE

2016-2018 Graduate Student Researcher
CONNECT: A Center for Research and Innovation in Elementary Education
University of California, Los Angeles

2015-2017 Special Reader
Qualitative Research Methods Course Series
Graduate School of Education & Informational Studies
University of California, Los Angeles

2014-2017 Graduate Student Researcher
National Center for Research on Evaluation, Standards, and Student Testing
University of California, Los Angeles

2013-2016 Managing Editor
American Educational Research Journal – Social and Institutional Analysis

2011-2014 Graduate Student Researcher
Improvement by Design Research Group

2010-2011 Graduate Student Researcher
Learning Research and Development Center
University of Pittsburgh

2005-2010 Education Specialist
Office of Literacy
Massachusetts Department of Elementary and Secondary Education

2002-2004 Program Specialist
Reading Is Fundamental

SELECTED PUBLICATIONS

Gomez, K., Kyza, E., Mancevice, N. (2018). Participatory design in the learning sciences. In F. Fischer, C. E. Hmelo-Silver, S. R. Goldman, & P. Reinmann (Eds.), *International handbook of the learning sciences* (pp. 401-409). New York, NY: Routledge.

McCarty, T. L., Mancevice, N., Lemire, S., O'Neil, H. F. (2017). Education research for a new century: A renewed vision of interdisciplinarity [Introduction to Centennial Special Issue]. *American Educational Research Journal, 54*(1S), 5S-22S.

Gomez, K., Gomez, L., Cooper, B., Lozano, M., & Mancevice, N. (2016). Redressing science learning through supporting language: The biology credit recovery course. *Urban Education*. doi: 10.1177/0042085916677345

Gomez, K., Rodela, K., Lozano, M., & Mancevice, N. (2013). Designing embedded language and literacy supports for developmental mathematics teaching and learning. *MathAMATYC Educator, 5*(1), 43-56.

SELECTED PRESENTATIONS

Mancevice, N. (2017, February). *Understanding what travels: A teacher-researcher collaboration to improve reading instruction in history.* Paper presented at the University of Pennsylvania Ethnography in Education Research Forum in Philadelphia, PA.

Gomez, K., Mancevice, N., Lee, U., & Cunningham, J. (2015, April). *Planning within and across disciplines: Understanding the disciplinary and pedagogical intersection of content areas.* Paper presented at the American Educational Research Association Annual Meeting in Chicago, Illinois.

Mancevice, N., & Gomez, K. (2014, December). *Lesson artifacts: Communicating knowledge about practice in a teacher-researcher collaboration context.* Paper presented at the American Anthropological Association Annual Meeting in Washington, DC.

Mancevice, N., & Gomez, K. (2014, April). *The development, and engagement, of social resources for sharing and creating knowledge about practice.* Paper presented at the American Educational Research Association Annual Meeting in Philadelphia, PA.

AWARDS AND HONORS

George F. Kneller Prize, University of California, Los Angeles

CONNECT Graduate Student Research Fellowship, University of California, Los Angeles

Graduate Summer Research Mentorship Fellowship, University of California, Los Angeles

Phi Beta Kappa Alumni Award, Connecticut College

CHAPTER 1

Introduction

Students typically learn how to read with fluency and comprehension in the early elementary grades (Snow, Burns, & Griffin, 1998). As they continue in school, however, students will encounter a wide variety of books, articles, websites, blogs, and other digital media. They will need to read, interpret, and apply information from these texts for different purposes in and out of school (Goldman & Snow, 2015; Goldman, Snow, & Vaughn, 2016; Lee & Spratley, 2010; Moje, 2008). To prepare students for these expanding literacy demands, researchers have proposed teaching reading practices that align with disciplinary ways of learning, communicating, and generating knowledge (e.g., Goldman, Britt, et al., 2016; Goldman & Snow, 2015; Lee & Sprately, 2010). A number of curriculum frameworks and state learning standards now reflect this expectation that students will learn disciplinary reading practices (e.g., *The College, Career, and Civic Life Framework for Social Studies State Standards* [*C3 Framework for Social Studies State Standards*]; National Council for the Social Studies, 2013; *California Common Core State Standards for English Language Arts and Literacy in History/Social Studies, Science, and Technical Subjects* [*CA CCSS for ELA/Literacy*]; California State Board of Education, 2013).

Enacting these standards requires major shifts in subject area curricula and instructional practices. History is a prime example. The *C3 Framework for Social Studies State Standards* (National Council for the Social Studies, 2013) aligns with how historians read and interpret evidence about historical events. While history instruction has typically centered around memorizing names and dates from textbooks (Paxton, 1999; Wineburg, 1991), the *C3 Framework for Social Studies State Standards* (National Council for the Social Studies, 2013) and many state standards for literacy and history now set an expectation that students will learn

to critically evaluate and corroborate historical information across multiple sources. Implementing this expectation will require more than investments in new history reading materials. It will involve teachers adjusting the texts, purposes for reading, and supports they introduce in relation to learning history (Bain, 2006). What is the role of educational researchers and scholarship in supporting these changes?

For more than twenty years, educational researchers have written about an apparent disconnect between the work of researchers and the work of educators (e.g., Hiebert, Gallimore, & Stigler, 2002; National Academy of Education, 1999). One solution for bridging educational research and practice has been to conduct research that is motivated by the current needs of teachers and administrators (Lagemann, 2002). Researchers are increasingly writing about partnerships with K-12 educators as an opportunity to engage in research that addresses the needs and interests of education stakeholders (e.g., Coburn, Penuel, & Geil, 2013; Snow, 2015). Research-practice partnerships challenge long-held assumptions about the relative roles of researchers and educators in generating knowledge about teaching and learning (Mehan, 2008). Despite the progress and enthusiasm for research-practice partnerships, there are lingering questions regarding the ways in which instructional models and approaches developed within these partnerships will be applicable to other districts and schools (Coburn & Penuel, 2016).

My dissertation explored how collaborative design-based research could facilitate instructional routines "traveling" to a new school context (Greeno, 2006c; Greeno & Collins, 2008; National Academy of Education, 1999). In contrast to disseminating research findings, the concept of travel assumes that educators will need information and support to adapt an instructional model or approach to work within their instructional context (Greeno & Collins, 2008; National Academy of Education, 1999). I partnered with fifth- and sixth-grade teachers to design, test, and refine routines for supporting students' critical reading practices as part of

history instruction in two schooling contexts. The research involved working with teachers to plan and study the instructional routines for reading, as well as theoretical explanations that connected the design, instructional context, and student learning goals. The study aimed to contribute to the research literature on two levels: learning from how teachers incorporated critical reading practices as part of their history curriculum, and adding to a theory of research collaboration by explaining how participating in a collaborative design project related to shifts in teachers' classroom practice.

For this study, I planned three phases of research to align with the main components of design-based research (e.g., Barab & Squire, 2004; Cobb, Confrey, diSessa, Lehrer, & Schauble, 2003). The first phase of the study focused on understanding the instructional context at one of the two elementary schools. I studied how teachers at the school taught reading in multiple subject areas. Informed by the data collected during phase one, the second study phase was a collaboration with teachers at that school to design and study instructional routines that addressed a teacher-determined learning goal in history. I examined how the collaborative design process leveraged teacher expertise and the local context to restructure classroom activities. The third phase of the study involved sharing the products of these design efforts with a fifth-grade teacher at the second of the two schools. I studied how knowledge about practice can be shared and adapted across study sites. The research questions that guided these three phases of research and design are below.

Phase 1: What are teachers' frames for teaching reading within subject area instruction?

How do teachers frame the work of reading in relation to learning content and disciplinary practices?

Phase 2: How did teacher expertise and local context inform the collaborative design process?

In what ways did the instructional routines restructure classroom activities?

What features of the school and classroom context supported these routines?

In what ways did conjecture mapping support the collaborative design process?

Phase 3: How does a teacher adapt an instructional routine for her school and classroom context?

What features of the collaborative design process supported the teacher's planning?

Although the three phases were cumulative in terms of the overall study aims, each phase also made unique contributions to the scholarly literature. In this dissertation, I wrote three chapters to highlight the findings and implications for each of the three project phases. Each chapter corresponds to one of the project phases listed above.

The dissertation is composed of an introduction, three chapters that correspond to the three phases of the study, and a conclusion. This introduction includes: an overview of scholarly literature that motivated the study; a description of research design, including researcher positionality, information about the school sites, and methods of data collection and analysis; and an orientation to the structure of the dissertation. Each of the three chapters has a conceptual framework, research methods, findings, and discussion for the respective phase of the study. The concluding chapter provides a synthesizing discussion of findings across the chapters, implications for instruction and research, and a future research agenda.

Conceptual Framework

Three strands of literature guide this project: disciplinary reading practices, historical reading practices and history curriculum, and curricular resources and curriculum adaptation. This section serves to situate the three phases of the study within these scholarly conversations. I present only a brief review of the salient literature here. Each of the three chapters includes an expanded conceptual framework.

Disciplinary Reading Practices

To become critical readers, students need instruction beyond the decoding, fluency, and general comprehension skills they learned in the early elementary grades (Goldman & Snow, 2015; Goldman, Snow, & Vaughn, 2016; Lee & Spratley, 2010; Moje, 2008; Shanahan & Shanahan, 2008). Researchers have proposed that students learn reading practices aligned with the ways members of academic communities approach and process texts (Goldman, Snow, & Vaughn, 2016; Lee & Spratley, 2010; Moje, 2008; Shanahan & Shanahan, 2008). By teaching these practices, teachers can facilitate students' access to subject area knowledge, insights into how members of academic communities create knowledge, and agency to evaluate and critique sources of information (Goldman, Britt, et al., 2016; Moje, 2008; Moje, 2015; Monte-Sano, 2011; Wineburg & Reisman, 2015).

Educational researchers have used a variety of qualitative methods, such as cognitive interviews and focus groups, to document how experts read and process texts (e.g., Leinhardt & Young, 1996; Shanahan & Shanahan, 2008; Shanahan, Shanahan, & Misischia, 2011; Wineburg, 1998). By comparing the reading practices of disciplinary experts with those of non-experts (e.g., Wineburg, 1991), experts reading outside their area of topical expertise (e.g., Leinhardt & Young, 1996; Wineburg, 1998), and experts in other fields (e.g., Shanahan et al., 2011), researchers have defined and categorized reading practices in a number of disciplines.

Researchers have documented, for example, that historians have shared practices for reading and interpreting documents to construct potential cause-and-effect relationships between people, actions, and events within historical contexts (Leinhardt & Young, 1996; Shanahan et al., 2011; Shulman & Quinlan, 1996; Wineburg, 1998).

Instructional studies of disciplinary literacy approaches have demonstrated positive learning outcomes for students in science (Greenleaf et al., 2011; Pearson, Moje, & Greenleaf, 2010), history (De La Paz et al., 2014; Nokes, Dole, & Hacker, 2007; Reisman, 2012a), and English language arts (Sosa, Hall, Goldman, & Lee, 2016). Implementing these approaches generally requires teachers to make significant shifts in how subjects have been traditionally taught in schools. One important shift is to move away from using one textbook as the main source of unquestioned knowledge (Goodlad, 1984; Paxton, 1997, 1999, 2002), and instead, to incorporate multiple types of texts for students to read and evaluate (Goldman, Britt, et al., 2016). As teachers change how they teach school subjects, however, it is unclear how students will interpret the disciplinary practices in one class in relation to their other subject area classes (Stevens, Wineburg, Herrenkohl, & Bell, 2005).

Chapter 2 offers an example of how teachers at one elementary school organized reading instruction across literacy, social studies, and science. While researchers think students in these grades will benefit from disciplinary reading instruction (e.g., Shanahan & Shanahan, 2014; Juel, Hebard, Haubner, & Moran, 2010), there are few models for how elementary school teachers might organize instruction to support students' literacy development across multiple school subjects (cf. Herrenkohl & Cornelius, 2013). The analysis illustrated how three sixth-grade teachers structured activities to foster student agency and engagement with academic disciplines. I conducted the fieldwork as the first phase of the dissertation study to learn about the school curriculum and teachers' pedagogical approaches. That fieldwork then informed conversations I

had with teachers to begin the second phase of the study, which focused on teaching disciplinary reading practices with history texts.

Historical Reading Practices and History Curriculum

In K-12 schools, teachers have traditionally taught history using a single textbook (Goodlad, 1984). Textbooks are problematic for a variety of reasons. One central reason is that they tend to present history in an authoritative, third-person voice, which hides the interpretive nature of history as a discipline (Paxton, 1997, 1999, 2002). In a study of how historians and high school students read a series of texts (Wineburg, 1991), for example, historians rated the textbook excerpt in the set of documents they read to be the least trustworthy text. Students rated the textbook excerpt as trustworthy. Wineburg (1997, 1991) argued that a defining difference in the reading practices of the historians and students was an "epistemology of texts" in terms of how historians view texts as sources of evidence that need to be evaluated, corroborated, and considered in the larger context in which they were created.

Instructional studies with middle and high school students have demonstrated that teaching historical thinking practices with multiple sources of information can benefit students' historical content knowledge (Nokes et al., 2007; Reisman, 2012a), as well as their reading comprehension (Reisman, 2012a) and writing (De La Paz et al., 2014) skills. There have been fewer instructional studies at the elementary school level; the studies that have been done demonstrate that younger students are capable of disciplinary ways of thinking and reasoning with multiple texts (Herrenkohl & Cornelius, 2013; VanSledright, 2002a, 2002b).

The instructional studies cited above relied on researcher-developed lessons, and in some cases, the researcher also served as the teacher (e.g., VanSledright, 2002a, 2002b). There is little research on how teachers might continue with the lessons or instructional practices after such studies have concluded (cf. Troyer, 2017). From a large-scale study to design curriculum for

disciplinary argumentation, Goldman, Britt, et al. (2016) identified implementation challenges with "drop-in" document lessons. One issue was that the focus of the lessons did not always align with the content of local history curriculum. A second issue, which is perhaps most relevant to this study, was that the teachers did not have sufficient opportunities to learn about the instructional approach from teaching these isolated lessons interspersed with their regular history instruction. These observations do not mean that regular "drop-in" lessons cannot benefit teacher and student learning in history (e.g., Nokes, 2014). The challenge is how to support teachers beyond isolated lessons so they can reconfigure their existing classroom materials and activities (Bain, 2006).

Chapter 3 focuses on a collaborative design process to incorporate instructional routines to help students evaluate and corroborate information about history. Two sixth-grade teachers and I grounded the design work in the school's curriculum, and we leveraged existing practices and expertise in planning and enacting the instructional routines. In the analysis for this chapter, I attended to how the teachers and I learned through the design process. I conducted this fieldwork during the second phase of the study, which informed the third and final phase of my dissertation. In the next study phase, I shared instructional resources we had used and developed with a fifth-grade teacher at a second school.

Curricular Resources and Curriculum Adaptation

Many past efforts to disseminate research findings on instructional programs or approaches have had a limited impact on classroom practice (Hiebert et al., 2002; National Academy of Education, 1999). The authors of a 1999 National Academy of Education Report proposed travel as an alternate concept to dissemination. They argued that past efforts to disseminate findings from educational research had not been successful because they did not support educators' capacity for improvement. Descriptions of programs in journal articles or

reports, for example, generally do not include enough information for educators to replicate a program. Educators are also working in different schooling contexts, and they need to be able to adapt a program or instructional approach to work in their particular contexts. For a program or approach to travel, educators need to understand the theories and principles that underlie the innovation so they can meaningfully adapt it (Greeno & Collins, 2008; National Academy of Education, 1999).

One strategy for supporting educators to make meaningful adaptations to a program or approach is to develop tools and resources (National Academy of Education, 1999). Within the fields of teacher education and curriculum design, there has been increasing interest in the potential for curricular resources to serve an educative function for the teachers who implement those materials (e.g., Ball & Cohen, 1996; Davis & Krajcik, 2005). Curricular resources are the professional tools that teachers use to plan instruction (e.g., teacher's guide, lesson plans [Remillard, 2005, 2018]). Researchers have been investigating ways to support teachers in using and learning from curricular resources (Ball & Cohen, 1996; Davis & Krajcik, 2005). The idea is that teachers learn information about instruction that they can apply to other situations (Davis & Krajcik, 2005). Curriculum designers can support teacher learning, for example, by providing rationales for segments of a lesson and why the segments are ordered in a specific way (Davis & Krajcik, 2005; Davis, Beyer, Forbes, & Stevens, 2011). By explaining the design decisions behind a curricular resource, curriculum designers and researchers can help teachers see the ways in which a resource reflects a particular theory of learning (Davis & Krajcik, 2005). This type of information can support teachers' "pedagogical design capacity" (Brown & Edelson, 2003; Davis & Krajcik, 2005). Pedagogical design capacity refers to teachers' ability to use and adapt curricular resources to meet particular goals (Brown & Edelson, 2003).

Researchers are increasingly developing and studying history curriculum resources that reflect a disciplinary approach to reading for middle and high school students (e.g., Duhaylongsod, Snow, Selman, & Donovan, 2015; Reisman, 2012a, 2012b; Goldman et al., 2016). Two of these efforts have had a focus on curricular resources as tools for teacher learning: *Reading Like a Historian* (Reisman, 2012a, 2012b; Reisman & Fogo, 2016) and *READI* (Goldman et al., 2016). Reisman and Fogo (2016), for example, examined how aspects of the *Reading Like a Historian* curriculum supported teacher learning and instruction. Related to the *READI* project, Goldman et al. (2016) described how researchers recognized the limitations of "drop in" lessons that did not help teachers reorganize their regular curriculum to reflect a disciplinary approach to reading and synthesizing information from multiple sources. The project shifted to developing learning goals for teachers to incorporate in their local history curriculum. These studies demonstrate how teachers use and adapt curricular resources in relation to how they value and perceive their potential for changing practice.

Chapter 4 explores how a teacher incorporated an instructional routine for sourcing texts within her local curriculum. In the first and second phases of the study, I had worked with teachers in the first school to develop an explanation for how and why instructional routines led to specific types of learning. The third phase of the study, which is the focus of this chapter, demonstrated how a teacher incorporated an instructional routine for questioning and interpreting primary sources of information as part of history instruction. I also discuss how the collaborative design process supported the teacher's development of pedagogical design capacity (Brown & Edelson, 2003).

Research Design

As a design-based research project (Barab & Squire, 2004; Brown, 1992; The Design-Based Research Collective, 2003), my dissertation involved studying how an instructional design

affected student learning in specific classrooms. A design-based approach is particularly useful when there is limited previous research on specific types of instruction in authentic contexts (Collins, Joseph, & Bielaczyc, 2004). In this case, there were few studies of classroom teachers integrating historical reading practices as part of an elementary school social studies curriculum. Three important characteristics of this type of project are: the role of theory in informing an instructional design, the involvement of stakeholders in the process, and studying how and why the instruction leads to a targeted learning goal in an authentic context (Barab, 2006; Barab & Squire, 2004; Collins et al., 2004).

The project involved three cumulative phases of research and design at two elementary schools. In the first project phase, I sought to learn about fifth- and sixth-grade classrooms at one of the two schools as contexts for design. Specifically, I examined how fifth- and sixth-grade teachers incorporated reading as part of literacy, science, and social studies instruction. I learned about the teachers' social studies curriculum and instructional approaches. These insights then informed my conversations with teachers during the second phase of the project. In the second project phase, I partnered with the fifth- and sixth-grade teachers to design and study instructional routines to support students' critical reading practices with history texts. The third phase of the study involved collaborating with a fifth-grade teacher at a second school to study how knowledge about practice can be shared and adapted across study sites.

A unique aspect of the study was that I extended the work of Sandoval (2004, 2014) on the design and use of conjecture maps. Along with the classroom teachers, I constructed a conjecture map in the second phase of the project. Sandoval (2004, 2014) presented conjecture mapping as a tool for researchers to articulate how an instructional design reflects a theory of learning. In the current study, I co-constructed a conjecture map with classroom teachers. We articulated the connections between a theory of learning, specific features of the learning

environment (e.g., materials, norms), and the targeted learning goal. I intended for the map to be a point of communication, and I thought that it would add transparency to our design process.

Instead of trying to control for variables that impact learning, or compare the relative effectiveness of instructional approaches, a design-based research study seeks to tell a richly detailed and contextualized story of teaching and learning (Barab & Squire, 2004; Brown, 1992; Greeno & Collins, 2008). This dissertation is a story of a collaborative design effort to teach critical reading skills to elementary school students. To tell this contextualized story of teacher and student learning, I first share a reflection on my professional positionality as a researcher, and I introduce the schools and teachers with whom I partnered for this project. I then provide an overview of the research timeline, data collection, and data analysis strategies for each project phase. These sections provide only an overview of the research methods, because I describe the methods in greater detail within the three chapters.

Researcher Positionality

In telling a story of collaborative design-based research, this dissertation explores the relationship between research and practice—both in terms of research methodology and sharing research findings with multiple audiences. In this study, I examine the ways that research designs involve practitioners. I also consider the ways researchers write about and share their scholarship with practitioners. In graduate school, these interests have developed through coursework, teaching qualitative research methodology, and experiences supporting participatory design, improvement science, and practitioner inquiry projects. My motivations for this scholarship, however, are grounded in professional experiences providing technical assistance on evidence-based reading instruction.

As an education specialist in a state department of education, my job was to collaborate with district and school administrators to build local capacity for evidence-based reading

instruction. Alongside colleagues from the state office of literacy, I consulted reports from national panels of experts (e.g., *Report of the National Reading Panel* [National Institute of Child Health and Human Development, 2000]) and articles from peer-reviewed journals for guidance on how to improve student reading outcomes in districts and schools in our assigned regions of the state. We translated the general conclusions and implications in these publications for our specific audiences of principals, teachers, reading coaches, district literacy administrators, and district superintendents. We drew on these publications to prepare regional professional development for reading coaches, interpret reading data with school leadership teams, model lessons in classrooms, and discuss action plans with district administrators. These experiences gave me first-hand insights as to the work of enacting research findings in classrooms across a district and state.

My colleagues and I shared the same professional development resources in district and school meetings, and in some cases, facilitated instructional demonstrations with small groups of students. When observing reading instruction, I would then notice how teachers had adapted the practice—incorporating their own bookmarks with strategy prompts, note-taking tools, and other instructional routines. The experience of observing these adaptations across classrooms led me to reflect on what it meant for instruction to be considered "evidence-based" and the importance of local knowledge to translate research findings to practice.

While working closely with experienced administrators and teachers, I gained a deep appreciation for the expertise and local knowledge these educators had about how to develop and sustain powerful learning environments for children. This professional experience motivated me to study the ways that researchers and educators can partner to improve learning opportunities and outcomes, as well as ways to document and share research findings with educators. The dissertation is a first step in a research agenda focused on developing knowledge about

disciplinary reading instruction in partnership with educators. Throughout the project, I was intentional in my efforts to work collaboratively with teachers on instructional issues that mattered to their practice. The following section introduces the schools and educators with whom I partnered for this project. I provide details about how I structured this collaboration with teachers in each of the three chapters that follow.

Schools and Participants

For this study, I partnered with fifth- and sixth-grade teachers at two schools on the West Coast of the United States: Inquiry School and Equity Academy (all names are pseudonyms). Inquiry School is an independent preK-6 school. Equity Academy is a public preK-12 school that serves students who live in the surrounding neighborhood. The different school types (i.e., one independent, one public) offered different contexts for design. There were also important similarities between the schools. It was the combination of differences and similarities in the two schools that made them interesting places to conduct this particular collaborative design research project. To further explain why I partnered with teachers at these two sites, I first present details about each school that are relevant to the project goals. I then explain why the similarities and differences between the schools made them interesting places to study how knowledge about instructional practices can travel across contexts.

For the first and second phases of the project, I worked with teachers at Inquiry School. Inquiry School serves approximately 450 students in prekindergarten through sixth grade. The school's curriculum is child-centered and organized in an inquiry framework, which teachers have developed and refined for many years. A core component of the school's mission is to be a site of innovation for teaching and learning. Teachers regularly invite educators to their classrooms to learn about practice, and they share their work at professional conferences.

I had worked with teachers at Inquiry School on past research and design projects. From those experiences, I had learned about the school's educational philosophy and curriculum. I had become especially interested in teachers' efforts to integrate primary sources of information throughout the preK-6 curriculum. Using a protocol from the Library of Congress, teachers regularly engaged students in careful and close observation of primary sources related to multiple subject areas. The school's inquiry approach to teaching and learning, combined with teachers' use of primary sources, meant that students were interacting with many different texts and sources of information throughout the school day. Inquiry School seemed like an ideal place to begin a collaborative design project to study approaches teaching critical reading practices with history texts.

For the third phase of the project, I partnered with a teacher at Equity Academy. Equity Academy is a public school that serves approximately 1,000 students in prekindergarten through twelfth grade. There are about 440 students enrolled in kindergarten through sixth grade. The school curriculum is learner-centered and reflects practices that are core to the school's mission (e.g., a focus on social justice). Part of the school's mission is to be a model for teaching and learning in public schools. Although I had not previously worked with elementary school teachers at Equity Academy, I was familiar with the school, its mission, and aspects of their curricula.

Inquiry School and Equity Academy had strong teacher leadership and similar organizational structures at the time of this study. Teachers served on various leadership committees for their respective schools. They were especially involved in making decisions related to curriculum and their own professional learning. The schools had multi-age groupings instead of traditional grade levels. In these multi-age groupings, teachers typically "looped" with a cohort of students. This meant that teachers had the same students for two years. Teachers

worked closely with their grade-level colleagues to plan the curriculum for their age group. They revised and revisited the curricula each year based on their students' needs and interests.

The two schools also placed value on multilingualism, social justice, and community. Both schools offered dual language immersion programs for students. Teachers at the schools thought about social justice and community in relation to the content they taught and their pedagogical approaches. In terms of social studies instruction, I saw these commitments reflected in multiple ways. One teacher, for example, created opportunities for students to generate research questions and supported them in exploring their own interests. Another teacher intentionally selected texts so that students would see themselves and their families reflected in books and the social studies curriculum. Teachers at both schools talked about the importance of skills that students gained in social studies lessons as helping them think critically in other contexts.

As settings for teaching and learning, the differences and similarities between Inquiry School and Equity Academy made them interesting sites for this project. Inquiry School and Equity Academy served different populations of students. The schools had different processes for enrolling. One charged tuition, and one did not. As a public school, Equity Academy was part of a larger state and national school accountability system. This system required annual subject tests at certain grade levels and English language proficiency tests for students identified as English learners. Inquiry School and Equity Academy, however, also had a lot in common. Teachers had leadership roles in both schools, and they made decisions about curriculum and instruction. Teachers had an opportunity to get to know their students because of the multi-age grouping and looping structures. Inquiry School and Equity Academy both placed value in social justice and preparing students to be active and engaged members of their communities.

It was these similarities that drew me to Inquiry School and Equity Academy as places to study approaches to teaching critical reading practices. At both schools, teachers used multiple texts to teach history instead of a single textbook. They incorporated primary and secondary sources of information as part of their lessons, which meant that students had opportunities to read many different kinds of texts. Teachers were interested in teaching students how to evaluate and corroborate sources of information. They saw these skills as important for learning history as well as for being critical readers outside of school. Teachers at Inquiry School and Equity Academy also had experience with research; many had engaged in their own professional inquiries or collaborated with researchers in the past. The differences in the school settings allowed me to see how aspects of the contexts supported the instructional routines.

I partnered with teachers who had responsibilities for teaching the equivalent of fifth and sixth grades. I inferred that students in these grades were more likely to be reading independently, and reading more texts, during their social studies class period. Eight teachers were involved in the project across the three phases of the work; not all of the teachers participated in each phase of the project. During the first phase of the study, the participants were six teachers at Inquiry School. The second phase of the study focused on history instruction specifically, so the participants in this phase were five teachers who were primarily responsible for teaching history at Inquiry School. In the third phase of the study, I collaborated with one teacher at Equity Academy. I provide more information about the teacher partners in each of the core chapters.

Phases of Data Collection and Analysis

Between January 2015 and June 2016, I engaged in three phases of research and design for this dissertation study. I collected data for the first and second phases between January-June 2015 at Inquiry School, and I completed data collection for the third phase of the study between

February-June 2016 at Equity Academy. Before these data collection periods, I refined research plans, piloted a teacher interview protocol, and completed all required university and school Institutional Review Board applications. Here I provide a brief overview of data collection and analysis for each phase of the project.

Phase one. My research goal for the first phase of the project was to understand how six fifth- and sixth-grade teachers at Inquiry School taught reading as part of literacy, science, and social studies. I collected data for this phase between January-March 2015. To study how teachers taught reading across the subject areas, I used three methods of data collection: participant-observation in classrooms, lesson artifacts and student work samples, and semi-structured teacher interviews.

I conducted 60 classroom observations, which reflected approximately 51 hours of instruction. These observations included a range of activities that involved reading (e.g., discussing a novel in book club, following science lab directions, taking notes about a primary source document) across the fifth- and sixth-grade classrooms. I wrote detailed ethnographic field notes (Emerson, Fretz, & Shaw, 2011) to document the lesson context and specifics of the instructional activities. If I spoke with students about their work during class, then I recorded those conversations in my field notes (Appendix A). I also collected artifacts related to the observations (e.g., assignment directions, graphic organizer, book club norms) and samples of student writing that resulted from the instructional activities. Finally, I conducted individual semi-structured interviews with the teachers (Appendix B). These interviews lasted for approximately 45 minutes. The interviews related to a lesson I had observed, and the interview questions fell into four categories: teacher's professional experience, lesson planning, curriculum, and the role of reading in the observed lesson.

As I conducted classroom observations, I wrote analytic memos in the form of summary commentaries (Emerson et al., 2011) to reflect on what I was learning about teachers' frames for reading as part of teaching and learning in subject areas. I verbally shared these reflections, as well as related segments of data, with teachers in meetings. Following the data collection period, I completed a cycle of domain and taxonomic coding (Saldaña, 2013; Spradley, 1979) to further explore teachers' frames for reading instruction. Then I conducted a cycle of pattern coding (Saldaña, 2013) to focus on teachers' framing of reading instruction as part of classroom interactions. This first phase of research informed and guided the next phase of the project, which involved designing instructional routines with teachers to improve students' critical reading in social studies.

Phase two. My research goal for the second phase of the project was to collaboratively design and study instructional routines that reflected theories about learning and disciplinary literacy practices. I intended for the design process to leverage teachers' expertise and build on the existing school curricula. Between February-June 2015, I worked with five teachers at Inquiry School to plan, enact, and study instructional routines for reading as part of social studies lessons. There were eleven planning meetings with the sixth-grade teaching team and eight planning meetings with the fifth-grade teaching team. The collaborative design process unfolded differently in the two grade levels; however, the processes shared common characteristics. Both processes involved selecting a locally-meaningful student learning goal, creating a conjecture map (Sandoval, 2004, 2014) for how the learning environment would lead to that goal, and building upon the school's existing curriculum for the respective grade level.

To document the design process, I collected sources of data related to both my planning meetings with teachers and how teachers then enacted the instructional routines in the classroom. I documented the meetings with teachers through audio recordings, field notes, and copies of

planning artifacts we created and shared. I conducted classroom observations to see how teachers enacted the routines as part of their social studies instruction. For this phase of the project, I began to video record in the classrooms more regularly, but I continued to write field notes to provide contextual information about classroom activities. I also collected lesson artifacts and student work related to the instructional routines.

Throughout the design process, the teachers and I shared classroom observations and student work in relation to the targeted learning goal. The sixth-grade team, for example, had set a learning goal that students would use multiple sources of information to answer a research question. We discussed students' written responses and research notes to reflect on how they were completing this work. These types of analyses were part of the design process and informed our conjectures about the relationship between the instructional routines and student learning. After the design work, I continued a retrospective analysis (Cobb et al., 2003) to understand the design process with teachers as a collaborative endeavor. I began by reviewing the transcripts and field notes of planning meetings with the sixth-grade teachers. I indexed these data sources with process codes (Saldaña, 2013) to highlight actions and interactions in the meetings. Then I constructed a design narrative to link the planning meetings with classroom data sources. I did this by creating a running document with summaries of design meetings, planning documents, and classroom observations in the order these events unfolded. I wrote analytic memos along the way to reflect on the ideas for instructional routines, who proposed them, how and why we modified them, and the ways they did or did not become part of classroom instruction.

Phase three. The goal of the third phase of the project was to explore ways to share knowledge about instructional routines with teachers in a different school and district context. I was especially interested in how teachers would modify and adapt routines for their students. Between February-June 2016, I worked with one fifth-grade teacher at Equity Academy to

incorporate instructional routines for evaluating texts as part of her history instruction. I first wanted to learn about how the teacher taught reading as part of social studies, and I used two methods of data collection to learn about her instruction: classroom observations, and a semi-structured teacher interview. I observed instruction during the social studies class period, which I documented with ethnographic field notes (Emerson et al., 2011). I conducted a 37-minute interview with the teacher using the same protocol as I had in the first phase of the study (Appendix B). The protocol included questions related to professional experience, lesson planning, curriculum, and the role of reading in an observed lesson.

The teacher and I then began our design meetings, and we met nine times during the five-month period. The meetings lasted from 30-60 minutes. During these meetings, we shared instructional resources, planned for how to incorporate a sourcing routine in the existing curriculum, and reflected on recent lessons. I documented the first meeting with field notes, and I audio recorded the subsequent eight meetings. I collected planning artifacts related to these meetings for additional context. To study how the teacher enacted plans from design meetings, I conducted classroom observations and wrote field notes to record the instructional activities. Including observations conducted before design meetings began, I observed a total of 23 social studies periods that amounted to 25.5 hours of instruction.

To understand the teacher's instructional approach at the beginning of our collaboration, I used domain and taxonomic coding (Saldaña, 2013; Spradley, 1979) with the interview transcript and early classroom observations to identify and categorize how the teacher taught reading as part of social studies instruction. From there, I constructed an overview of our collaborative design process by reviewing all field notes and transcripts of audio recordings from design meetings. Finally, I divided my lesson observations into tasks (Kisa & Stein, 2015; Stein, 1996), and used an open coding process (Saldaña, 2013) to identify when the teacher referenced the

work of historians, provided instructions for reading, or modeled how to read a text. I created a matrix of tasks and codes to look for patterns in how the teacher incorporated reading as part of her history instruction.

Throughout the three phases of research and design, I considered issues of validity in my data collection and analysis (Maxwell, 2013). I spent an extended amount of time observing instruction at both Inquiry School and Equity Academy, and I was able to collect a variety of data sources related to classroom activities (e.g., field notes of observations, copies of teacher-created lesson documents). Through design meetings and member check conversations (Maxwell, 2013), I shared interpretations of classroom activities and interactions with teachers, because I wanted to be sure that my interpretations seemed reasonable to the teachers. These efforts were important to ensure that I was able to tell a more rich and nuanced design story.

Overview of the Dissertation

In this introduction, I opened with an explanation of the conceptual framework that guided study design. I then presented an overview of my research methods for this three-phase dissertation study. Each phase of the study built towards two overarching goals: to generate knowledge about how teachers can incorporate disciplinary reading practices in elementary schools, and to contribute to a theory for how collaborative design can lead to professional learning and shifts in classroom practice. Although the three project phases were cumulative, the research I conducted in each phase contributed to different, but related, strands of academic conversations. I have organized the remainder of the dissertation around three chapters, which explicate the work and findings of the phases, and a conclusion.

In Chapter 2, I present an analysis of how sixth-grade teachers at Inquiry School framed reading activities for students as part of literacy, science, and social studies lessons. This chapter reflects fieldwork I conducted during the first phase of the project to learn about the school as an

instructional context. In describing the study design, I provide a detailed description of the research setting, methods of data collection, and approaches to data analysis. In the findings section, I describe four approaches that teachers used to frame reading activities. I then discuss the similarities and differences in how teachers framed reading activities across subject areas.

In Chapter 3, I examine the collaborative design process with two sixth-grade teachers at Inquiry School. This chapter reflects work I did during the second phase of the project to design and study instructional routines to support students' reading. I present a detailed explanation of the collaborative design process, as well as additional details about the methods of data collection and analysis. The findings explain how the design process leveraged local curriculum and expertise. I discuss how a conjecture mapping process (Sandoval, 2004, 2014) facilitated collaboration and communication.

In Chapter 4, I examine the ways a highly collaborative design process supported shifts in how a teacher taught students how to read history texts. The chapter focuses on my collaboration with one fifth-grade teacher at Equity Academy during the third phase of the project. I describe how the collaborative design process supported the teacher to incorporate an instructional routine into the local curriculum as well as to develop a pedagogical design capacity (Brown & Edelson, 2003) for adapting future lessons and units.

In Chapter 5, I summarize findings across the three study phases. I highlight how the work of this dissertation contributed to theoretical explanations for how the structure of reading tasks can support students' ability to critically read and evaluate history texts, as well as to our understanding of how collaborative design-based research can support instructional change.

CHAPTER 2

Readers, Writers, Paleontologists, and Historians:

A Qualitative Analysis of How Sixth-Grade Teachers Frame Reading Instruction

"Do you have any questions about your job today as a paleontologist?" Ms. Callas posed this question to her class of 24 sixth graders. As a researcher in the classroom, I was studying how Ms. Callas and her colleagues taught students to read as part of learning school subjects. This was not the first time I had heard teachers at the school address students as members of an academic community. Within the span of a single school day, in fact, teachers might address students as "readers," "writers," "paleontologists," "historians," "mathematicians," and "friends." These shifts in titles seemed to signal the content focus of a particular activity, and at least in name, identify students as participating members of an academic community. Apart from labeling students "paleontologists" or "historians," however, in what ways did teachers' framing of classroom activities create and recreate these multiple academic communities within their classrooms? Because of my focus on reading instruction, I was especially interested in the ways teachers structured reading activities as part of participating in these communities.

In this chapter, I examine how sixth-grade teachers at one school structured reading activities as part of literacy, science, and social studies lessons. I draw on empirical work with disciplinary reading instruction and expert readers, and apply the concept of framing (Bateson, 1972/1987; Goffman, 1974) to understand how this group of teachers gave students cues as to the role of reading in classroom lessons and subject area learning. For approximately two months, I studied reading instruction across the three subject areas. Through classroom observations, teacher interviews, and lesson artifacts, I analyzed the patterns of verbal and written cues teachers gave students about reading. The findings illustrate four of teachers' frames for teaching reading within the subject area. The chapter closes with a discussion of the

implications for disciplinary literacy broadly, and for the collaborative design work that followed in phase two of the study.

Conceptual Framework

Researchers have developed frameworks and models for how teachers can incorporate disciplinary ways of reading as part of content area instruction (Goldman, Britt, et al., 2016; Moje, 2015). These frameworks and models are grounded in studies of how expert members of academic communities approach and interpret text (Leinhardt & Young, 1996; Shanahan & Shanahan, 2008; Shanahan et al., 2011; Wineburg, 1998). To transfer expert disciplinary reading practices to classrooms, teachers need to negotiate how learning in a discipline may differ from how school subjects have traditionally been taught (Litman et al., 2017; Moje, 2015). While middle and high school teachers are typically subject matter specialists, elementary school teachers need to coordinate instruction for multiple subject matter curricula. There are few studies on how elementary school teachers can organize and teach reading in multiple subjects so that students understand when and how to use these skills (cf. Herrenkohl & Cornelius, 2013). I look at how teachers and students framed reading activities in literacy, science, and social studies through classroom talk and written documents. Framing (Bateson, 1972/1987; Goffman, 1974) is a useful conceptual tool for understanding how teachers provide students with implicit and explicit cues for how to complete a task (Hammer, Elby, Scherr, & Redish, 2005; Hutchinson & Hammer, 2010) as well as how students might use knowledge in a present or future situation (Engle, 2006; Engle, Lam, Meyer, & Nix, 2012).

Teaching Disciplinary Reading Practices

Authors of recent reports and articles on adolescent literacy argue that students need reading instruction beyond the elementary grades (Goldman & Snow, 2015; Goldman, Snow, & Vaughn, 2016; Lee & Spratley, 2010; Moje, 2008; Shanahan & Shanahan, 2008). After

comparing three large-scale adolescent literacy research projects, Goldman, Snow, and Vaughn (2016) concluded that the "distinction between learning to read and reading to learn no longer serves teachers or their students" (p. 262). Students continue to need reading instruction after they have learned to decode print with fluency and meaning in the early elementary grades (Goldman & Snow, 2015; Goldman, Snow, & Vaughn, 2016; Snow & Moje, 2010). As students advance in school, both texts and reading tasks become more challenging (Goldman & Snow, 2015). Students need to learn how to read, evaluate, and synthesize information across an increasing number of complex print and digital sources (Goldman, 2018; Goldman, Britt, et al., 2016). These critical reading practices can facilitate students' academic success and participation in contemporary society (Goldman, Britt, et al., 2016; Moje, 2008; Moje, 2015).

To address increasing literacy demands both in and out of school, many literacy researchers have proposed teaching disciplinary reading practices that align with how members of academic communities use texts (Goldman, Britt, et al., 2016; Goldman & Snow, 2015; Lee & Sprately, 2010). A science teacher, for example, might show students how to apply scientific knowledge to critique an author's explanation of a phenomenon (Goldman, Britt, et al., 2016). Or a history teacher might demonstrate how to interpret a historical document in relation to an author and the context in which the author wrote (Reisman, 2012a, 2012b; Wineburg & Reisman, 2015). Efforts to incorporate disciplinary reading as part of content area instruction have demonstrated positive student learning outcomes in science (Greenleaf et al., 2011), history (De La Paz et al., 2014; Nokes et al., 2007; Reisman, 2012a), and English language arts (Sosa, et al., 2016). Disciplinary reading practices are also now commonly embedded in national content standards and frameworks as well as state curriculum learning standards (e.g., *CA CCSS for ELA/Literacy* [California State Board of Education, 2013]).

Educational researchers have identified disciplinary reading practices by studying how members of academic communities process texts (e.g., Leinhardt & Young, 1996; Shanahan & Shanahan, 2008; Shanahan et al., 2011; Wineburg, 1998). These studies generally take three basic forms: studying the reading practices of experts within the same academic community (e.g., Leinhardt & Young, 1996; Wineburg, 1998), comparing the reading practices of experts across different academic communities (e.g., Shanahan et al., 2011), and comparing the reading practices of experts in an academic community with those of non-experts reading the same texts (e.g., Wineburg, 1991). Shanahan et al. (2016), for example, used think aloud protocols, interviews, and focus group discussions to compare how historians, chemists, and mathematicians read texts. One of their findings was that historians and scientists consider different aspects of context when they approach a text. The historians were concerned with author perspective and the context in which an author wrote, and the chemists focused on the timeliness of the publication and whether the information was still relevant. From these types of studies, researchers have identified common ways of thinking about text that members of these communities share.

School subjects are not the same as academic disciplines (Herrenkohl & Polman, 2018; Moje, 2015). Incorporating disciplinary reading practices involves reconsidering what it means to learn subjects in K-12 schools. Litman et al. (2017) studied opportunities to learn argumentation in classrooms of secondary science, history, and English language arts teachers who were trying to use disciplinary literacy practices as part of instruction. The researchers found variation in how teachers used texts based on their subject matter. Litman et al. (2017) concluded that their "findings related to disciplinary variation suggest that norms of instruction vary across the subject areas and may carry greater weight than disciplinary norms of evidence, reasoning, and discourse" (p. 118). For teachers to adopt disciplinary practices, they need to

make changes in the types and numbers of texts used. They also need time and opportunities to study how disciplinary reading practices reflect ways of learning and communicating that differ from how school subjects have been traditionally taught (Moje, 2015).

Models of disciplinary literacy instruction often assume that middle and high school teachers have disciplinary expertise (e.g., Greenleaf, Litman, & Marple, 2018; Greenleaf et al., 2011; Schoenbach, Braunger, Greenleaf, & Litman, 2003). Secondary school teachers likely have a college degree in the subject they teach and their instructional planning centers around curriculum for that subject. They are not likely to see themselves as reading teachers (Moje, 2008); the challenge is to encourage these subject matter specialists to become aware of the roles reading, writing, and language play in learning that curriculum. In describing the *Reading Apprenticeship* professional development approach, for example, Greenleaf et al. (2018) explained that the professional learning activities are meant to help teachers "unlock their own disciplinary expertise in relation to literacy" (p. 229). The idea is that teachers will be able to teach disciplinary practices after they recognize the specific ways they learned to read and process texts (Greenleaf et al., 2018).

While middle and high school teachers have a single subject area focus, elementary school teachers are typically responsible for teaching multiple school subjects. They need to coordinate curricula for multiple subjects when planning instruction. There are numerous studies of how elementary teachers can incorporate reading instruction as part of a single subject area curriculum (e.g., Cervetti, Barber, Dorph, Pearson, & Goldschmidt, 2012; Guthrie et al., 2004; Guthrie, Wigfield, & VonSecker, 2000; Hapgood, Magnusson, & Palinscar, 2004). There are few studies of how elementary school teachers can integrate disciplinary reading practices in multiple curricula. One exception is an instructional study reported by Herrenkohl and Cornelius (2013). Herrenkohl and Cornelius (2013) examined a curriculum designed to teach fifth and sixth

graders argumentation in history and science. In history, students used sets of primary and secondary sources to respond to an authentic historical question, and in science, students conducted a series of experiments to develop an evidence-based argument. The curriculum included different tools and practices to support students' disciplinary engagement with ideas (e.g., posters with prompts for "Thinking Like a Scientist" or "Thinking Like a Historian," class conferences). In their analysis, researchers identified the ways students' argumentation practices reflected epistemologies of the disciplines. Students developed disciplinary ways of thinking in both science and history.

To consider how to incorporate disciplinary reading practices across curricula, I build on scholarship that takes a comparative stance on school subjects (Herrenkohl & Cornelius, 2013; Herrenkohl & Polman, 2018; Stevens et al., 2005). Stevens et al. (2005) called for research on the "comparative understanding" of school subjects to identify opportunities to help students see how the skills and knowledge they apply to reading are similar or different across subjects. These scholars argued that we need to consider how students experience school subjects, because "those least equipped to bring conceptual order to the school day—students themselves—end up shouldering the burden of having to do so" (Stevens et al., 2005, p. 127). I attend to how teachers' classroom instruction frames reading activities in similar or different ways in these three subjects.

Frames for Reading in Relation to Learning School Subjects

Educational researchers have drawn on literature describing individuals' framing of activities to interpret teacher and student classroom action and interactions (e.g., Engle, 2006; Hammer et al., 2005; Hutchinson & Hammer, 2010). The concept of frames and framing as the way people interpret a particular activity appears in the writings of Bateson (1972/1987) and Goffman (1974). Bateson (1972/1987) described the psychological concept of framing as a

picture frame that helps an individual know what to pay attention to in a particular context. Building on Bateson's (1972/1987) writings, Goffman (1974) explained that an individual's framing of a situation is their response to the question: "What is it that's going on here?" (p. 8) People will act in a certain way based on how they interpret an activity; of course, people may have different framings of an activity based on their roles (Goffman, 1974; Russ & Luna, 2013). Individuals' frames can also shift and change during interactions (Luna & Sherin, 2017). In the learning sciences, researchers have developed the concepts of epistemological framing (Hammer et al., 2005) and expansive framing (Engle, 2006) to interpret how teachers and students interact and respond to activities in learning environments.

Epistemological framing is how an individual thinks about knowledge and the work that is required to complete an activity (Hammer et al., 2005; Hutchinson & Hammer, 2010). Students may frame classroom activities in more or less productive ways (Hammer et al., 2005; Hutchinson & Hammer, 2010), which relates to the knowledge resources they apply to the activity (Hammer et al., 2005). Hutchinson and Hammer (2010) characterized productive framing in a physics classroom as students understanding the work of an activity as making sense of a concept or phenomenon. Students see their role in the activity "is to *produce* it and to *assess* it, produce it from their experience or reasoning or schooling, assess it for whether it *makes sense*—whether it matches what else they believe and understand" (Hutchinson & Hammer, 2010, p. 510). In this description of productive framing, students are active participants in the activity. Hutchinson and Hammer (2010) contrasted productive framing with students framing the work of an activity as getting the correct answer. Students see their role in the activity "is to receive that knowledge and reproduce it appropriately. Knowledge is valuable if it 'counts'" (Hutchinson & Hammer, 2010, p. 510).

By attending to students' framing of classroom activities, teachers have an opportunity to encourage students to engage in classroom activities in productive ways. Drawing on examples from an undergraduate physics course, Hutchinson and Hammer (2010) cautioned that a teacher focusing solely on correctness can lead students to frame classroom interactions in unproductive ways. Teachers might modify features of the learning environment, such as the wording of assignments and classroom social structures, to encourage students' productive framing of an activity (Hammer et al., 2005). Writing about approaches to teaching science argumentation, for example, Berland and Hammer (2012) advised that providing explicit instruction in the features and vocabulary of argumentation before students have an opportunity to use that knowledge could "signal to students that argumentation is about following directions and doing school" (p. 88). Instead, Berland and Hammer (2012) proposed that teachers should create an authentic or relevant reason for argumentation, allow students to engage with ideas, and then provide some explicit instruction. Teachers might also explicitly ask students to reflect on their own learning (Hammer et al., 2005).

Teachers, of course, also have epistemological frames for how they think about knowledge in relation to what they are teaching in the classroom (Luna & Sherin, 2017; Russ & Luna, 2013). Russ and Luna (2013) described a study that involved teachers wearing video cameras, capturing interesting moments in the course of classroom instruction, and then reflecting on those moments with a researcher. The authors analyzed data from one biology teacher to illustrate how they inferred the teacher's epistemological framing. Based on the patterns of a teacher's noticing, the authors inferred that the teacher's epistemological frames for classroom discussions was of connecting knowledge (i.e., connecting biological ideas); her frames for labs were about procedures (i.e., using procedural knowledge). Teachers' framing of

activities, and what they notice in the course of instruction, may be influenced by their educator training as well as their teaching contexts (Levin, Hammer, & Coffey, 2009).

While studies of epistemological frames have largely focused on individual perception of work and learning in a particular activity (Hammer et al., 2005), studies of expansive framing have focused the interaction between teachers and students (Engle, 2006). The literature on expansive framing has largely focused on identifying a relationship between how teachers frame classroom activities and whether students transfer knowledge between contexts (Greeno, 2006a; Engle, 2006). By framing activities in expansive ways, teachers expand "the social boundary of the lesson temporally, spatially, and socially to encompass additional times, locations, and people for which each student's understanding of the lesson will be relevant." (Engle, Nguyen, & Mendelson, 2011, p. 605) Engle and colleagues identified several ways in which teachers might frame activities expansively. Teachers might, for example, point out future activities or contexts where knowledge or skills might be useful. A teacher might also position students as "authors" of knowledge (Engle, 2006; Engle et al., 2012) who have the agency to apply prior knowledge and experiences to an activity (Engle & Conant, 2002).

Engle et al. (2011) proposed that the contrast to expansive framing is bounded framing. An expansive frame for an activity or situation links the current context with another context; a bounded frame for an activity or situation does not link to any other contexts. Engle et al. (2011) studied transfer in high school students who experienced science tutoring interactions in which the tutor used either expansive or bounded frames. The high school students who experienced the science tutoring with expansive frames were more likely to transfer knowledge of strategies, prior knowledge, and their understanding of principles. Although expansive framing research has mostly focused on the teachers' actions, there is also some research that students need to notice

teachers' expansive framing for it to affect their thinking and actions (Lam, Mendelson, Meyer, & Goldwasser, 2014).

Linking to the literature on epistemological framing (Hammer et al., 2005) and expansive framing (Engle, 2006), I use the concept of frames and framing to understand teachers' frames for teaching reading as part of content area instruction. I look at how teachers' framing of reading within a classroom assignment or lesson creates a context for what it means to learn the subject. Following Erickson and Schultz (1997), I look at the cues teachers give students to signal a school subject context. These cues constitute teachers' framing for the work of reading in learning. What cues do teachers give students for the nature of the work of reading in an activity? Teachers could signal that reading in science or social studies is related to conceptual understanding, for example, or a they could signal that reading is about finding a correct answer in a text. I also use the lens to study whether teachers make connections between contexts for reading. Do teachers link to other contexts in which a particular skill or practice might be useful? What role do they give students in relation to reading and classroom activities? Teachers could frame a reading activity in science as similar to, or different from, a reading activity in English language arts. They could also highlight students contributions and interpretations of texts.

This literature on teachers' and students' framing of learning activities has largely focused on single subject area learning, especially in science and mathematics, at secondary and post-secondary levels. I build on this work by taking a comparative look at the role of reading in learning school subjects in classrooms at one elementary school. I answer the following questions: What are teachers' frames for teaching reading within subject area instruction? How do teachers frame the work of reading in relation to learning content and disciplinary practices? This analysis demonstrates how framing is a useful concept for thinking about how teachers and students are making sense of disciplinary reading practices across subjects. I also highlight

opportunities to make meaningful disciplinary connections across reading tasks in different subject areas.

Research Methods

Research Context

The fieldwork in this chapter reflects the first phase of a three-part design-based research study (Barab & Squire, 2004; Brown, 1992). In the larger study, I worked with fifth- and sixth-grade teachers at two schools, Inquiry School and Equity Academy, to study instructional routines for reading and evaluating texts in history. The first phase of the project focused on studying how fifth- and sixth-grade teachers at Inquiry School taught reading as part of content area instruction. Drawing on those insights, the second phase of the project involved collaboratively designing and studying instruction with teachers at Inquiry School. We set a goal for student learning, proposed instructional routines and materials to help students meet that goal, and then iteratively refined the routines and materials as the teachers enacted them in the classroom.

Before launching into the design work with teachers, I needed to learn about the instructional context of the school (Barab, Thomas, Dodge, Squire, & Newell, 2004; Mehan, 2008). I especially wanted to know more about the types of texts teachers assigned, the purposes for reading these texts, and how teachers supported students' reading as part of subject area lessons. Although the proposed focus for the design work was supporting reading in social studies, and specifically history texts, I decided to observe classroom instruction, interview teachers, and collect samples of assignments during the social studies, science, and literacy instructional periods. I was able to understand how teachers framed reading in social studies lessons by comparing and contrasting with how they framed the work of reading in literacy and

science lessons. These insights were important for informing conversations I had with teachers about the next phase of the project.

Setting and Participants

School context. Inquiry School serves approximately 440 students in prekindergarten through sixth grade. Thirty percent of the students identify as Caucasian, 30% identify as two of more races or ethnicities, 21% identify as Latino, 8% identify as Asian, 7% identify as African American, and 4% identify as another race or ethnicity. An important aspect of the school's mission is to be a site of innovation for teaching and learning. Research is part of the day-to-day life of the school. There are a variety of ongoing projects and collaborations between university researchers and teachers. Teachers are skilled at opening their classrooms to be sites of inquiry for researchers as well as fellow educators. Teachers host visitors to their classroom, plan and facilitate workshops for educators, and cultivate learning partnerships with local schools. They also present on curricular initiatives and instructional models at professional conferences.

Inquiry School was an interesting site for this study because of its approach to curriculum and instructional design. The instructional philosophy at the school is centered in developing students' love of learning through inquiry. Teachers have refined an inquiry framework to guide how they plan instruction, organize their classrooms, and teach to support student investigations across the school. At each grade level, however, teachers have the flexibility to design their curriculum. Teachers align the curricula with state and national content standards (e.g., *Next Generation Science Standards: For States, By States* [NGSS Lead States, 2013]); they also tailor instruction to respond to students' interests, experiences, and questions. Walking through the school's main hallway, visitors can see the evidence of these classroom inquiries. The walls are decorated with class murals and signs from a student-initiated demonstration. A larger-than-life papier-mâché bee hovers under a skylight. Bulletin boards feature classroom photographs,

drawings, writing, and student quotations to illustrate classroom inquiries for community members.

The school's inquiry approach to instruction meant that I was able to observe students researching, reading, discussing, and writing about many different types of texts. Teachers did not rely on a single textbook or program. The texts included novels and literary texts, informational texts, and websites. Teachers also incorporated primary sources of information to support student learning about history, science, and art. There are few empirical studies of that examine reading instruction across multiple subject area curricula in elementary schools. This school setting provided an opportunity to contribute to the literature by studying how teachers at one elementary were organizing instruction to teach students disciplinary practices for reading.

Sixth-grade context. In this analysis, I am focusing on data collected with the three sixth-grade teachers: Ms. Rose, Mr. Goodwin, and Ms. Callas. The sixth-grade teachers had each worked at Inquiry School for more than ten years, and they had previously taught multiple age levels at the school. For sixth grade, Ms. Rose, Mr. Goodwin, and Ms. Callas distributed responsibilities for teaching one or more subject areas (e.g., science, mathematics, literacy) across the level. There were approximately forty students in the sixth-grade at the time. The students were split across two classes, which meant that teachers taught the same lesson twice a day. The teachers planned collaboratively, and they frequently taught lessons together. School specialists, such as the library media specialist, also supported the level by teaching lessons to support their instructional goals. These lessons took place in two neighboring classrooms: room 28 and room 29.

Literacy in room 28. Ms. Rose and Ms. Callas taught literacy in room 28. When I began observing lessons, the sixth-grade classes were three weeks into a reading unit on social action fiction. The lessons largely focused on aspects of fiction and literary text (e.g., character,

perspective, setting, author's craft). For example, the teachers wanted students to be able to reflect on the actions of characters within the story context. The unit involved multiple opportunities for students to read, discuss, and write about books within the social action fiction genre. These opportunities included a teacher read aloud, two independent reading books, and two rounds of book clubs. Students were also studying how to write fiction in a concurrent writing unit.

During classroom visits, I focused my observations on the student book club activity. There were three components of the book club activity: whole-class mini lessons, small-group meetings, and literary written responses to text. Ms. Rose and Ms. Callas taught the whole-class mini lessons to support students' participation in the book club meetings. Each teacher worked with one book club during small-group meetings. During book club meetings, teachers intervened if students needed help. They also asked "stop and think" questions to encourage discussion about the story. For homework, teachers assigned literary responses that asked students to write about specific aspects of the text they were reading in book club (e.g., explain how the author is using metaphors, describe how a character is changing based on events in the story, research some aspect of the story setting, reflect on how the book concluded). Students had three literary response assignments for each round of book clubs (i.e., six total assignments).

Science and social studies in room 29. Next door, Mr. Goodwin and Ms. Callas taught science and social studies in Room 29. When I started observing lessons, the sixth-grade classes were concluding a science-focused inquiry related to cells, and they were preparing to launch a social studies inquiry related to ancient civilizations. Both Mr. Goodwin and Ms. Callas were working to bridge science and social studies inquiries. One way the teachers tried to bridge these inquiries, for example, was by drawing connections between students' study of DNA and the methods scientists, paleontologists, and archaeologists use to learn about ancient civilizations.

Students read a variety of informational texts in lessons taught by both Mr. Goodwin and Ms. Callas. I observed different reading activities in their respective lessons, which I describe below.

In science and social studies lessons, I observed Mr. Goodwin teach students how to take notes with informational texts, determine if texts will answer a question, and compare information across texts. The activities that I observed related to reading typically involved multiple texts and excerpts from texts on the same topic. Students had to read the texts and take notes based on a guiding question or focus. Mr. Goodwin shared in an interview that he wanted students to be able to "read carefully and thoroughly" from the texts. In social studies, he also wanted students to develop an understanding of changes over time and sequences of events, as well as causes and effects. He emphasized that history is not a static narrative. Mr. Goodwin often mentioned the scientists, historians, archaeologists, and anthropologists who are involved in conducting research about the ancient civilizations the class studied. I observed him share news articles with the class, for example, to highlight scientists' use of technology in recent discoveries about ancient history.

I observed Ms. Callas teach students how to interpret primary sources. Ms. Callas's goal for primary source lessons was to support inquiry. In consultation with Mr. Goodwin and the school media librarian specialist, Ms. Callas looked for "for places in the curriculum where I think that looking at primary sources is going to help kids deepen their thinking and enrich their experience." Ms. Callas thought it was important for student to be able to analyze different types of primary sources, and she wanted them to engage in some research in relation to the source or sources. Lessons with primary sources usually involved a whole-class mini lesson, independent or small-group work with the Library of Congress primary source analysis protocol, a mid-class check in, and a debrief conversation about the primary sources. Students occasionally had additional reading or writing to complete as homework.

Researcher Positionality

Prior to the current study, I had worked on a different project with teachers at Inquiry School. The work involved meeting with teachers during their grade-level planning time and occasionally observing instruction. Through that experience, I got to know many teachers at the school, and I learned about the school's mission and curriculum. I was familiar with the general approach to teaching and learning at Inquiry School; I had not had many opportunities to specifically observe reading instruction before the research described in this chapter.

I intended for the project to be a partnership between the teachers and me from the outset. My goal for this first phase of the project was to learn about how teachers taught and what goal they would like to address during the design phase of the project. By documenting classroom interactions related to reading, I was able to make classroom structures, and the patterns of text, student, and teacher interactions within these structures, "visible" (Erickson, 1986, p.121) for both the classroom teachers and me to question. I could then have planning conversations with teachers that were informed by an understanding of their school curriculum and interests. In addition to identifying a locally-meaningful learning goal, I looked for ways to make forms of my field notes from classroom observations useful to the teachers. One teacher did accept this offer. She asked for a list of questions that students raised in classroom book discussions, which she thought would help with future lesson planning. Our respective roles in the partnership shifted over time; nevertheless, my main role during this first phase was to learn.

Data Collection

I collected three main sources of data about reading and content area instruction: participant observation of classroom lessons, lesson artifacts and student work samples, and semi-structured teacher interviews related to a lesson observation. Each of these data sources provided me with information about teachers' frames for reading during literacy, science, and

social studies instruction. The multiple data sources allowed me to understand multiple facets of these classroom activities (Maxwell, 2013). From the observing in the classroom, I was able to document teacher and student dialogue and interactions as well as information about the physical learning environment. The lesson artifacts provided additional detail about the activities, and the student work samples allowed some insight as to how students completed the activities. My semi-structured interviews with teachers added helpful background information on the teachers' approaches to planning and teaching, and their perspectives on the role of reading in content area learning. In addition to these three main data sources, I regularly wrote in a researcher's journal to keep track of information of my reflections on my role in the field as well as the progress of the larger research project (Hammersley & Atkinson, 2007; Olson, 2011). I completed this fieldwork during the 2014-2015 school year.

Participant observation. I conducted 39 observations of instruction in literacy, science, and social studies across the sixth-grade classrooms. These observations documented a range of activities that involved reading (e.g., book club discussion, science lab, primary source analysis), and they reflected approximately 27.97 hours of instruction. Table 1 below provides an overview of the number and length of observations that I conducted during this first phase of the study. It is important to note that the table does not reflect the proportion of time that teachers taught these different subjects. It only reflects the amount of time that I spent observing these subjects across classrooms. When I began observing in January 2015, the teachers were concluding a science-focused inquiry and about to launch a social studies inquiry. I observed as many of those classes as my schedule permitted; however, I intentionally spent a great deal of time in the literacy classes. I reasoned that the literacy classes would be an opportunity to observe a range of activities that involved a variety of text types. Also, reading and writing are the focus of literacy classes, which means that there is more likely to be direct instruction in reading comprehension

and related skills. The literacy classes served as a point of contrast to the science and social studies classes.

Table 1

Number of Classroom Observations by School Subject

Level	Literacy	Science	Social Studies	Total
Sixth Grade	25 (17.98 hours)	8 (5.58 hours)	6 (4.4 hours)	39 (27.97 hours)

Similar to ethnographic interviews (Spradley, 1979) I began with "grand tour" observations that focused on the experience of being in the classroom, and specifically, on the classroom as a "cultural scene" (Spradley, 1979) for subject area instruction. My initial observations in each subject area focused on the social interactions that surrounded reading within an activity, and detailed descriptions of the activities themselves, as well as the physical and social organization of the classroom (e.g., placement of student desks, print environment, assignment routines). Over time, my observations focused mainly on the reading materials, goals, and specific interactions related to these activities: how teachers introduced, explained, gave directions, and monitored student work; and how students interacted with the teacher, peers, and the text(s).

To the degree possible, I tried to observe the same group of students during a particular subject area class (e.g., literacy, science). The sixth-grade students rotated through their school day in two groups of approximately 20 students. This schedule meant that teachers taught each lesson twice. Although I tried to observe the same class during each visit, there were times when I was not able to because of scheduling conflicts or because teachers reconfigured the student groups.

During an observation, I typically sat along the perimeter of the classroom. Unless there was a change in how a teacher arranged the tables and chairs in a room, or there was a student or

visitor sitting in the chair, I would sit in the same area of the room during each of my observations. If there were a situation when the class divided into smaller groups for instruction, such as book club discussions, then I would choose to follow one small group over the course of the unit or book. I chose to stay with one group so that I would have an in-depth understanding of the reading tasks that a particular group completed, and whether there were any shifts in how the teacher and students discussed and completed these tasks. When I observed one of these small groups, then I would move to sit in a chair closer to that group. I noted where I sat in my field notes.

When students were working independently or in small groups during an observation, I would stand up and walk to the student tables to see their work. I informally interviewed individual students about what they were reading, as well as how and why they were reading it. Some examples of the types of questions that I asked students included: "I see that you are writing in your reader's notebook. Could you tell me a bit about what you are writing?" and "What's the first thing that you do when you read something in this class?" I have included a list of sample questions as Appendix A. My goal was to get a broad understanding of how students thought about completing the task, so I purposefully spoke with different students during observations over the course of a week. I documented the students' responses and comments in my field notes as soon as I sat down.

When observing in classrooms, I was mindful to not adversely interfere with the teacher's instruction and classroom activities. I tried to gauge the flow and timing of classroom activities before getting up to speak with students. When students had limited time to finish a task (i.e., the teacher had just given a five-minute warning), I would not ask students questions. I would typically stay in my seat in those situations, and take notes on my observations from that standpoint. I was also careful to not step into an instructor or teaching assistant role. If students

showed me their work, I would listen to their explanation or description, then thank them for sharing the work with me. I did not make evaluative statements about their work (e.g., "nice job"). If a student asked me a question related to instruction (e.g., "Can I start a sentence with 'and'?"), I might respond by asking the student: "What are you thinking?" or "What has your teacher said?" I would typically suggest that the student ask the teacher or a teaching assistant for help. If a student asked me a question related to classroom rules or procedures, I would always direct them to ask their teacher.

I documented all observations related to instruction in field notes (Emerson et al., 2011) that I typed during the lesson. I decided to type the field notes because it allowed me to document more information in the moment. It did not feel intrusive to type during the lesson because the students were often using laptops as part of class assignments. After an observation, I would revisit my notes for clarity and completeness. I maintained an observation inventory log that included the following information: date of the observation, subject focus, teacher observed, observation time, a list of any lesson artifacts collected, keywords from the field notes, and notes about any follow-up items (e.g., "Ask Ms. Callas about photocopying student notes from primary source lesson.").

Lesson artifacts. When I observed a lesson, I collected copies of documents that teachers distributed to students, as well as samples of student work that resulted from reading activities. The teacher-distributed documents included texts students read, such as articles and primary sources. These documents also included directions and tools for completing activities, such as homework directions, graphic organizers for taking notes, bookmarks with prompts and reminders, and rubrics. I gathered copies of the texts, directions, and tools as an additional means to understand teachers' expectations for the reading activities. I often asked teachers about texts that students would be reading in the coming weeks so that I could read them in advance. In the

case of book clubs, I read all of the novels that the groups would read in advance of observing in the classroom. I read these texts so that I would be able to understand the discussions about the texts that I observed. Other lesson artifacts (i.e., directions and tools) allowed me to see the wording and structure of an activity and how they conveyed these expectations to students. The student work samples provided me with insights as to how students completed the activity. I made copies of these work samples after the teacher collected students' finished products.

Teacher interviews. I conducted one semi-structured interview with each sixth-grade teacher related to a lesson I had observed. The purpose of these interviews was to learn about the teacher's approach to curriculum, lesson planning, and teaching reading within a particular subject. My only criterion for selecting a lesson as a focus for the interview was that it had a reading component. After a lesson, I would ask the teacher if she or he would be willing to participate in an interview related to that lesson. I then tried to schedule the interviews to take place within a few days after a lesson, and to the degree possible, I conducted the interviews no more than a week after the observed lesson. Although I wanted to schedule the interviews close to the observed lesson so that the teacher and myself would have a clearer memory of what had occurred, the lesson was mainly a point of reference for understanding the teacher's conceptualization of the subject and the role of reading in learning that subject. We scheduled the interview for a date and time that was convenient for the teacher's schedule. They took place in either the teacher's office space, or the classroom if students were out of the room. Each interview was approximately 45 minutes.

Before an interview, I would share a brief oral summary of the observed lesson, which I constructed from my field notes. Because a couple of days, or an entire week, may have passed since the lesson, I found these summaries to be a helpful reminder for both the teacher and myself. I would ask the teacher if this summary seemed accurate, as well as whether there was

anything else that she or he remembered about the lesson. I would confirm that the teacher was still willing to be interviewed about this lesson. If there were specific documents or resources related to that lesson (e.g., a book, a graphic organizer), then the teacher would often get those materials to have on hand during the interview. Sometimes a teacher would think of a lesson-related artifact during the interview and retrieve that artifact to share and discuss with me. I would then thank the teacher for agreeing to meet with me, reiterate the categories of information that I was going to ask about, and explain that she or he could always decide to not answer a question or to stop the recording. After getting the teacher's permission, I started the audio recording.

The interview questions fell into four categories: professional experience, lesson-planning process, how the observed lesson related to their yearlong plan for instruction, and the role of reading in that lesson. I have included the full interview protocol as Appendix B. In the professional experience category, I asked all teachers the same questions (e.g., "For how many years have you been a teacher at this school?"). For the other three categories, I asked all teachers the same initial questions, and then asked follow-up questions based on the teacher's response. The initial question related to the lesson-planning process was: "Please describe what you do to prepare a [insert name of subject] lesson (one or two periods of instruction)." One of the possible follow-up questions in this category was: "How do you determine your goals for a lesson?" I also asked clarifying questions to ensure that I understood something that a teacher had shared (e.g., "Could you say more about that?" "What would be an example of…?") Towards the end of the interview, I would ask: "Is there anything else about the lesson that you would like to mention?" I would close the interview by asking whether the teacher had any questions for me. After the teacher finished answering the question, I would thank them and turn off the recorder.

During the interview, I had a piece of paper with the interview questions in front of me, as well as any lesson-related artifacts that the teacher shared. If I had referenced field notes on my laptop earlier, then the laptop lid was closed and pushed to the side. I did not take notes during the interview. All interviews were audio recorded and transcribed. I maintained an interview log to document the interview dates, the date of the lesson that was the focus of the interview, and brief notes related to the specific artifacts shared and discussed during the interview.

Data Analysis

I engaged in three cycles of qualitative analysis with the data sources. While I was still collecting data, I wrote analytic memos (Emerson et al., 2011; Maxwell, 2013) about patterns that I noticed in the observed reading activities. After the data collection period, I conducted two rounds of analysis to answer my research questions: domain and taxonomic coding (Saldaña, 2013; Spradley, 1979) of how teachers planned and taught reading, and identifying patterns (Saldaña, 2013) of how teachers framed reading in classroom interactions.

Analytic memos on emergent patterns. During the data collection period, I wrote analytic memos to reflect on what I was learning from participant observation in classrooms and related lesson artifacts (Maxwell, 2013). I included these memos at the end of field notes from classroom observations in the form of summary commentaries (Emerson et al., 2011). After typing my observation notes for that day, I often wrote summaries of the observed lessons as well as reflections in response to my research questions. These brief memos helped me to consider whether I was collecting rich and detailed information to answer my research questions. I also began to notice patterns in how teachers structured the work of reading within activities. I shared these observations and inferences during preliminary planning conversations with teachers. The primary purpose of the planning conversations with teachers was to establish our

shared interests and goals for the next phase of the design project. The conversations also served as a sort of member check, however, to clarify my understanding of the school curricula and teachers' learning goals for students.

Domain and taxonomic coding. To understand how teachers planned and taught reading as part of content area instruction, I started with the teacher interviews. The interview questions related to teachers' lesson-planning process, how an observed lesson related to their yearlong plan for instruction, and the role of reading in that lesson. I first reviewed the transcript while listening to the audio recording to get an overall sense of the interview content. I then constructed domains (Saldaña, 2013; Spradley, 1979) related to reading through an iterative process of reviewing the interview transcript. As Spradley (1979) advises, I began reviewing an interview transcript by looking for "x is a kind of y" relationships. An example of this type of relationship is that "student thinking is a kind of thing to listen for." In an interview, this teacher had explained that one way she determined lesson learning goals was by paying attention to what students shared in class. The teacher gave examples of paying attention to student thinking and the connections students made with a text, as well as to how students decoded words and made sense of key vocabulary while reading. I continued constructing "x is a kind of y" domains until it seemed that I had addressed all possible domains with that relationship. I repeated this process for "x is a way to y," "x is a reason for y," and "x is an attribute of y" relationships. I tried to use terms that the teachers themselves used in the interviews to construct these domains. After this process, I wrote a memo to elaborate on the domains in relation to my research questions, as well as to highlight domains that appeared to generate an especially large group of examples. I completed the process separately for each of the three teachers.

I constructed these domains as a means to understand how each teacher thought about the work of teaching reading within a subject area, and how each teacher organized instruction based

on these ideas. The domains served as a lens through which to see the classroom interactions from a teacher's perspective. The next step was to compare the domains that I constructed with field notes from classroom observations. I began with the particular lesson that was the focus of the interview, and from there, I began reading my field notes in sequential order. While reading the field notes, I compared my observations with the domains that I had constructed from the interview. The classroom artifacts provided additional detail and information. The assignment sheets, for example, allowed me to see how teachers worded assignment directions. In some domains, I added additional examples. I did not note any interactions that were inconsistent with the constructed domains. As a final step in this process, I condensed those domains that appeared especially generative or salient to the research focus into taxonomies for each teacher. I wrote analytic memos of what I thought I understood about each teacher's frames for teaching reading in a particular subject area.

Identifying frames from patterns. To understand how teachers framed reading as part of classroom activities, I reviewed my field notes from classroom observations to identify segments that involved reading. I looked for segments in which teachers and students were reading, or talking about reading, texts. I then iteratively reviewed these segments to identify patterns of how teachers presented and characterized the work of reading within an activity (Saldaña, 2013). If I had collected lesson artifacts related to an activity, then I reviewed the artifact for additional information about how a teacher worded directions or structured the activity. I also referenced analytic memos I wrote during the data collection period. Finally, I categorized these themes to identify types of frames teachers used during interactions related to texts and reading with students.

Validity checks. I addressed issues of validity in both qualitative data collection and analysis (Maxwell, 2013). By spending an extended amount of time in classrooms, writing

detailed field notes, and collecting lesson artifacts, I gathered a richly detailed set of data sources about classroom activities. I was able to spend more time observing literacy instruction than science or social studies, which I name as a limitation of the analysis below. I did, nevertheless, conduct multiple observations and collect multiple sets of lesson artifacts across the classrooms. Throughout the cycles of data analysis, I built in opportunities to check my interpretations with teachers involved in the project (Maxwell, 2013). I wanted to fully and accurately describe teachers' framing of reading in classroom activities. It was important to me that the way I categorized, labeled, and described teachers frames resonated with the teachers themselves. As described previously, I shared notes and my interpretations with teachers during early planning meetings. I also shared the preliminary findings with teachers for their comment.

Limitations

There are two main limitations to this analysis. One limitation is that I did not observe a similar number of lessons in literacy, science, and social studies. As described previously, I began observing instruction as the sixth-grade class concluded their science inquiry and began a social studies inquiry. This timing meant that I observed more hours of literacy instruction than either science or social studies. A second limitation is that I interviewed each teacher about instruction in one subject area, and the teachers had responsibilities for teaching multiple subjects. In sixth grade, for example, the same teacher was responsible for teaching science and social studies. I decided to interview that teacher about social studies because of my proposed project focus on reading texts about history.

Findings

I have organized the findings into two main sections: one focused on literacy instruction, and a second focused on science and social studies instruction. I decided to collapse science and social studies because I observed these subjects during a transitional period between subjects.

Within each section, I begin with a description of how the teachers organized reading instruction as part of the learning environment and curriculum. I then present teachers' frames for teaching reading in a subject area. I explain the ways teachers structured reading activities for students in relation to their frames for reading in these subject areas.

Reading in Literacy Class

Ms. Rose and Ms. Callas taught literacy in room 28. They organized the reading and writing curriculum into instructional units focused on genre. Students studied how to read a particular genre while concurrently learning how to write that genre. Each student had a designated notebook for reading, another notebook for writing, and a folder for drafts and final versions of pieces they had authored. In their classroom, Ms. Rose and Ms. Callas cultivated an environment where students could become readers and writers. Books lined countertops and shelves around the room. A designated library area had cushioned chairs and stools for students to sit and read. Throughout the classroom, there were anchor charts and resources for students to reference when working independently. On an easel in one corner of the room, for example, there was a handwritten poster with the heading, "What you might be doing as a fiction writer today."

Ms. Rose and Ms. Callas planned instruction through the lens of genre; they determined learning goals for vocabulary, text analysis, literary terms, and other important knowledge about reading through that lens. They set unit learning goals related to what is unique about a particular genre, and they identified lesson learning goals in response to how students were reading and making sense of text. In an interview, Ms. Rose explained that she carefully listened to how students read texts and their contributions to discussions: "I take advantage of what's offered to me by the children as we work in the text. . . . I know how to work on fluency, and inflection, and vocabulary, and . . . chunking words, and pacing, and all those good things when it's just

right there in front of me." Ms. Rose and Ms. Callas used this evidence of student thinking to decide instructional next steps for small group meetings and whole-class mini lessons.

I observed their class during a reading unit focused on social action fiction, which meant the lessons largely focused on aspects of fiction and literary text (e.g., character, perspective, setting, figurative language). For example, the teachers wanted students to be able to reflect on the actions of characters within the story context. Within this unit, I focused my observations on the book club activity. My analysis of the teachers' frames for reading in literacy relate to the whole-class mini lessons, small-group meetings, and literary written responses that were part of the book club activity.

Frames for reading in literacy. The teachers had two dominant frames for teaching reading as part of book clubs. One of these frames was to connect a reading task to a larger intellectual community. Sometimes this community was a book club with peers in the classroom, and sometimes it was a larger intellectual community at a university. Ms. Rose and Ms. Callas taught students there were certain responsibilities and expectations to be part of these communities. The other frame was to encourage students to read like a writer. The teachers often connected the book club discussion and written responses with students' knowledge of author's craft and their own experiences as writers. In this section, I illustrate the how teachers structured the book club activity in relation to these two frames.

Being a member of an intellectual community. Ms. Rose and Ms. Callas framed the book club activity as helping students become independent and mature readers who are accountable to fellow students in the group. They had planned book clubs so that students could have more practice reading and interpreting fiction in this unit. As their fifth-grade teacher, Ms. Rose had observed students' progress in the book clubs she had planned for them the previous year. She thought students benefited both from the reading practice and accountability within the

group. As Ms. Rose explained in an interview, “There's no skimming of text. There's no glossing over of things that happened. There's no turning of pages you didn't really want to read. There's no dropping books.” To support students’ participation in the book club activity, Ms. Rose and Ms. Callas introduced tools (i.e., bookmark with reading cues, assignment tracking sheet, post-it notes) to structure students’ participation in the groups. They modeled how to use these tools, and they prompted students to use them in the book club meetings. Ms. Rose and Ms. Callas had explicit conversations with the class about what it means to be an active listener and contributor within a group discussion. The teachers also included students in setting norms for participation, revisiting these norms, and making decisions about the groups.

Tools to support participation. On the first day of book clubs, Ms. Rose and Ms. Callas introduced a bookmark with reading cues, an assignment tracking sheet, and sticky notes to support students’ participation in the groups. Ms. Rose told students that the bookmark with reading cues “has some clues and hints for you as you’re reading.” The bookmark featured five categories of cues: passages, craft, questions, important information, and reactions/connection. Below is a description of how Ms. Rose introduced the reading cues to students.

> “It’s how to be a good book club member.” Ms. Rose directs students’ attention to the category at the top of the bookmark, which is labeled “passages.” “We’re going to focus on this one today. As you’re reading, what seems important, puzzling, curious, provocative, dubious, or well-written?” Moving on to the next category, “craft,” Ms. Rose comments that students are really good at this one. “What do you notice about the author’s use of language, style, literary devices, or structure?” She reviews the remaining three categories of cues on the bookmark. “All of these categories of cues are too much to take in right now.” Ms. Rose acknowledges. She tells the class to focus on “passages”

today. As they are starting to read, students should pay attention to what seems really important in the chapters. (field notes, 1/7/15)

By providing students with this bookmark, the teachers gave students a tool to figure out what they need to attend to while reading. The five categories of cues drew students' attention to aspects of the novel, such as author's craft. In group meetings, teachers would sometimes ask students to focus on a particular category as their "lens" for reading. These cues helped students "be a good book club member," because they focused students' reading and preparation for discussing the book with fellow group members.

To track their thinking related to the reading cues, teachers gave students stacks of sticky notes. Students were supposed to use the sticky notes to mark segments of the text they wanted to discuss. Before dispersing for book club meetings that first day, Ms. Rose explained the purpose of this last tool.

> "The last tool that I'm going to give you is a couple of hot pink post-its." Ms. Rose suggests students place the sticky notes in the front of their books. "As read, your brain is going, 'Oh, this is a passage I want to talk about. This is important.'" She tells students to flag that passage with a note. "Then you can go back to discuss that passage with your group." (field notes, 1/7/15)

Both Ms. Rose and Ms. Callas used the sticky notes to structure contributions to the small group conversations. The teachers, and often the student leaders, might open the conversation by asking, "Anyone have a passage? Take a moment and find the passage that you marked." By the second book club meeting, Ms. Rose and Ms. Callas prompted students to jot a note. Teachers told students it was important to write these notes so they remembered what they wanted to share with the group. These prompts also related to Ms. Callas' reminders that "we're speaking from evidence." When students made claims about the story or characters, Ms. Callas would ask them

to provide evidence from the text. Students used these sticky notes, and they would request more in book club meetings. Teachers had to restock their supply regularly. Ms. Rose commented that she could not keep enough sticky notes on hand during the small-group meetings.

The bookmark with reading cues and sticky notes helped students know what and how to contribute to group discussions. Teachers also gave students an assignment tracking sheet so they knew what chapters to read for each meeting. Ms. Rose showed students how to use the sheet to "keep track of the meeting number, the date, the chapters assigned." She emphasized to students, "It is your responsibility to keep track of the work." When introducing these tools, Ms. Rose highlighted students' responsibilities to their fellow group members. She shared that the teachers' goal is to teach students how to run the book clubs on their own. Ms. Rose and Ms. Callas thought these tools would help students structure the group activity by scaffolding their individual preparation and participation.

Norms of collaboration. In addition to being a responsible and contributing book club member, Ms. Rose and Ms. Callas worked to connect their group norms of collaboration to joining a larger intellectual community. The class discussed and agreed upon seven norms of collaboration before their first book club meeting. One of these norms related to participation—speaking and listening—and it was a norm the class revisited throughout the book club meetings. On the second day of book clubs, for example, Ms. Rose and Ms. Callas taught a whole-class mini lesson on how to be an active listener and contributor to discussions. "We're really going to work on it." Ms. Rose explained. "If you can do this, you will be ahead of many adults." As described below, the teachers demonstrated for students what active listening could look and sound like in their book clubs.

> "Listen actively – Speak if helpful to move your group forward." Ms. Rose points to these words written on the marker board as she reads them. "When you're in an

intellectual community—an academic community—the goal is not to get attention and have all of the spotlight on you." One student exclaims, "Really?" "Really!" Ms. Rose responds with a smile. "The goal is to move ideas forward and learn new ways of thinking about something."

Ms. Rose and Ms. Callas then take turns reading from one of the book club novels. After reading a passage, they model how to jot notes to keep track of their ideas about the book. "Those are the private thoughts that we had when we read." Ms. Rose points out to the class. "We didn't interrupt the group to share them. We noted them, and then we read chapter one and chapter two."

"And then the leader asks—who will pretend to be our leader?" Ms. Rose calls on a student volunteer. The student smoothly steps into the role of book club leader. "Who has a passage that they flagged that they would like to share today?" The student calls on Ms. Callas first. The two teachers take turns sharing their notes on the passage. They point out how they made connections to one another's ideas. (fieldnotes, 1/8/15)

Ms. Rose characterized active listening as a skill that is important when you are part of an intellectual community. She and Ms. Callas showed students how to be an active listener in the specific community of the classroom book clubs. They demonstrated how to use the post-it notes as tools within this interaction, as well as how they made connections to one another's ideas in conversation. About a week later, Ms. Callas revisited participation expectations with the class. She emphasized that "the most important part of the book" was the students' conversation with their peers because "that helps you go deeper as a reader and understand more about what was happening in the story." Ms. Callas asked students to reflect on how often they had contributed during the past two club meetings. Based on their individual reflections, Ms. Callas encouraged students to then decide how they might adjust their participation in the group conversation that

day. These interactions emphasize the value teachers place on learning through dialogue and community.

From the first meeting, teachers involved students in setting norms for collaboration, facilitating discussion, and making decisions about the pacing of assignments. Ms. Rose brainstormed the norms for collaboration with students on the first day of book clubs, and before beginning the second round, she revisited the norms with students. As Ms. Rose noted, "We need to see how the norms worked for us." Students offered suggestions and helped to articulate the norms in both rounds of these whole-class conversations. They volunteered suggestions during group meetings too. In the *Wringer* group, for example, two students suggested they start using an object to help with turn-taking in the small group. Ms. Callas asked the group to vote on the suggestion, and based on that vote, group members began using a small rose quartz ball to help with taking turns in conversation during the next meeting. Both teachers also involved students in making decisions about how to pace the reading assignments using the assignment tracker.

Reading like a writer. Within the book club activity, Ms. Rose and Ms. Callas framed the work of reading novels as an opportunity for students to apply their knowledge of author's craft and assert their expertise as authors. The teachers drew heavily on students' knowledge and experiences with writing and genre, and they often highlighted connections with the work students were doing in the writing unit. This instructional alignment reflected Ms. Rose's view that writing and reading are reciprocal processes. In an interview, Ms. Rose described writing and speaking "as taking your thought and putting it out into the world in a way that others can understand it." Reading and listening, Ms. Rose explained, involve "trying to understand somebody else's perspective, experiences, or thoughts . . . . The job is to get inside of that author's . . . story." Ms. Rose and Ms. Callas helped students "get inside" the story by encouraging them to read as writers.

During recent writing lessons, students had been learning how to develop characters in their own stories. Ms. Callas and Ms. Rose made intentional connections with these writing lessons by focusing on character traits and how characters changed over time in the book club selections. The teachers introduced graphic organizers, annotation, and written responses to support students' attention to author's craft. The teachers used these tools to show students how to think about the author's choices as a writer. They also encouraged students to read like writers by making explicit connections to writing lessons.

Tools to attend to author's craft. Ms. Rose and Ms. Callas used graphic organizers to help students pay attention to characters and how they change within a story. From the beginning of each book club, the teachers asked students to think about what they were learning about the characters. "It's an important moment," Ms. Rose reflected in an interview, "starting a book when you meet characters—and there are many [characters]—and you have to tease them apart and notice personality differences." In the example below, Ms. Rose gave students instructions for taking notes about a main character during the second *Kira-Kira* book club meeting.

> "What do we know about Katie?" Ms. Rose asks the book club members. "Actually, take out your literacy logs, and jot down a few things. What do we know about Katie? Not from the cover or the title. Just make a little list." As students begin writing in their literacy logs, Ms. Rose adds, "And make a note whether this is stated or implied—whether the author states it explicitly, or you're making an inference based on something you read in the text." (field notes, 2/3/15)

Ms. Rose emphasized that evidence could be stated explicitly or inferred from the text. In a later written response assignment, the teachers provided students with a template for organizing similar information about characters. That template asked students to document physical traits and character traits. Students had to identify what evidence for these traits were either stated or

inferred based on evidence in the text. The template allowed students to later look at character changes over time. It also helped students see there was a difference between physical traits and character traits, as well as a difference between stated and inferred evidence about character. These interactions suggest that the teachers wanted students to develop an understanding of how an author creates characters.

Teachers used an annotation technique to show students how an author uses sentence structure and punctuation to convey meaning. In the *Kira-Kira* book club meetings, Ms. Rose sometimes prompted students to read or reread portions of the story. She did this when she heard "flat reading" that hid the significance of a moment. Based on her observations, Ms. Rose later decided to teach a whole-class mini lesson on how to read with meaning. In introducing the mini lesson, she explained that authors make intentional choices in punctuation, and that readers bring their understanding of character and the story to how they read. She used a passage of text to demonstrate how she attends to punctuation and meaning when reading.

> Ms. Rose pauses reading to tell students, "There's no magic to this. A comma is a writer's way of controlling the reading and making the reader slow down. But the reader can also pause the text for emphasis while reading. See if you can follow how I'm reading this. Then I'll ask you to try to read it a different way."
>
> After she finishes reading, Ms. Rose asks students, "See what I did?" "Uh huh." Respond students. "I'm just trying to make visible for you the way that I read." Ms. Rose projects a photocopy of the page of text, and next to the photocopy, she places a small key with four annotation symbols and their meaning (e.g., circle text for emphasis, underline text for slow). A student volunteer reads the page out loud. As the student reads, Ms. Rose annotates the text. (field notes, 2/18/15)

Ms. Rose gave students multiple opportunities to read this passage and another one from the story. She used the annotation symbols to mark when readers emphasized words, slowed down, whispered, and paused in their reading. The symbols allowed Ms. Rose to make a reader's prosody visible for the class discuss how it related to the meaning of what had been read. By annotating the text as students read, she highlighted how the author's choices punctuation, font type, and words are linked to character action, emotion, and motivation. She later used these annotations in the small group meeting as well.

In the written response assignments, Ms. Rose and Ms. Callas also asked students to pay attention to author's craft. The first two written response assignments, for example, asked students to select metaphors or similes from the chapters, draft a paragraph explaining the meaning, and then write their own metaphor or simile that means the same thing. In explaining the assignment to students, Ms. Callas shared that she wanted students "to be able to see why Jerry Spinelli chose that picture as a way of explaining something." The teachers wanted students to consider how authors used language to tell a story.

Explicit connections to writing lessons. Ms. Rose and Ms. Callas often asked students to interpret or critique the author's decisions from their own experiences as writers. During a book club discussion, for example, Ms. Rose asked students, "Did the author make that choice intentionally like you did in your writing? Why did the author have Katie lose the stuffed animal and Lynn lose a sweater?" These kinds of questions occurred frequently across the book club meetings. In an interview, Ms. Rose later shared that students had been working really hard to develop characters in their writing lessons. Students had developed characters in their own stories. The teachers asked students to apply these types of writing experiences to understand another author's decision making.

The teachers also used the book club activity to inform students' future writing. During the second book club rotation, the class began a writing unit on memoir. Ms. Rose saw an opportunity to use passages from the book club novels to spark students' writing. She taught a whole-class mini lesson on jotting down memories, and she used a passage from *Kira Kira* to spark students' memories.

> "There's one more thing that I want to talk with you about before we go to book clubs." Ms. Rose addresses the class. "As I am reading *Kira Kira*, I'm realizing that there might be passages that will be helpful to you in our memoir writing unit." She asks students to open their writers' notebooks. Ms. Rose explains that she is going to read a passage out loud. "I want you to listen and take notes as something pops into your mind."
>
> Ms. Rose reads a passage from the novel. Then she tells students to write whatever they had thought of in their writers' notebooks. After pausing for a minute, Ms. Rose asks the class, "Who grabbed a memory and wrote it down?" (field notes, 2/10/15)

In this mini lesson, Ms. Rose used a passage from one of the book club texts to spark a memory that students will use later as part of the memoir writing unit. She then asks students to keep their writers' notebooks open during the small group book club meetings. She wanted students to be able to jot notes about memories the book brings up for them. In the whole-class lesson and the small group meetings, Ms. Rose was very literally asking students to read like writers.

Reading in Science and Social Studies Classes

Mr. Goodwin and Ms. Callas taught science and social studies next door in room 29. The teachers had organized curricula so that students engaged in science inquiry during the first half of the school year and social studies inquiry during the second half of the year. Throughout the school year, however, Mr. Goodwin and Ms. Callas intentionally made interdisciplinary connections. The teachers wanted to introduce students to the tools and work of scientists and

historians, and they filled the classroom with resources and texts to do so. Books and artifacts related to the current inquiry were displayed around the room. Maps of the world lined classroom walls. A bulletin board kept track of texts the class had read and questions students asked during inquiry.

Content-area curricula were the starting points for Mr. Goodwin and Ms. Callas when planning instruction. They both planned lessons that were centered around a guiding question and involved multiple sources of information. Mr. Goodwin consulted the science and social studies standards for the state when determining content to teach. He then identified multiple texts or chapters students could read as part of lessons. To plan primary source lessons, Ms. Callas explained that she would "look for places in the curriculum where, I think, that looking at primary sources is going to help kids deepen their thinking and enrich their experience with whatever it is." Mr. Goodwin and Ms. Callas would coordinate the primary source lessons to support students' inquiry.

When I was observing lessons, both Mr. Goodwin and Ms. Callas were working to bridge science and social studies inquiries. They were drawing connections between a science inquiry that involved a study of DNA with the field work and research of archaeologists, anthropologists, and historians. Ms. Callas characterized guiding "meta-question" during this period as "How do you know anything about people who don't have a written history?" I observed different reading activities in the teachers' respective lessons. Mr. Goodwin's lessons typically involved students reading and taking notes on multiple texts. Ms. Callas' lessons were focused on primary sources. To guide the class interpretation, she used a primary source analysis protocol from the Library of Congress. My analysis of the teachers' frames for reading in science and social studies relate to activities that involved reading and taking notes on multiples texts and interpreting primary sources.

Frames for reading in science and social studies. Mr. Goodwin and Ms. Callas had two main frames for teaching reading activities as part of science and social studies instruction. One frame was to characterize reading activities as involving important academic skills that had application beyond the specific science or social studies assignment. These skills were not specific to a discipline; they had a broader applicability. The second frame was to connect students to disciplinary processes and practices. Ms. Callas, for example, framed the primary source lessons as an opportunity for students to learn about the work being done in the field. In interpreting primary sources, she gave students a window into the work of scientists, historians, archaeologists, and paleontologists.

Learning important academic skills. Mr. Goodwin framed reading multiple texts in science and history as an opportunity to develop skills that would be important in the future. provided students with strategies and graphic organizers for taking notes when reading informational texts. Although I observed a note-taking activity as part of a science lesson, the note-taking strategies were not specific to reading in science. The teacher framed the note-taking strategies as something students could use when they read "scientific or non-fiction material." Mr. Goodwin viewed the ability to take notes while reading as a valuable skill, which he tried to convey to students by connecting it to future careers and professional life. He told students, "These are important skills as students, as well as in business settings, when you're working with informational materials."

Paraphrasing. Mr. Goodwin had planned instruction in how to take notes after noticing that students were copying large portions of text in their notes. Mr. Goodwin was concerned about the copying; however, he also seemed to see a benefit to students being able to put ideas in their own words. In a discussion of an article, for example, Mr. Goodwin asks the class, "Think about how would say the information in your own words. I've heard people say, 'blueprint of

life.' What does that really mean?" The teacher appeared to be concerned both that students were copying text and that they were not taking the time to make sense of the ideas presented.

Graphic organizers. Mr. Goodwin often gave students a graphic organizers to help them structure their reading and note-taking from multiple documents. In the science lesson, Mr. Goodwin gave students options for how to format their notes. Among the different options for taking notes, students could write bullet points, draw labelled diagrams, paraphrase the main idea, or quote directly with a citation. He both signaled what information was important for students to include in their notes, and he gave students options for how to capture that information.

Learning about work being done in a field. Mr. Goodwin and Ms. Callas often framed reading primary and secondary sources as an opportunity to learn about work being done in the field. The teachers used a different approach depending on their lesson focus. Sometimes Mr. Goodwin or Ms. Callas shared a text with students to provide context on the work of experts in the field. In one lesson, for example, Mr. Goodwin wanted to bridge the class's science and social studies inquiries. He made this connection by showing how technology allows for discoveries about ancient civilizations, which is related to his belief that history is not a static narrative. It changes with new discoveries. The teachers also provided students with tools, such as magnifying glasses and graphic organizers to support their observation and interpretation of primary sources.

Providing context. In transitioning from the class inquiry of cells and DNA to the study of ancient civilizations, Mr. Goodwin showed students recent newspaper articles about recent discoveries about ancient history. He emphasized the role of technology in these discoveries.

> Mr. Goodwin projects up an article from the newspaper about new dinosaur fossil discoveries, and then he posts one about Stonehenge from *Smithsonian Magazine*.

"People are finding monuments underneath Stonehenge. So, technology allows us to make new discoveries about ancient history."

"People think ancient history—that's old and boring—nothing ever changes." Mr. Goodwin continues. "Is that true?" "No!" Students offer in chorus.

"Who makes these discoveries?" Mr. Goodwin asks the question rhetorically. "These are the questions that you'll be investigating today. We're talking about scientific dating and reporting. He writes those words on the marker board." (field notes, 2/2/15)

In this classroom exchange, Mr. Goodwin brought in recent newspaper stories to highlight the idea that the historical narrative can change based on new evidence. Technology has made many of these discoveries possible. And in the final question, Mr. Goodwin focused on the professionals who do this work in the field.

Before students engaged with a primary source, Ms. Callas would provide contextual information to situate the primary source within an authentic inquiry. She used maps, videos, and scholarly articles to provide this context for the primary sources. The following vignette shows how Ms. Callas launched a primary source lesson related to skeletons that a team of archaeologists and anthropologists discovered in a cave in Spain. She used a map to provide students with context about the location.

"We're going to Spain." Standing by a large pull-down map of the world, Ms. Callas points to Spain on the map. She says that a team of archaeologists and anthropologists tested the DNA that was in the bones, and they found it matched DNA from people in Siberia. Then she points to Siberia on the map. "How did the people get from here to here?"

"They found like 28 human skeletons in this cave." Having just pointed out Spain and Siberia to the class, Ms. Callas is still standing by the world map. "Let's follow their

> footsteps for a little bit and see what they found." She walks to the projector stand and displays an article on the marker board. "So here's the article, and this comes to us from—it's a primary source." Students comment on the picture. Ms. Callas clarifies that the picture on the primary source—it's an artist's rendition. She directs students' attention to the text of the article, and reads the first sentence aloud. "Notice that they are not looking at the bones to figure this out. They're looking at the DNA." She reads the sentence again. This time, she emphasizes the word "hominins." "The article says that the findings were published in *Nature*." Ms. Callas continues. "That's a really reputable journal." (field notes, 1/28/15)

From the beginning, Ms. Callas positioned students as following in the "footsteps" of this team of archaeologists and anthropologists. It seems important to note that Ms. Callas did not refer to herself as an archaeologist or anthropologist. She served as more of a guide on the adventure as she points out salient information about both the content of the text and the nature of the source itself. Ms. Callas drew students' attention to how the researchers were learning about the skeletons through DNA testing. She also drew students' attention to a key term, hominin, through emphasis in her voice. Regarding the text itself, Ms. Callas pointed out that it's a primary source of information, and she commented on the reputability of the journal. Although she did not elaborate on the idea of journal quality, she was demonstrating that where researchers publish and share their findings matter.

In a subsequent lesson related to cave paintings, Ms. Callas gave students a National Geographic article to read for homework. She emphasized that the article showed how scientists were grappling with some of the ideas that students had raised today. In giving homework directions, Ms. Callas commented, "This article is kind of cool, because a lot of the things that you … are talking about today are what the scientists are talking about. Your job is to

summarize." Ms. Callas had selected this text for students to read because she thought it highlighted some of the "controversies" related to the cave paintings. As Ms. Callas explained in an interview, "that's the nice thing about this piece is that it brings up this idea that just because we have a bunch of evidence, and we're scientists, we can't necessarily make totally definitive statements. That's good. It's good for them to understand that." While students might become frustrated with "ambiguity and gray" in science and history, Ms. Callas felt it as important for teachers to respond "to where they are age-appropriately, and saying, 'OK, this is something moving forward as a scholar that you need to think about. There's lots of gray involved.'" Students were supposed to read the article for homework, summarize it, and use the information to draw a conclusion based on evidence presented in the text.

Tools. Ms. Callas provided students with tools to examine primary sources. In one lesson, she provided students with magnifying glasses and graphic organizers. She framed the ways that students use these tools as engaging in the kinds of work that the anthropologists and archaeologists might do with primary sources. The graphic organizer was especially important. It not only provided students with space to record their ideas, it outlined a series of steps for students to examine a primary source: observe, reflect, question. It was a protocol that students are familiar with at this point in the year. Ms. Callas reinforced this protocol in her directions to students.

> "So, what you're going to do as anthropologists and archaeologists," explains Ms. Callas, "is look at these two pictures. We're going to look at this." She holds up a photograph of a modern human skeleton. "Then we're going to look at this picture." And she holds up a photograph of an ancient skeleton.
>
> "Your job is to work with your partner." Ms. Callas tells the class. "You've got magnifying glasses at your desks." Then she projects a graphic organizer on the marker

> board. “What you’re going to do on this sheet—this primary source observation sheet—you’re going to write what you’re observing when you look at these two sets of bones. There are 2 lines.” Ms. Callas points to the boxes on the observation sheet. “This box is for the ancient skeleton. This box is for the modern skeleton.” She continues. “First, write just what you see. The next column is to reflect on what you’re seeing. It’s important to do observations first, so you don’t let your interpretive mind interfere with your observational mind. Then, there’s space for your questionings and wonderings.” She flips the paper over to show students there is space for them to compare and contrast the skeletons too. (field notes, 1/28/15)

Students got to work looking at the photographs and making notes. Several students hovered a magnifying glass over the photographs. Some leaned in closer to the paper to get a better look. Ms. Callas walked from table to table to check in with individual students. Occasionally, she asked students, “What are you noticing?” Ms. Callas used a variation of this graphic organizer with students during a lesson with primary sources the following week. The three-step protocol come from an approach the school has adapted from the Library of Congress. While the inquiry or focus might change, this three-step process was a constant. Ms. Callas was signaling to students that there is a difference observing a photograph, or letter, or artifact, and then making inferences about it based on your prior knowledge and experiences.

Discussion

The purpose of this phase of the study was to learn how three sixth-grade teachers structured reading instruction for students across literacy, science, and social studies lessons. I drew on literature related to how individuals act and interact in situations based on what they perceive to be happening (Goffman, 1974). This literature on individuals’ frames and framing of situations seemed particularly helpful for understanding the ways teachers conceptualized the

role of reading in subject area lessons, especially how they structured activities to communicate these expectations to students. Two research questions guided the data collection and analysis: What are teachers' frames for teaching reading within subject area instruction? How do teachers frame the work of reading in relation to learning content and disciplinary practices? I sought to understand teachers' perspectives on the role of reading in their different subject area lessons through interviews, classroom observations, and lesson artifacts. I also attended to the written and verbal cues that teachers used to signal the nature and function of reading in an activity. Because elementary school teachers have responsibilities for teaching multiple school subjects, I took a comparative stance (Stevens et al., 2005) to look for similarities and differences in how the sixth-grade teachers taught reading in the three subjects.

Looking across the data sources from sixth-grade literacy, science, and social studies lessons, I characterized four frames for how teachers taught reading within the subject areas. I identified two main frames for how the teachers taught reading as part of the book club activity during literacy lessons: being a member of a larger academic community, and encouraging students to read like a writer. The two frames that I observed teachers use most often during science and social studies lessons were: learning important academic skills, and learning about work being done in a field. One interesting point of comparison between the teachers' frames for reading activities within literacy, science, and social studies lessons was how teachers situated students in relation to authors and disciplinary experts. A second point of comparison is how the teachers framed reading activities as being related to other kinds of work or communities students might be part of in the future. In this section, I first look at teachers' frames for teaching reading within literacy and science/social studies inquiry. I address how teachers framed the work of reading in relation to learning content and disciplinary practices.

Reading as Learning About a Discipline or Field of Study

Teaching students disciplinary reading practices involves more than instruction in reading strategies and skills (Bain, 2006; Goldman, 2018; Moje, 2015; Weinberg & Reisman, 2015). Educational researchers identified disciplinary reading practices by studying how expert readers approached and made sense of texts (e.g., Leinhardt & Young, 1996; Shanahan & Shanahan, 2008; Shanahan et al., 2011; Wineburg, 1998). These expert readers were members of academic communities; their reading practices were part of their way of interpreting, generating, and communicating knowledge within those communities (Moje, 2015). To help students learn how to use these complex practices, teachers can make connections to a larger context and purpose for which experts read and use texts within a disciplinary community (Moje, 2015). Students generally do not have the specialized knowledge or experiences of literary scholars, scientists, or historians (Bain, 2005). With the help of tools and instructional scaffolds, however, they can learn to use these reading practices in authentic ways (Bain, 2005; Goldman, 2018).

In literacy, science, and social studies lessons, the sixth-grade teachers often framed reading activities in ways that made connections to the work of experts within disciplinary communities. Specifically, the "reading like a writer" and "learning about work being done in a field" frames for teaching reading highlighted the people within disciplinary fields and the specialized ways they do work. These two frames for reading in activities within subject area lessons appeared to present academic disciplines as professional communities with shared practices (Moje, 2015). Teachers made the experts (i.e., novelists, scientists, historians, and archaeologists) and their work visible to students. There were differences, however, in the ways teachers positioned students in relation to the experts. In the book club activity, Ms. Rose and Ms. Callas treated students as members of a community of writers. The teachers drew on students' experiences writing literary text to support them to interpret another author's writing.

They also introduced tools to connect reading skills with literary practices (e.g., annotation). In science and history lessons, Mr. Goodwin and Ms. Callas used texts to introduce students to the kinds of tools, as well as the ways of thinking that experts do in the field. They also used a three-step protocol with primary sources to give students an opportunity to try some of the disciplinary practices.

In literacy classes, the teachers' "reading like a writer" frame for reading in the book club activity intentionally drew on students' experiences participating in a literary practices. Ms. Rose and Ms. Callas could ask the students to read like writers because they were writers. Students had written fiction stories like the ones they were reading in book club. They had grappled with character development and language choice to figure out how to tell their own stories. Ms. Rose and Ms. Callas often prompted students to think about these types of writing decisions related to author's craft. Because the students had experiences as authors, the teachers could encourage them to use those insights as they interpreted another author's work. They were teaching students to actively apply disciplinary skills and knowledge in authentic ways.

Ms. Rose and Ms. Callas also provided students with tools to support their participation in disciplinary ways of ways of reading. During the book club activity, for example, Ms. Rose listened for clues about how students were reading and interpreting the novel. She noticed that students were not always reading passages in a way that conveyed an understanding of the particular moment in the text. She then planned a whole-class mini lesson on how to read with meaning. In this mini lesson, Ms. Rose introduced students to a series of annotations to make visible how she attended to the author's punctuation and meaning while reading a passage out loud. Ms. Rose was teaching students to read with fluency and prosody, but she was not teaching it as an isolated skill. She connected fluent reading with understanding how an author used punctuation to emphasize aspects of the text or create emotion. In this way, Ms. Rose used

annotation as a tool to help students see fluency practice as related to author's craft. She makes the author's craft visible through a series of text annotations as students read. This is explicit instruction; it is explicit instruction based on a need the teacher identified, as well as the literary practices of writers.

The "learning about work being done in a field" framing in science and social studies lessons provided students with context for the kinds of work that disciplinary experts do. In science and social studies class, the "learning about work being done in a field" frame meant that the teachers used texts to introduce students to the work of disciplinary experts. This frame functioned differently from the "reading like a writer" in literacy class. The students could draw from their experiences as writers and authors of fiction texts in literacy. They generally would not have had similar experiences to draw from related to disciplinary practices in science and social studies. Mr. Goodwin and Ms. Callas did, however, introduce students to the practices and tools of disciplinary experts through some of texts they assigned and the way they talked about knowledge. For example, Mr. Goodwin shared recent newspaper articles to provide context for how technology had facilitated discoveries related to ancient history. Ms. Callas shared maps, videos, and articles to position a primary source within a larger authentic inquiry (e.g., a team of archaeologists and anthropologists discovering skeletons in a cave in Spain). Ms. Callas and Mr. Goodwin assigned a *National Geographic* article for students to read for homework one night. Ms. Callas explained that she had selected the article because it illustrated how scientists were trying to make sense of some of the ideas that students had mentioned in class discussions. She also thought the article was important for students to read because it showed them that there is some uncertainty in science and history. The reading activities did not necesssarily allow students to become participants in a disciplinary practice. Mr. Goodwin and Ms. Callas

introduced these texts to students as ways to learn about the tools and work of experts within various disciplinary fields and subfields.

The primary source lessons did provide students with tools to engage in disciplinary practices. In social studies, Ms. Callas provided students with variations on a graphic organizer to guide them through a three-step protocol for interpreting primary sources. Students examined primary sources by first making observations and taking notes. Ms. Callas would remind them to focus on what they saw or read in the photograph or document. Then students would reflect on their observations in relation to their background knowledge. The third step in the protocol was for students to jot their lingering or newly sparked questions about the primary source. These types of primary sources are the evidence that historians and archaeologists use to make interpretations about the past. The graphic organizers with the three-step protocol helped students to engage with this evidence in ways that appeared to resemble disciplinary practices.

Reading as Connecting to an Intellectual or Professional Community

To engage in disciplinary reading practices, students need to learn how to be active readers (Goldman, 2018; Wineburg & Reisman, 2015). Wineburg and Reisman (2015) characterize disciplinary literacy instruction as teaching students to actively read and question texts. Looking across three large-scale studies of adolescent reading comprehension, Goldman, Snow, and Vaughn (2016) identified one theme the studies had in common was that: "Students purposefully engage with and actively process multiple forms of texts (e.g., traditional verbal, digital, static, and dynamic visuals)" (p. 257). This stance toward reading and texts may differ from how students have previously experienced reading within subject area lessons (e.g., Goldman & Snow, 2015; Goodlad, 1984). In the past, students may have been taught to trust a single textbook as a source of information; they may have learned, for example, that the history textbook contained names, dates, and other facts to read and remember (Paxton, 1997, 1999,

2002). As students encounter an increasing number of texts, however, they need to be able to evaluate them as sources of information and synthesize what they have read.

The sixth-grade teachers' frames for teaching reading in literacy, science, and social studies lessons seemed to encourage this kind of active and purposeful engagement with text. Because of the school's inquiry approach to teaching and learning, teachers regularly expected students to read multiple texts, ask questions, and be active participants in classroom activities. I observed teachers supporting active and engaged reading by framing reading within classroom activities as "being a member of an intellectual community" or "learning important academic skills." These were more general academic skills that teachers thought students needed to develop. Although teachers' approaches differed across subject area lessons, all teachers framed some reading activities by connecting the work with being part of a larger intellectual or professional community. They provided students with the tools and instruction to encourage active participation in these communities. In both cases, these frames were not content or discipline specific. Teachers' written and verbal cues to students addressed specific behaviors that were important for active reading and being part of an academic community.

Ms. Rose and Ms. Callas often framed the work of reading within the book club activity as "being a member of an intellectual community." Through tools and norms, they structured activities to support students in be active and engage participants in the intellectual community of the classroom as well as future academic communities. Ms. Rose and Ms. Callas introduced tools to support students' participation in these book clubs. One example of a tool was the assignment tracking sheet, which allowed students to track their reading assignments each week. By completing their individual reading assignments, students were being accountable to their peers. They were showing up to book club ready to work and contribute to the conversation. Ms. Rose and Ms. Callas also had ongoing conversations with students to develop norms of

collaboration for participation in book club discussions. One of these norms was that students would complete their reading assignments. Another norm related to speaking and listening in class discussions. The teachers later provided students with direct instruction in active listening and asked students to reflect on their recent participation. The teachers told students that active listening was a crucial skill for being a member of an academic community. Ms. Rose and Ms. Callas were preparing students to be responsible and contributing members of class discussions, and they were preparing to be part of a larger academic community at a university. These skills are not discipline specific; however, the practices are important for engaging in disciplinary reading.

In science and social studies, Mr. Goodwin especially used the frame of "learning important academic skills." Mr. Goodwin wanted students to learn how to summarize what they read in a text and take notes on the text. He felt it was important that students be able to paraphrase ideas as part of constructing a summary, because he thought that being able to paraphrase was an indicator of reading comprehension. Students had to understand the text to be able to represent the information in their own words. Mr. Goodwin also provided students with graphic organizers to help them organize their notetaking and notes from multiple texts. The graphic organizers helped them to identify specific information and ways to organize the information. Being able to paraphrase information and take targeted notes from multiple sources are kinds of active reading skills. Mr. Goodwin viewed these skills as connecting to students' future careers and professional preparation.

I observed teachers address issues related to paraphrasing and citing a sources across subject area lessons. During at least one of my observations in both classrooms, teachers shared that students needed more instruction in how to take notes, summarize information, and cite sources in their writing. As one teacher explained to students in literacy, "You've got to

differentiate in an academic realm what words and ideas are yours and what are someone else's." Teachers connected paraphrasing and citing sources with being part of an academic community. The issue does raise the question of whether it would be productive to link taking notes and citing sources with disciplinary practices related to how experts communicate and reference a shared knowledge base. The skill is incredibly challenging and important, yet it rarely gets addressed in the literature on disciplinary literacy instruction. When students are evaluating, synthesizing, and drawing inferences from multiple sources of information, they need to able to track, differentiate, and properly cite these sources.

Conclusion

There are few studies that examine how teachers and students talk about reading across disciplinary areas throughout a school day. Because of the team teaching structure, I had an opportunity to place more of a spotlight on the school's curriculum and inquiry model than on any individual teacher. This analysis presents an interesting case of teachers working to incorporate multiple types of texts in disciplinary teaching and to offer authentic opportunities for students to engage with these texts. The unique team teaching structure of this school provided regular opportunities for teachers to work collaboratively to plan the lessons and assignments. Teachers co-constructed the frames in many ways (e.g., the same written response assignments in book club). By using an inquiry model of teaching and learning, the teachers regularly incorporated multiple texts. Students also had opportunities to use primary sources starting from the time they are four years old.

These ideas are important to examine for disciplinary literacy. By attending to how teachers frame reading across content area classrooms, we can look for the potential "connective tissue" (Stevens et al., 2005, p. 147) to build cross disciplinary curriculum and extend our understandings of reading in the disciplines. We can help students make sense of the different

types and purposes for reading they have to do across a school day. In the case of disciplinary reading in history, perhaps we can identify ways to help students see how evaluating and corroborating sources of information about the Boston Tea Party or the Seneca Falls Convention can apply to how they evaluate information they encounter in their day to day lives. These skills are becoming increasingly vital (Wineburg & Reisman, 2015).

In the next phase of the project, I continued to work with Mr. Goodwin and Ms. Callas to design instructional routines for reading history texts. We set a learning goal for students to be able to make an evidence-based claim in response to a research question. Based on conversations with all of the sixth-grade teachers, we identified reading practices that were important to teach in order to help students meet that goal. With the skills and outcome in mind, we then discussed design ideas that built on the school's existing social studies curriculum and instructional units. One of these design ideas was to ask students to reflect on and evaluate sources as they read and conducted research in class. In the next chapter, I examine our collaborative design process, as well as what we learned about teaching students to critically read and corroborate history texts.

CHAPTER 3

Designing a Map for Instruction: How Researchers and Teachers Can Document and Study Theories about Teaching Reading in History

"So, we need to know the materials. We need to know the task structure. We want to know how they're going participate." Mr. Goodwin summarized the planning we had to accomplish before next week. I had partnered with two sixth-grade teachers, Mr. Goodwin and Ms. Callas, to study ways to support students' critical reading with history texts. This meeting was our first attempt to plan instruction. We had targeted a student learning goal to focus our research. We had also developed preliminary conjectures for how components of instruction would help students achieve that goal. These conjectures were now represented in a series of keywords and columns sketched on a piece chart paper in front of us. I had introduced the conjecture mapping framework (Sandoval, 2004, 2014) to structure and inform the design process with teachers. In doing so, my goal was to study instructional routines that were grounded in previous research, leveraged teachers' expertise, and built on the local social studies curriculum. Now our shared challenge was to translate the conjectures into specific actions that Mr. Goodwin and Ms. Callas would embed in the school's existing curriculum for ancient civilizations.

K-12 students have traditionally learned history by memorizing famous names, dates, and events from a textbook (Paxton, 1997, 1999, 2002; Wineburg, 1991). This approach to studying history, however, is not aligned with how historians use multiple sources of information to develop an understanding of events (Wineburg, 1991). Recent standards and curriculum frameworks have proposed changes in what and how students read as part of learning history (e.g., *C3 Framework for Social Studies State Standards* [National Council for the Social Studies,

2013]). These standards set the expectation that students will learn how to navigate multiple sources of information; they call for students to develop a repertoire of knowledge and practices that more closely resemble those of practicing historians. Studying history in this way, proponents have argued, will not only help students develop an understanding of time periods and events (Leinhardt, Stainton, & Virji, 1994; Wineburg, 2001). It will prepare them to be active and informed participants in a democratic society (Wineburg & Reisman, 2015).

Although there are few examples of instructional studies with elementary school students, researchers have found that younger students are capable of using historical thinking practices to read and interpret texts (e.g., Herrenkohl & Cornelius, 2013; VanSledright, 2002a, 2002b). These studies also suggest that students need instruction in grappling with author bias and conflicting information across texts. To study how to develop these critical reading practices, I engaged in a collaborative design-based research project (Barab & Squire, 2004; Brown, 1992) with sixth-grade teachers at one school. We studied instructional routines for helping students critique and corroborate sources of information. As part of the design process, I created the conjecture map referenced in the opening paragraph (Sandoval, 2004, 2014) to document theories for how we thought components of the instructional routines would help students use multiple texts to answer a research question.

In this chapter, I examine the collaboration with a focus on how we learned through the design process. I focus on the role of teacher expertise and local context, the enacted instructional routines, and the ways conjecture mapping (Sandoval, 2004, 2014) facilitated the design process. This phase of the study is guided by a conceptual framework that brings together literature on history instruction, historical thinking practices, and design-based approaches to research. Following the conceptual framework, I introduce the research setting and describe the design process. Given the limited conversation in the literature about the design process when

collaborating with teachers, I collected data related to both the design process and the enacted design. The data sources for this chapter include: transcripts, field notes, and planning documents from design meetings; and videos, field notes, and student work samples from classroom instruction. I present an analysis of the collaborative design process, and I describe how this process built upon the local school curriculum. The findings illustrate how such a process could be used to support design collaborations with practitioners.

Conceptual Framework

To inform the design process with teachers, I drew on literature about how history is typically taught in elementary schools, the language and literacy practices of historians, and collaborative approaches to design-based research. Research about how history is typically taught in schools prepared me to consider some of the challenges I might encounter in the school (e.g., scheduling, textbooks [Jennings & Rentner, 2006; Taylor, Shepard, Kinner, & Rosenthal, 2003; Wills, 2007]). The studies of how historians read and make sense of text (Leinhardt & Young, 1996; Wineburg, 1998), coupled with the new standards for history instruction (e.g., *C3 Framework for Social Studies State Standards* [National Council for the Social Studies, 2013]), allowed me to consider different goals and expectations for how students learn history. Instructional studies in middle and elementary schools provided models for ways to incorporate disciplinary reading practices as part of learning the content of history (e.g., Reisman, 2012a, 2012b; VanSledright, 2002a, 2002b). The studies conducted in elementary schools point to a need to better understand how to help students negotiate conflicting information across texts. Informed by the literature on design-based research (Barab & Squire, 2004), I was able to partner with sixth-grade teachers to study instructional routines for supporting these types of critical reading practices.

The State of History Instruction in Elementary Schools

While history instruction can provide powerful tools for interpreting past events and making sense of contemporary ones (Leinhardt et al., 1994; Wineburg, 2001), elementary students generally have limited opportunities to study this subject before they enter middle school. Elementary schools have allocated less time for social studies instruction, which includes the study of history, since the standards movement began in the early 1990s (Fitchett & Heafner, 2010). In response to federal and state testing policies, many elementary schools have increased the amount of time scheduled for English language arts and mathematics instruction, which has left teachers with little time to teach other subjects (Jennings & Rentner, 2006; Taylor et al., 2003; Wills, 2007). A survey by the Center for Education Policy indicated that social studies was the most adversely affected subject under No Child Left Behind (NCLB; Jennings & Rentner, 2006). These decreasing time allocations can mean more than just reduced content over the course of a school year. In a case study at one Title I elementary school, for example, Wills (2007) found that reduced time for social studies also had an impact on opportunities for critical thinking, reading, and discussion in the curriculum.

Although federal and state testing policies may have added to the decline of social studies in the elementary curriculum, it was already an ambiguously defined and less prioritized subject at the elementary level (Goodlad, 1984). A central concern is that schools have traditionally organized social studies instruction according to a textbook (Goodlad, 1984). From a disciplinary perspective, history textbooks are problematic because the text structure and writing characteristics perpetuate a belief that learning history means learning names, dates, and other facts (Paxton, 1997, 1999, 2002). Textbooks appear to present a true narrative of events, which in part, likely stems from the typical authoritative tone and third person narration that obscures human authors (Paxton, 1999). In addition to disciplinary concerns, textbooks are problematic

because of the reading and knowledge demands that they place on the reader. History texts are often "inconsiderate" texts that assume readers have a great deal of background knowledge and understanding of abstract concepts (Armbruster & Anderson, 1988; Beck & McKeown, 1991; Beck, McKeown, & Gromoll, 1989), and do not present information in a logical manner that establishes causal connections between events (Armbruster & Anderson, 1988; Beck & McKeown, 1991; Beck, McKeown, & Gromoll, 1989).

Historical Thinking and Communication Practices are Language and Literacy Skills

Leinhardt et al. (1994) developed a definition of history as "a process of constructing, reconstructing, and interpreting past events, ideas, and institutions from surviving or inferential evidence to understand and make meaningful who and what we are today" (p. 88). Historians rely on documents and artifacts as evidence in this meaning-making process. Even when reading texts related to events outside of their research expertise, historians appeared to share thinking and reading behaviors for interpreting documents as evidence (e.g., Leinhardt & Young, 1996; Wineburg, 1998). Wineburg (1997, 1991) argued that this "epistemology of text" is inseparable from disciplinary content knowledge in history. For example, the historians read and re-read the documents in order to corroborate evidence across sources, and to establish intertextual connections (Leinhardt & Young, 1996; Wineburg, 1998).

A central assumption of the current study is that historical thinking and communication practices are discipline-specific types of reading and writing practices, and that there is an instructional "synergy" that develops from teaching these discipline-specific practices as part of subject area instruction (Cervetti, Pearson, Bravo, & Barber, 2005, p. 2). The term "disciplinary literacy" is often used to refer to the stance that the reading, writing, and communication demands of a discipline are an inseparable component of content area learning expectations. Such a stance assumes that there are differences in how experts approach reading within a

discipline (Shanahan & Shanahan, 2008; Shanahan et al., 2011) and the knowledge and skills required to make sense of texts (Schleppegrell, Achugar, & Oteiza, 2004). A disciplinary literacy approach to history instruction would involve teaching reading and language practices that align with how information is learned and communicated in the discipline, as well as the historical knowledge necessary to read, evaluate, and synthesize information from multiple types of texts (Goldman, Britt, et al., 2016).

The *C3 Framework for Social Studies State Standards* (National Council for the Social Studies, 2013) has set expectations for elementary school students that align with this disciplinary model of reading. In introductory text for the history strand of the framework, the authors highlighted that students learn to evaluate sources and determine their credibility as evidence. This focus represents the "epistemology of text" that Wineburg (1991, 1997) used to describe historians' disciplinary approach for reading and interpreting texts as evidence. Although the standards did not name the specific practices, these end-of-year expectations are very much aligned with the key historical reading behaviors (i.e., sourcing, contextualization, corroboration) that historians use to evaluate text as evidence (Wineburg, 1991, 1994, 1998). I have included a table of how I understand the standards to align with historical reading practices as Appendix C. By the end of fifth grade, for example, the standards set an expectation that students should be able to compare information provided by different sources, which aligns with how historians read and reread documents to corroborate evidence and establish intertextual connections (Leinhardt & Young, 1996; Wineburg, 1998).

An Evidence Base for Teaching Disciplinary Literacy in History

There is converging evidence to support teaching historical thinking practices with primary and secondary sources, as well as models for what this instruction might look like in high school classrooms. These instructional studies have demonstrated significant effects for

students' content knowledge (Nokes et al., 2007; Reisman, 2012a), historical reasoning (Nokes et al., 2007; Reisman, 2012b), reading comprehension (Reisman, 2012a), and written arguments (De La Paz et al., 2014). The instructional approaches have involved direct instruction in strategies aligned with historical reasoning (e.g., sourcing, corroboration, and contextualization), and provided opportunities for students to apply these strategies using multiple sources of information. Reisman's study (2012a, 2012b) also involved close reading instruction, which guided students to focus on word choice and language in text. Such studies suggest that teaching history using multiple sources—as opposed to a single textbook—with a focus on historical thinking practices does not detract from learning content. Furthermore, these studies suggest that explicit instruction in disciplinary literacy strategies with multiple sources can improve students' historical reasoning and argument composition.

While there is not a similar foundation of instructional studies at the elementary school level, there is evidence that fifth- and sixth-grade students are capable of disciplinary reading and critical thinking skills involved in reading and interpreting primary and secondary sources (Herrenkohl & Cornelius, 2013; Ferretti, MacArthur, & Okolo, 2007; Nokes, 2014; VanSledright, 2002a, 2002b). Many of these same studies also found that elementary school students may struggle with issues of author perspective, bias, and conflicting information in texts (e.g., Barton, 1997; VanSledright, 2002a, 2002b). These studies present us the need to learn more about structuring classroom activities to support students' critical reading practices in history. Because researchers taught the intervention lessons in some of these studies (e.g., Nokes, 2014; VanSledright, 2002a, 2002b), we do not know much about the supports and resources that would help elementary teachers implement the instructional approach. We need more research in which the elementary classroom teacher both contributes to the instructional design and serves as the primary instructor to better understand the practical implications for such instruction (e.g.,

Herrenkohl & Cornelius, 2013). In the current study, the design approach was collaborative, and it involved working closely with teachers on instructional design.

Designing a Usable Model of Reading Instruction

Design-based research is particularly useful for developing an understanding of how a theoretically-grounded approach to instruction leads to a targeted outcome in an authentic learning context (Barab & Squire, 2004; Collins et al., 2004). A goal of this study was to develop a set of "design principles" (Greeno, 2006c) for integrating critical reading practices as part of elementary school history instruction. Working through two cycles of planning, reflection, and refinement, I partnered with sixth-grade teachers at Inquiry School to propose and study routines for supporting students' reading. We drew on findings from research on text comprehension and history instruction, as well as the teachers' expertise, experiences, and the demands of the sixth-grade history curriculum, to plan the instructional routines.

To begin building theories for how this learning might unfold, I looked to experimental research studies of individual text processing and text comprehension related to historical events (e.g., Wiley & Voss, 1999; Wolfe & Goldman, 2005). Brown (1992) proposed that studies of learning in the laboratory might prime researchers to look for or expect certain things in authentic learning environment. In that way, these studies primed me to expect that if we design opportunities for students to navigate multiple sources of information, and to develop a text-based opinion of an event, then they will develop a deeper understanding of the historical event. From studies that employed student interviews and classroom observations (e.g., Barton, 1997), I had a sense of the ways in which elementary school students may interpret and apply information from historical texts, which helps to anticipate specific goals for instruction and learning. For example, students may need targeted instruction in how to reconcile conflicting information that they encounter texts (Barton, 1997). Finally, the studies of instruction at this

level (e.g., Herrenkohl & Cornelius, 2013) provided some insights into how we might structure the reading and writing activities for students (e.g., cooperative learning groups, audience participation expectations during peer presentations).

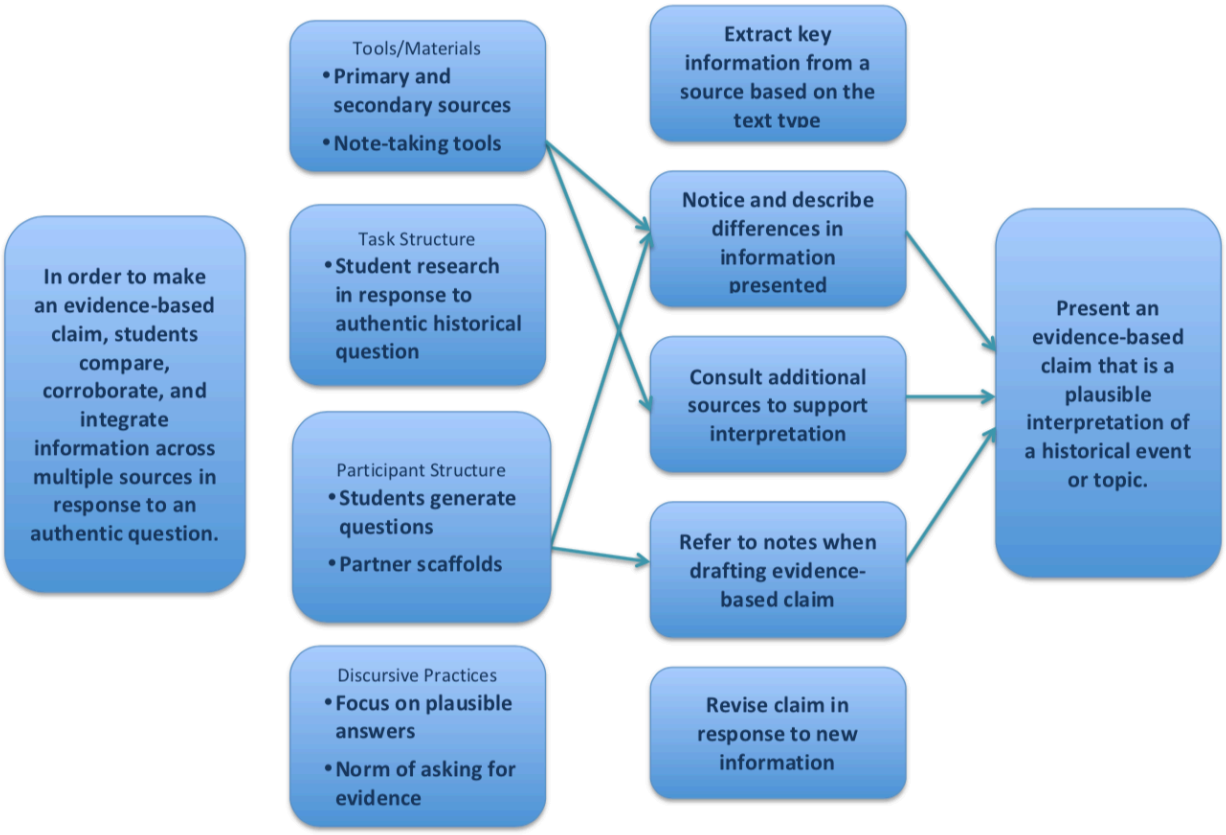
When developing theories for how to achieve a learning goal, however, our ideas for how to meet the goal were also informed by the teachers' expertise and knowledge of the curriculum and students. Our design process involved selecting a student learning goal, creating a conjecture map (Sandoval, 2004, 2014) for how components of instruction would lead to the goal, and collaboratively planning and studying reading routines with teachers. I would characterize the collaborative design process as participatory because I worked with the teachers to both set a learning goal to guide the design and to plan the instructional routines to support that learning in the classroom. By working with teachers, I expected that the routines would be usable within this specific school context (Edelson, Gordin, Pea, 1999; D'Amico, 2010; Kyza & Georgiou, 2014). We used the school's existing sixth-grade curriculum as a starting point, and we leveraged existing aspects of the teachers' instructional approach (e.g., using multiple sources of information). At the same time, I anticipated that the design principles would allow elementary educators in other contexts to learn from this particular design effort (Greeno, 2006c).

I built the conjecture map (Sandoval, 2004, 2014) with teachers to articulate the connections between a theory of learning, specific features of the learning environment (e.g., materials, norms), and the targeted learning goal. I used the components of the map to anchor the collaborative design process with teachers. I intended for the map to be a point of communication, and I thought that it would add transparency to our design process. Furthermore, I saw the conjecture map as an approach to addressing Brown's (1992) recommendation that researchers consider dissemination from the beginning of their studies, because the conjecture

map focuses on those "essential features" (Brown, 1992, p. 172) of the learning environment that the researcher, and in this case teachers, think will lead to the anticipated learning goal.

Figure 1

Sample Conjecture Map



The conjecture map above illustrates our theory for how we thought learning would unfold within a design cycle. We used the school's existing curriculum as the starting point. Students had to do research projects as part of each unit. Our targeted learning goal was for students to use multiple sources to make an evidence-based claim in response to a research question for these projects. Through two design cycles, we tried to get students to pay attention to multiple sources of information they read to answer research questions. To meet this goal, we thought it was important to draw students' attention to features of sources of information—both primary and secondary. We created a graphic organizer, for example, that prompted students to

track the sources of information they reviewed during this research process. We also instituted cooperative participation structures for students working in small groups with other students with similar research interests. We thought that these instructional materials and social structures would help students notice and describe differences presented across texts, consult additional sources of information to support their interpretation, and revise their claims based on new information.

This phase of the research addressed the following questions: How did teacher expertise and local context inform the collaborative design process? In what ways did the instructional routines restructure classroom activities? What features of the school and classroom context supported these routines? In what ways did conjecture mapping support the collaborative design process?

Research Methods

Research Context

The analysis in this chapter represents the second phase of a three-part design-based research project (Barab & Squire, 2004; Brown, 1992) with teachers at two schools, Inquiry School and Equity Academy. I had previously studied how fifth- and sixth-grade teachers at Inquiry School taught reading as part of literacy, science, and social studies lessons. Informed by that analysis, I spoke with teachers about their interests related to teaching students to read history texts. What would they like to learn about teaching reading in history? What could we accomplish together? These early conversations were important to make sure that the specific focus of the research was relevant to the teachers' practice (Gutiérrez & Penuel, 2014).

The second phase of the project involved working with fifth- and sixth-grade teachers at Inquiry School to collaboratively design and study instructional routines to support students' critical reading of history texts. To launch phase of the project, I used the conjecture mapping

framework (Sandoval, 2014, 2004) to establish a student learning goal to guide our design. This process involves determining a goal, planning instruction to support that learning goal, and explicitly stating how aspects of the instruction would lead to the targeted goal. The teachers and I not only had to identify a shared learning goal, we also had to describe and come to a shared definition of this goal. We also had to surface our individual understandings and beliefs about teaching and learning. The process of creating the conjecture map was helpful for developing a shared understanding and ownership in the design goals. This chapter focuses on the partnership with the sixth-grade team. I provide more information about the school context, teacher collaborators, and our design process below.

Setting and Participants

School context. From January-June 2015, I partnered with two sixth-grade teachers at Inquiry School to design instructional routines and to study how these routines supported students' learning. Inquiry School serves approximately 440 students in prekindergarten through sixth grade. A central part of the school's mission is to develop innovations in teaching and learning.

The approach to curriculum and instruction at Inquiry School is student-centered and inquiry-based. Within the school's inquiry framework, teachers incorporate opportunities for students to read multiple types of texts about history. These texts include both primary and secondary sources of information. The school's history of innovation and inquiry approach to instruction made it an ideal site for a collaborative design project to learn about teaching reading in history. There are few documented examples of this type of instruction in elementary schools in the research literature on historical reading and writing practices. This design collaboration was a unique opportunity to build on the local curriculum and approach to instruction while also leveraging teachers' pedagogical and curricular expertise.

Sixth-grade context. The three teachers on the sixth-grade instructional team distributed responsibilities for teaching literacy, science, social studies, and mathematics. I partnered with the two teachers, Mr. Goodwin and Ms. Callas, who shared responsibilities for teaching social studies. Mr. Goodwin and Ms. Callas had each taught at the school for more than ten years, and they both had experience teaching in other schools prior to teaching at Inquiry School. During their time at Inquiry, Mr. Goodwin and Ms. Callas had taught at multiple grade levels at the school, which meant they were very knowledgeable about the school curriculum and philosophy of education. Mr. Goodwin was the lead teacher for social studies; however, Ms. Callas took the lead on lessons to incorporate primary sources of information as part of the social studies inquiries. Mr. Goodwin and Ms. Callas met regularly to plan and coordinate instruction.

The sixth-grade social studies curriculum highlighted ancient civilizations. When we began to design instructional routines in March, the sixth-grade class was involved in an inquiry related to ancient Egypt. Our work continued into an inquiry on ancient Chinese history. During both of these inquiries, students had to generate a research question, which they then researched using multiple sources of information. Students presented their findings to their classmates as a capstone to the ancient Egypt inquiry, and they wrote responses to their individual research questions at the conclusion of the inquiry on ancient Chinese history. We introduced materials, tasks, participation structures, and classroom conversations to support students as they engaged in these research projects. The final projects also served as a way to gauge our success on helping students meet the learning goal.

Developing a collaborative research relationship with Mr. Goodwin and Ms. Callas was essential to complete the project successfully. As Mehan (2008) explains: “The skills, goals, and knowledge of the participants, as well as the relationships that exist between the actors involved in the work, significantly affect the ability to build and transfer theoretical understandings” (p.

88). While research relationships are important factors in qualitative research generally (Maxwell, 2003), in collaborative research efforts researchers need to consider how they will build relationships with teachers that challenge typical roles for researchers and study participants (Barab et al., 2004; Mehan, 2008). I had worked on a project at the school previously, and through this experience, I had the opportunity to meet and work with many teachers at the school. As part of the current study, I had been observing instruction and interviewing teachers about their approaches to teaching reading. I had developed an understanding of the school, curriculum, and teachers' pedagogical approaches; I think Ms. Callas and Mr. Goodwin were developing an understanding of my research interests and dedication to conducting research in partnership with practitioners too. Nevertheless, it was an ongoing negotiation to develop and sustain these research relationships.

Data Collection

To study the design process, and also to gather information about what we learned from the design process, I collected data sources related to meetings with teachers and classroom instruction. Both categories of data sources were important for understanding the process of developing, enacting, and refining the instructional routines. Related to design meetings with teachers, I used audio recordings or field notes as my main approaches to document the meetings. I also collected artifacts that we shared and discussed during these meetings (e.g., drafts of note-taking tools and rubrics). Related to classroom instruction, I wrote field notes, video recorded, and gathered classroom artifacts to document how teachers and students enacted the instructional routines during social studies instruction. Finally, I maintained a researcher's journal to record my reflections during the project. These journal entries reflected my thoughts and questions as a researcher and now provide context for how I conducted the study in this

particular time and place (Hammersley & Atkinson, 2007; Olson, 2011). I describe how I collected each of the main data sources in more detail below.

Design meeting data collection. The teachers and I had eleven design meetings between January-June 2015. The meetings ranged from approximately 30-60 minutes in length. Apart from one meeting, Mr. Goodwin and Ms. Callas were the main teacher participants in these meetings. I did have one early meeting with other teachers who had responsibilities for teaching at this grade level. As described previously, the focus of the work that we did in these meetings depended on where we were in the overall design process. In early meetings, we identified a focus and determined the scope for our collaboration. The subsequent six meetings involved designing, planning, and refining instructional routines to help students corroborate texts to answer a research question. We reflected on student learning and the design process in our final two meetings.

To document the design meetings, I used a combination of audio recording and field notes. I was not able to audio record two of the meetings and wrote detailed field notes instead. I also collected documents that we discussed during these meetings. These documents included a summary of teachers' interest related to reading in history, copies of the conjecture map, and lists of design ideas, as well as drafts of the note-taking tool, assignment directions, and rubrics. The documents supplemented information in the meeting transcripts and notes. To keep track of the design process, I maintained a log of design meetings with the dates of the meetings, the pseudonyms of the teachers who participated, how I had documented the meeting, and a brief summary of the main activities and decisions from that meeting.

Participant observation. During this phase of the study, I aimed to observe as many social studies lessons as possible. I observed a total of 43 periods of social studies instruction in April and May 2015. Because the teachers shared responsibilities for teaching school subjects,

Mr. Goodwin and Ms. Callas taught social studies to all students in the grade level. Mr. Goodwin and Ms. Callas usually taught social studies to one groups of about 22-24 students in the morning, and then they repeated the lesson to a second group of about 22-24 students in the afternoon. There were days when the two groups of students did not have social studies on the same day because of grade-level or school events. I often observed the social studies period for both groups of students; I was occasionally only able to observe one group due to scheduling conflicts. During a classroom observation, I focused on the ways teachers enacted the design ideas as part of their instruction and how students engaged in the reading activities.

When students were working independently or in a small group, I would sometimes speak with them about their work. I asked the same type of informal interview questions that I asked during the first phase of the project (Appendix A), and I documented what the students said in my field notes. Although I initially aimed to maintain more of a distant observer role, I was occasionally drawn into classroom activities by the teachers. They might, for example, ask me a question during a lesson (e.g., "What do you think, Ms. M?"). With the sixth grade team, I also took an active role in helping the teachers identify texts during the students' ancient China research projects. I met with the school librarian for assistance with identifying articles and informational texts related to the topics students intended to research for their independent projects.

I maintained field notes to document how teachers enacted the reading routines as part of social studies instruction. The field notes included context on the larger instructional activities and reflective observer's comments (Emerson et al., 20111; Merriam & Tisdell, 2016). In reviewing the notes, I see now how I alternated between first- and third-person points of view when recording my classroom interactions (Emerson et al., 2011). These changes in the points of view reflect my position in relation to the interaction I was recording. Most of the time, I was a

non-participant observer. I sat at an empty table in the back of the classroom and took notes on the instruction. As noted previously, however, I did sometimes speak with students about their work. The teachers also occasionally asked me questions or shared a reflection as an aside. I generally documented such moments from a first-person point of view. These distinctions are helpful to see how my role as a researcher and collaborative designer shifted in different contexts (i.e., meetings with teachers vs. classroom observations) as well as over the course of the project.

I also video recorded many of the social studies periods. There were a few exceptions when I was not able to video tape (i.e., a problem with the memory card or camera battery). As a researcher, I understand that camera placement, and even deciding when to record, reflects my perspective in the classroom and project (Erickson, 2006a). I attempted to position the camera in the same location in a classroom. I aimed the camera to get shots of the teacher and general movement of the classroom during the lesson. As Erickson (2006a) recommended, I rarely changed the camera direction or zoomed in on a scene, because I wanted to document as many of the classroom interactions as possible. When students were working independently or in small groups, however, I would position the camera to focus on one or two small groups at a time. I made this change in the camera set up so that I could record more than the general sound and movement in the classroom.

Lesson artifacts and student work. Based on the conjecture maps, I collected lesson artifacts and work samples that would provide insight as to students' skills and progress toward the learning goal. The map informed the data about learning to collect (Sandoval, 2004, 2014). Regarding the learning goal that students would write an evidence-based claim, for example, I collected students' final written essays, written reflections on their research process, and their notes (i.e., completed source tools) about the sources. I also collected student work samples

throughout the units. In the student notes and conversation, I attended to what students said about the source and its credibility.

Data Analysis

Process coding. I started with the design meeting transcripts and field notes. I wanted to get a sense of the interactions between the teachers and myself. I read the documentation of the eleven meetings first to get a sense of the overall flow the activities from meeting to meeting. I then used process coding approach as part of open coding (Saldaña, 2013). This approach is helpful for highlighting actions and consequences in interactions (Saldaña, 2013). I used Dedoose data analysis software to attach codes to excerpts from either transcripts or field notes. I created 37 of codes (e.g., "asking about learning goals/expectations for students," "commenting on process," "confirming/clarifying interest," "negotiating content," "offering help," "setting focus/scope of work together"). After I had coded the entire data set, I reviewed the excerpts tagged with a specific code and wrote a brief summary for each code. In these analytic memos, I noted what design interactions the code captured. I also attended to when in the process the majority of excerpts with that code occurred.

Constructing a design narrative. To bridge the design meeting context with the instructional context in the classroom, I then constructed a narrative of the design process. This document gave me a big picture view of the process. I reviewed and summarized design meetings. I paid special attention to proposals for design, modifications, and rationales. In the summaries of classroom observations, I focused on teachers' directions to students and what they chose to highlight during a lesson (e.g., asking a student to share with the class how he referred to a secondary source to interpret his observations of a primary source).

Validity. I built validity into the research design for this second phase of the project. I was embedded in the school for design meetings with teachers and observing lessons, which

allowed me to collect a great deal of information about how we thought learning would unfold, what happened in the classroom, and how we made sense of what happened in retrospect. I gathered a relatively large amount of detailed information related to instructional planning and classroom instruction for these two months (Maxwell, 2013). The eleven design meetings with teachers could be characterized as a type of member checking (Maxwell, 2013; Merriam & Tisdell, 2016). Members checks typically involve the researcher sharing initial interpretations of data collected with participants (Merriam & Tisdell, 2016). In these design meetings, however, both the teachers and I shared observations, interpretations, and reflections about instruction, student learning, and our design process. By documenting our design process, I also left an audit trail that carefully recorded our design decisions and the reasons for them (Merriam & Tisdell, 2016).

Findings

I open the findings with a description of how I engaged in the design process with the teachers. I then explain what the design team learned about instructional routines for supporting reading in history at the end of the second design cycle, which concluded with the students' independent inquiries of related to ancient Chinese history. In presenting each of the design ideas, I highlight how we leveraged teachers' expertise and experience and the school curriculum in the design. I then present two themes to explain how the learning environment supported the instructional routines as well as the ways the conjecture mapping process facilitated the work

Design Process

Over the course of eleven design meetings, Mr. Goodwin, Ms. Callas, and I established the focus and scope of our partnership, planned and enacted a design as part of the school's existing social studies curriculum, and reflected on student learning as well as our collaborative process. We also occasionally spoke briefly before or after class, and we exchanged emails with

ideas or questions regarding an upcoming reading task. The respective roles that teachers and I took in the design process is similar to how other researchers have characterized participatory or collaborative design. As a researcher, my role in these meetings and exchanges was largely to facilitate the planning and reflection discussions and to document our work together (e.g., Kyza & Nicolaidou, 2016; Penuel, Roschelle, & Shechtman, 2007). The teachers' role was to make final decisions related to instruction and enact the routines in the classroom (e.g., Cober, Tan, Slotta, So & Könings, 2015). Together, we reflected on the components of the instructional routines and their impact on student learning.

Establishing the focus and scope of our partnership. When I first proposed a design partnership at Inquiry School, I was interested in historical practices and critical reading skills. I had this general interest; I intended for the specific focus of the partnership to be relevant and meaningful to the sixth-grade teachers. In late January, I had an initial meeting with Mr. Goodwin, the lead sixth-grade teacher for social studies, to learn more about the structure of the social studies curriculum and plans for the rest of the school year. We talked about the critical thinking and reading skills that students needed for history. During conversations with teachers, I also heard questions, interests, and observations that they had about teaching students to read about history. I prepared a summary of these ideas from field notes and transcripts to share with teachers during early design meetings (Appendix D). To be transparent about my own academic interests, I also compiled a brief, two-page summary of theory and research related to reading in history.

My next step was to clarify what reading practices or skills teachers might want to address through our work together. In mid-March, I met with all three classroom teachers and one specialist, who had responsibilities for teaching sixth grade. We had two meeting to accommodate teachers' different schedules. During these meetings, I offered the summary of

teachers' questions, interests, and observations (Appendix D) to ask whether it was accurate, whether something was missing, and what skills or knowledge on this list might be a focus for our design collaboration. I also shared a few anonymized vignettes related to discussing or reading texts from my field notes. Across these conversations, teachers indicated their interest in a small number of seemingly complementary reading practices and skills.

Teachers shared an interest in students being able to take notes while reading and make connections across texts to come to a conclusion. Related to taking notes, teachers thought it was important for students to take accurate and thoughtful notes. They wanted students to be able to summarize key information they read and cite their sources while writing. Ms. Callas explained how the notes students took directly related to the claim they could later make. She connected note taking to the research process: "There's that reciprocity where you're reading a source, you've got some ideas in mind, and then your source blows your ideas apart—or challenges your ideas—so then what do you do?" This insight was related to what she was observing students do in a research project during the literacy period. They also wanted students to be able to make connections across texts as they read. Another interest teachers shared was that students develop a curiosity about historical contexts, but this latter interest was not a specific focus of our design efforts.

Building on these conversations, Mr. Goodwin, Ms. Callas, and I then determined the student learning goal that would be the focus of our work together. I introduced the idea of creating a conjecture map (Sandoval, 2004, 2014) to guide our work. I explained it as a way of making explicit how and why we expected to meet our agreed upon goal. I proposed that it seemed we were focused on corroboration. I asked the teachers to define a learning goal that would be meaningful and relevant to their curriculum. Then we could discuss the categories of instructional design that Sandoval (2004, 2014) outlined: materials, task structure, participant

structures, and classroom discourse. Part of our planning work would be to explain how our theory about learning guides the instructional design, as well as to propose how we think the design will function to lead to the targeted goal. Teachers agreed to try this process as an organizing structure for our work.

Planning and enacting a design. Between March-May 2015, Mr. Goodwin, Ms. Callas, and I met six times to plan instruction and reflect on the enacted design. These meetings occurred across two design cycles, which aligned with the history curriculum units on ancient Egypt and ancient China. It was in these meetings that we interpreted the conjecture map to classroom practice. To do so, we had to plan on two levels: describing the instructional routine and how we thought it would support learning, and negotiating the how and when teachers would enact the routine in the classroom.

We also drew on classroom observations and samples of student work to reflect on the enacted routines. For example, the sixth-grade learning goal was that students would be able to make an evidence-based claim about a historical event or topic that drew from multiple sources of information. At the conclusion of an instructional unit, students researched and wrote responses to a question about a historical topic. They also wrote brief reflections about how they selected their sources of information, and how they handled any conflicting information that they encountered in those sources. The teachers and I evaluated the students' work in relation to the specific expectations that the team had delineated for students' evidence-based claims (e.g., Students will cite specific evidence from sources to support their claim. Students will be able to explain how the evidence supports their claims.).

Retrospective reflection. The last two meetings were retrospective meetings that involved discussing students' ability to make an evidence-based claim. Mr. Goodwin, Ms. Callas, and I compared our interpretations of students' work, and we reflected on why students

might have completed the task in the way that they did. For the final meeting, I prepared three anonymized packets of student work samples. These packets included the students' final essays, their reflections on the research process, and if they had submitted one, the completed note-taking tools. I selected three examples of students who had done something interesting in their writing. In the final meeting, we also returned to the conjecture map. We discussed whether we might modify a learning or design conjecture based on what students did, and I asked teachers about the utility of the conjecture mapping as part of the design process.

Instructional Design

In the second design cycle, we focused on three components of instruction to support students' corroboration of multiple sources to answer a research question: student-generated research questions, a note-taking tool for students to track their process of using multiple sources to answer a research question, and partner scaffolds for the research process. We incorporated these components into the independent research projects the teachers had already planned for the end of each unit. I describe each of these components, the rationale for them, and then how they came together in classroom instruction.

Student-generated research questions. From the beginning of the unit of study that constituted the second design cycle, we decided to ask students to generate questions. This practice was intended to involve students in the day-to-day classroom inquiry and to start thinking about how they might focus their individual research projects. The teacher asked students to share questions they had from the readings or class activities at the end of a lesson, and the teacher kept a running list of questions each class generated. Before students launched their independent research projects, the teacher shared the list with students. Students sorted and categorized the questions as part of a process for identifying their own question. This component

of the design was similar to what teachers had done in past years. They had a practice of students documenting and tracking their questions during a unit.

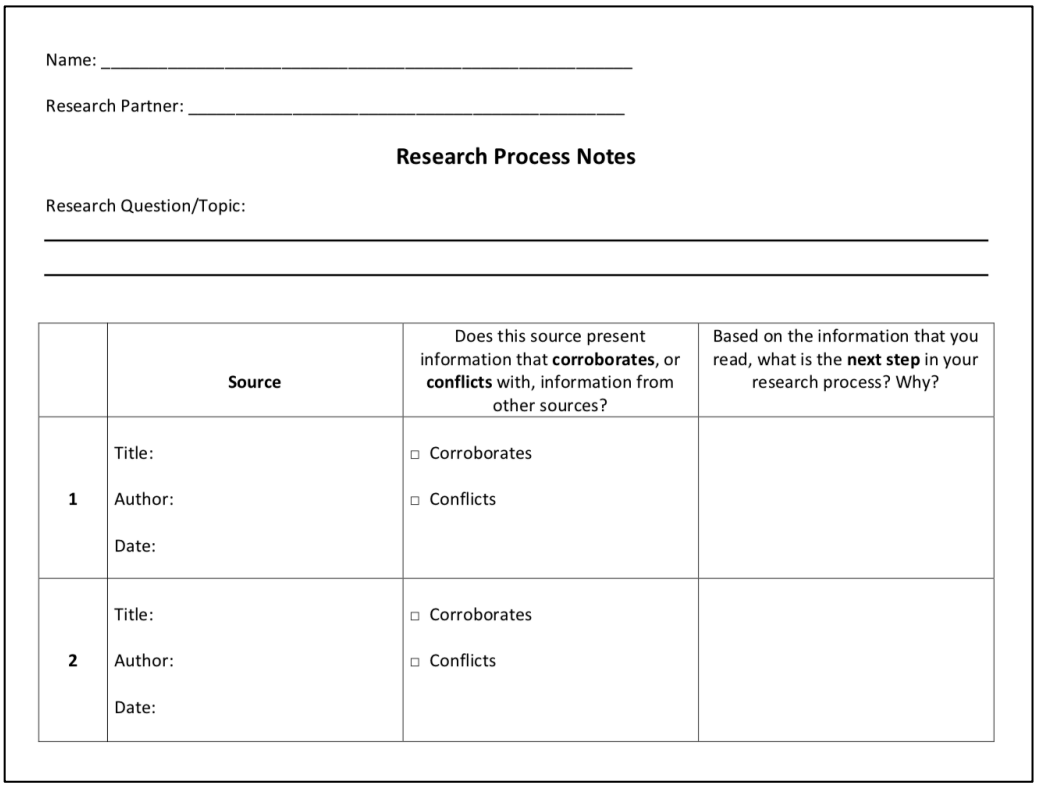
Note-taking tool. The tool reflects two ideas that came to be interconnected during our design process. The first idea was that students needed to be able to compare multiple sources. Regarding comparing sources, teachers shared that they wanted students to be able to consider the following types of questions: What is corroborated? What is different? Why is it different? What would it matter that it's different? The second idea was that asking students to reflect on their research process would help them to develop productive habits for reading and comparing multiple sources.

While our initial idea was to ask students to reflect on their process when they completed a research project, there was a concern that students might not see the connection to their research if they only wrote the reflection at the conclusion of the project. We decided to weave the task of reflection throughout the students' research project. We began to create and revise a note-taking tool to facilitate this reflection. Our final draft of this tool is shown as figure 2.

As they read a source, students would use the note-taking tool to document basic information about the source (e.g., author, date), indicate whether the source presents information that corroborates or conflicts with what they had read previously, and determine the next step in their research process. We designed the tool to help students attend to the information they were reading, and to when that information corroborates or does not corroborate. Then we wanted students to draw a conclusion about what they needed to do next based on what they had found so far. We aimed to present the process in a straightforward way that would be manageable for the students as they negotiated different sources. At the end of the student research projects, students would need to write a reflection on their research process.

Figure 2

Note-taking Tool



Name: _____

Research Partner: _____

Research Process Notes

Research Question/Topic:

_____

_____

	Source	Does this source present information that **corroborates**, or **conflicts** with, information from other sources?	Based on the information that you read, what is the **next step** in your research process? Why?
1	Title: Author: Date:	□ Corroborates □ Conflicts	
2	Title: Author: Date:	□ Corroborates □ Conflicts	

In addition to being informed by the teachers' instructional goals and curriculum, the tool reflected an understanding of research related to individual text processing and text comprehension about history (e.g., Wiley & Voss, 1999; Wolfe & Goldman, 2005). These studies suggested that if we designed opportunities for students to navigate multiple sources of information, and to develop a text-based opinion of an event, then they would develop a deeper understanding of the historical event. While the students were not developing an opinion about a specific event, they were using multiple resources to respond to self-generated research questions. From studies that employed student interviews and classroom observations (e.g., Barton, 1997), it is likely that elementary students may need targeted instruction in how to reconcile conflicting information that they encounter in texts.

Partner scaffolds. After students selected their research questions, the teachers clustered their table assignments based on the general topics under study. Students were doing individual research projects; however, we wanted to create an atmosphere of a classroom research community. By seating students near others who were studying similar topics, we aimed to create opportunities for communication and sharing. We also introduced partner support questions for students to ask each other about their research process and the information they had found so far. Of the instructional components identified here, this one was not fully implemented as planned. Time constraints were an issue, which meant that there were not many dedicated times for targeted research conversations with a partner.

Enactment. Over a period of approximately three-and-a-half weeks, students conducted independent research projects related to a study of ancient China. Students had approximately three class periods each week to complete these research projects. The research activity involved students crafting a research question, selecting and reading sources of information to answer their questions, and writing a response. Students had access to multiple resources in the classroom to support their research. There was a teacher-created bibliography of websites related to ancient China, as well as books and articles that the teachers and I had gathered. Students were also allowed to find additional sources. As students reviewed and read books, articles, websites, and other sources, they used the research process note-taking tool as they reviewed and read.

How students used sources. The preliminary review of the note-taking tools from 32 students indicated that students documented a range from one to six sources in their notes. The average number of sources that students cited was 3.8. In the column that asked students to supply their next steps in the research process, the majority of responses indicated that students would consult another source to corroborate the information that they had read so far. Some students wrote notes as to the specific topic for which they wanted to learn more information.

Some of these responses could be considered a variety of the response that students would corroborate information. As they found new and more detailed information about a topic, they wanted to see if they could find another source with this information. For some students, however, these responses seemed to note that they curious about a topic and wanted to learn more about it.

At the conclusion of their research projects, students reflected on their research process by answering the following questions: How did you select your sources of information? What conflicting information related to your research question did you find? How did you deal with this conflicting information? This summary is based on 38 student responses to these questions. The strategies students used to select sources of information appeared to either relate to evaluating the source, or focus on evaluating the relevance of the source content to their inquiry question. To evaluate the source, students said that they considered the author's authority (e.g., academic credentials and expertise, institutional affiliation), the type of domain name (e.g., .com, .org, .edu) of a website where they found the information, and the date when an author wrote the source. To evaluate the content, students said that they determined its relevance to their research focus, and that they considered recommendations from peers. There were two examples of approaches that students listed (e.g., a statement that a student used a variety of sources) that did not fall within the main categories of strategies mentioned previously.

Conjecture Mapping

The process of constructing a conjecture map (Sandoval, 2004, 2014) with teachers supported the collaboration by helping us identify components of the existing curriculum to leverage, and sparking conversations that surfaced teacher and researcher expectations for student learning.

Identifying features of current learning environment to leverage. When I introduced the idea of a conjecture map, I also brought a list of the tools and materials, task structures, participant structures, and discourse practices I had observed in the sixth-grade classrooms over the past few months of observing lessons. I used these categories because they are the ones Sandoval (2004, 2014) identified in the conjecture map framework. Part of that initial activity was to sort through these components and discuss which ones might lead to our identified learning goal. Related to materials, for example, the teachers already gave students multiple texts to read as part of assignments, and they expected students to use multiple sources in their research projects. The teachers also taught students how to evaluate primary sources. They had a tool to guide students in making observations, connections, and asking questions about primary sources. These materials and tools were part of the existing learning environment. We designed the instructional routines (e.g., note-taking tool) to enhance these existing features of the learning environment.

Surfacing and clarifying researcher and teacher expectations. In design meetings, the teachers and I spoke regularly about our plans and progress. Our questions were very direct. I would ask the teachers whether a certain instructional component aligned with their learning goals for students. The teachers would confirm with me whether our work together was matching my expectations as a researcher. Each of us assumed agency in clarifying and monitoring expectations.

As a blueprint for the design, the mapping process helped me to communicate with the teachers—both to share my ideas about learning, and to hear their ideas about how to support students' learning. The following interaction illustrates how the teachers would ask for my perspective and goals as a researcher. One teacher commented: "I think I got lost in this point. I was trying to think back, alright, what is it that we're trying to get them to do? So, what is it that

we're trying to get them to do from your research perspective?" In response, I described a historical thinking skill and explain that a goal is "that they're considering the source of information, and thinking critically about that, and using that [information about a source] when they're trying to interpret what happened." I asked for the other teacher's thoughts. Below is a portion of that teacher's response, which illustrates a developing design conjecture.

> I was thinking about—well, back to your question of the outlining and note-taking and how that relates to the outcome that we're interested in—I think that the kind of information . . . that they're recording has a lot to do with the kind of claim that they can then make . . . . We want them to make deeper, more substantial, more critical claims. So, I think the thing about the contextualizing the sources, which is I think what you're getting at—I don't think that is going to be, at this point, our best route. But certainly the multiple sources—the idea that you try to triangulate on the truth—maybe that's a more fruitful way to explore this.

The teacher went on to explain that contextualization is an important skill; however, it might not be a generative one in this context due to the types of texts that we had been able to find for the lessons related to ancient Egypt. This example shows how we collaboratively negotiated the design and proposed conjectures for how the design would operate. Because the process of mapping involved proposing these conjectures, we had to make explicit our individual assumptions and theories about instruction and learning. By sharing our own assumptions, and listening to those of the other team members, we were able to come to a shared plan and understanding.

Another example of how it operated as a blueprint is when we were discussing how to evaluate students' written claims and evidence. One of the teachers pointed to the elaborated version of conjecture map and asked: "It's that isn't it? I mean isn't it outcomes? Is that our

rubric more or less?" The other teacher replied: "Yes, that's what you start with, and then you break them down." From here, we agreed to use the learning goal description from the conjecture map as the basis for a rubric. With this example, as with the lists of design ideas mentioned previously, we had to craft more specific design plans to enact the designs in the classroom. Because we were working within the school's existing social studies curriculum, we had detailed discussions about how the design plans intersected with, and in some cases reconfigured, how and why students read about historical topics and events.

Discussion

The purpose of this phase of the study was to learn how to incorporate critical reading practices within an existing sixth-grade social studies curriculum. I partnered with two sixth-grade teachers to design, enact, and refine instructional routines for helping students to critique and corroborate sources of information about history. The two sixth-grade teachers and I articulated theories for how components of an instructional routine (e.g., the note-taking tool) would lead to a specific learning goal. I used Sandoval's (2004, 2014) conjecture mapping framework to structure the theories and conjectures. In the current analysis, I examined how the teachers and I learned as part of the design process. Specifically, I was interested in how the process leveraged the role of teacher expertise, practice, and the local curriculum, as well as the ways the conjecture mapping framework (Sandoval, 2004, 2014) structured our work together. Four research questions guided the analysis: How did teacher expertise and local context inform the collaborative design process? In what ways did the instructional routines restructure classroom activities? What features of the school and classroom context supported these routines? In what ways did conjecture mapping support the collaborative design process? To answer these questions, I collected data related to both the design meetings with teachers and the lessons teachers enacted in the classroom.

The teachers and I began the design process by discussing and agreeing upon a learning goal to drive our design work. We based this goal on the teachers' interests and observations, which meant that teachers were involved in shaping the focus of the instructional routines from the start of our collaboration. The teachers also continued to follow the regular sixth-grade social studies curriculum. We built the instructional routines into the existing ancient civilization units. Because I had spent several weeks learning about the teachers' approaches to reading instruction during the first phase of the study, I was able to draw on that knowledge of existing classroom practices and norms in our design conversations along with an understanding of relevant research literature.

The conjecture map (Sandoval, 2004, 2014) helped me to structure the design process with the teachers. The categories of information that are part of the conjecture map (e.g., materials and tools, task structure, mediating processes, goal) disciplined what we discussed. In an early meeting, for example, I focused the discussion on completing these categories: "We talked a little bit about materials, so in terms of task structure—what do you want students to—they'll be doing some kind of note-taking?" I asked this question as we were sketching the map together on a piece of chart paper. The categories of information on the conjecture map served as a sort of heuristic for instructional design.

The work of creating the map also pushed us to articulate our reasoning for how we thought aspects of instruction would lead to the stated learning goal. In our final meeting, I asked the teachers what they thought of the process of mapping our ideas for how instruction would lead to a learning goal. One teacher noted that it was helpful to clarify assumptions that underlie instruction: "I think this process has been helpful to me as a teacher to sort of—trying to map out what are all the steps . . . the kind of assumptions . . . that we know as academics make, about how we get from point A to point B, and in the context of twelve-year-olds." In this exchange,

the teacher was responding to my direct question about the mapping process, and shared that it was helpful to document our assumptions about "how we get from point A to point B."

While it was important to document these assumptions, we had realized in previous meetings that the map itself was too abstract to provide practical guidance for daily instruction. There was a "guidance gap" between the conjectures and theories documented on the map and the complex day-to-day work of incorporating our design as part of the teachers' instruction. Early in the design process, for example, one of the teachers asked for a list of what we had agreed to, so that they could remember to introduce these ideas in their teaching. I then created that list based on our recent conversations. The conjecture map (Sandoval, 2004, 2014) was a blueprint for the design; however, we needed more specific and detailed planning documents to inform daily instruction. In future planning meetings, I proposed that we specifically plan for how the design ideas relate to the school curriculum: "So, where would be helpful to start . . . ? Would it be helpful to think about the sort of design ideas that we talked about and how those would overlay with the list of lessons that you sent?"

The process of creating the map, as well as the document itself, also helped me to be transparent about my research agenda and goals throughout the research process. When I first introduced the concept of conjecture mapping (Sandoval, 2004, 2014), for example, one of the teachers asked to clarify: "I know this is important for your research. I'm just trying to understand how it's affecting . . . our planning." In this, as well as other examples, I was able to delineate the focus of my research. The map itself also provided the teachers with a visual boundary for my project. Also, I felt it was important that the design address a learning goal that was locally meaningful—either because the teachers had a specific interest or question related to that goal. By creating the map together, we had a basis for ongoing opportunities to discuss how the design collaboration could support the teachers' work.

Conclusion

This chapter presents an analysis of a researcher-teacher design process. While the teachers and I learned a great deal from this phase of the study, findings are limited in that we were only able to complete two cycles of design. We had fewer opportunities to refine our theory for how to teach students to use multiple sources of information to answer a research question. In analyzing this process, I sought to understand how to foster such design partnership in the future, as well as how the design might travel to another school context. The conjecture map (Sandoval, 2004, 2014) is a researcher tool that appears to also have promise for structuring collaboration and communication between researchers and teachers. Through the design process of planning, testing, and refining instructional routines, I worked with teachers to develop a theoretical explanation that links the features of the design, the design context, and a student learning goal. Such knowledge involves an understanding of both how and why a design led to the specific types of learning. However, this understanding is also what would potentially support the travel of that design to a new context (Greeno & Collins, 2008; National Academy of Education, 1999). Instead of disseminating research, which implies that a practice can be taken from one site and replicated at another, the concept of travel proposes that practitioners need to understand the theories and principles that underlie an innovation in order to meaningfully adapt this innovation to their local site (Greeno & Collins, 2008; National Academy of Education, 1999). In the next chapter, I examine how a collaborative design process supported the travel of one instructional routine to a second school.

CHAPTER 4

Asking Questions and Planting Seeds:

Qualitative Study of Curricular Adaptation and Pedagogical Design Capacity

"Now that we have the foundation," Ms. Martin reflected, "how do we continue to create those lessons?" For the past three months, Ms. Martin and I had worked together to study an instructional routine for evaluating and interpreting primary sources. She had adapted the school's fifth grade curriculum to incorporate this routine. "How do we continue to build upon that?" Ms. Martin felt that the sourcing routine had "planted a seed" for how to facilitate critical conversations with students about texts. She now wanted to continue the work by planning lessons for the next school year. Ms. Martin and her grade-level colleagues had recently adapted curricular resources for a historical fiction writing unit to incorporate primary sources. With her input, the grade-level team decided to incorporate historical thinking practices to teach students how to question photographs and documents. Ms. Martin was excited to share news about this curriculum adaptation in our final meeting. One of my research goals in this partnership was to study how knowledge about teaching can travel across contexts. So I was very interested to hear news about the recently adapted writing unit. How had our collaboration supported this learning?

In this chapter, I examine how a fifth-grade teacher, Ms. Martin, adapted her school's social studies curriculum in the context of a collaborative design partnership. I had initiated this design partnership with the teacher to study how curricular resources could support the travel of instructional routines for teaching critical reading practices with history texts. The conceptual framework for this chapter draws on research related to curricular resources, how these resources can support teacher learning, and a particular kind of professional learning that they can facilitate. In the findings section, I illustrate how the Ms. Martin's approach to teaching students how to read and evaluate primary sources of information shifted over time. I examine how the

highly collaborative design process supported these shifts in practice. I then consider the implications for both collaborative design and research partnerships as alternatives to a traditional model of research dissemination.

Conceptual Framework

Researchers have questioned the success of past efforts to disseminate "best practices" to educators (Greeno & Collins, 2008; Hiebert et al., 2002; National Academy of Education Report, 1999). Some scholars have argued that dissemination efforts assume a limiting relationship between educational research and practice (Greeno & Collins, 2008). These efforts have largely situated researchers, as knowledge producers, at the start of a research-development-dissemination pipeline, and they have positioned educators, as knowledge consumers and implementers, at the end of this pipeline (Mehan, 2008). A report by the National Academy of Education (1999) introduced the concept of travel as another way of thinking about the potential relationship between research and practice. Supporting the travel of an instructional program or approach involves building local capacity for improvement (National Academy of Education, 1999). Related to the concept of travel, educational researchers have examined the ways features of curricular resources can serve an educative function for teachers (Ball & Cohen, 1996; Davis & Krajcik, 2005). Researchers have proposed, for example, that curriculum designers include explanations for how and why they have structured the curriculum components in particular ways (Davis & Krajcik, 2005). Teachers can use this information to interpret and adapt the curricular resources to match their goals and needs. By attending to explanations for curriculum design, and using this information to strategically modify instruction, teachers learn about more than a particular lesson (Davis & Krajcik, 2005). Researchers have argued that teachers can also develop a pedagogical design capacity (Brown & Edelson, 2003) for identifying ways to use or reconfigure future curricular resources to meet an instructional goal (Davis & Krajcik, 2005).

Understanding How Knowledge about Instruction Can Travel

Close to 20 years ago, a National Academy of Education Report (1999) introduced the concept of travel as an alternative to dissemination. The report authors outlined reasons why dissemination efforts often fail: program descriptions that lack sufficient detail for replication, readers who interpret new programs based on their prior training and knowledge, and differences in local educational contexts. Therefore, they proposed "replac[ing] the familiar concept of dissemination of research and development results with the concept of encouraging travel from site to site" (National Academy of Education, 1999, p. 34). The authors argued that "solutions to complex problems cannot be encapsulated in journal articles, reports, or boxes of materials" (National Academy of Education, 1999, p. 34). To support the travel of instructional programs, the field of education needed to build capacity for improvement. The authors outlined three ways to build the necessary capacity. One approach is to have clearly stated theories and explanations for how and why something worked in a particular place. Another strategy is to develop tools and resources that will help educators make productive adaptations for local instructional contexts. The third suggestion is to have people who can support local educators who want to use or adapt a particular program or model.

Design-based approaches to research (Barab & Squire, 2004; Brown, 1992) are particularly useful for developing theories and explanations for how and why an instructional approach worked in particular places. This approach to research involves working with stakeholders to develop, test, and refine theories for how and why instructional approaches, curricula, or tools led to specific kinds of learning in authentic contexts. Because of the focus on understanding how learning unfolds in particular contexts, researchers working in this tradition often consider teacher adaptation and instructional contexts as part of the process of research and design (Barab & Leuhman, 2003; Squire et al., 2003). Kirshner and Polman (2013), for example,

described their stance as focused on local adaption instead of standardization. As researchers, they characterized this difference in focus as: "Instead of, 'What was the degree of implementation fidelity and why?' we ask, 'What kinds of new practices did teachers generate? How and why did these vary across contexts?'" (pp. 216-217). Researchers seek to learn from how and why teachers adapt curriculum and instructional tools.

Curricular Resources and Teacher Learning

Teaching can be characterized as design work too (Brown & Edelson, 2003; McKenney, Kali, Markauskaite, & Voogt, 2015). Teachers set learning goals for students, configure curricular resources to meet these goals, and make implementation decisions based on their classroom and school contexts (Brown & Edelson, 2003). Writing about a major research project to design disciplinary literacy curricula, Goldman (2018) concluded that the inevitable variation across classrooms means that "teachers need opportunities to develop the content, practice, and discourse competencies that will support them in improvising and innovating in the face of what might be moment-to-moment changing circumstances and demands" (Goldman, 2018, p. 16). Researchers have pointed, however, that teachers do not typically learn how to design and adapt curriculum as part of their pre-service preparation, which typically focuses on lesson planning (McKenney et al., 2015).

Teachers rely on a variety of curricular resources to plan their daily instruction (e.g., teacher's guide, lesson plans, texts for students to read, rubrics for evaluating student work [Remillard, 2005, 2018]). These resources are professional tools that carry ideas about teaching and learning (Remillard, 2018). Teachers read, interpret, and apply those ideas in the classroom based on their prior knowledge, experiences, interests, and goals (Davis et al., 2011; Remillard, 2018; Penuel, Phillips, & Harris, 2014; Stigler & Thompson, 2009). Educational researchers,

however, have proposed ways that curriculum designers could better support teachers' interpretation and application of resources (Ball & Cohen, 1996; Davis & Krajcik, 2005).

Ball and Cohen (1996) proposed that curriculum resources, such as teacher guides, could serve an educative function for teachers. By interpreting these resources, Ball and Cohen (1996) argued that teachers could learn in ways that would help them plan the current lessons as well as future ones. The idea is not that the curriculum resources are scripted or meant to be followed exactly; instead, they are structured to provide teachers with information about teaching and learning that they can apply to other lessons and classes (Davis & Krajcik, 2005). Since that proposal, researchers have presented design heuristics and for science curricula principles (Davis & Krajcik, 2005; Davis, Palincsar, Smith, Arias, & Kademian, 2017), studied how teachers read educative features embedded in science curricula (Land, Tyminski, & Drake, 2015), attempted to establish connections between teachers' use of educative curriculum features and students' science learning (Arias et al., 2017), and examined the impact of history curricula with educative features for high school classrooms (Reisman & Fogo, 2016).

Researchers have studied how elementary teachers' enactment of educative science curricular resources relate to classroom practice and student outcomes (Arias et al., 2017; Cervetti, Kulikowich, & Bravo, 2015). Arias et al. (2017) looked at student learning outcomes in classrooms of fourth grade teachers using science units with educative features. One of the educative features in these units was what the authors refer to as an "in-lesson how and why" that presented ideas for how to help students with a specific science practice (e.g., making and revising predictions). Compared to classrooms in which teachers used units without the educative features, researchers found that the students showed more gains in justifying predictions. They also found that teachers gave feedback in students' notebooks related to justifying predictions. Cervetti et al. (2015) studied teacher and student learning outcomes in

fourth- and fifth-grade classrooms in which teachers used science curriculum materials with educative features related to supporting English learners. In their analysis of teacher- and student-level data sources, the researchers identified a relationship between use of the English learning strategies and students' science knowledge scores. These examples suggest that educative curricular resources can impact practice; however, they are only one strategy for supporting professional learning.

A key characteristic of educative curricular materials is that designers arrange materials in a way to make their "pedagogical judgements" transparent (Davis & Krajcik, 2005, p. 5). By providing a rationale for why segments of a lesson are put together in a specific way, the designers can help teachers understand their proposed purpose and function in learning (Davis & Krajcik, 2005; Davis et al., 2011). Teachers can then adapt the materials for their own classrooms. As Davis and Krajcik (2005) explain, "Making rationales for decisions visible is one way that curriculum materials could move beyond simply adding new ideas to teachers' repertoires and, instead, help them to integrate their knowledge base and make connections between theory and practice" (p. 5). This type of learning is related to teachers' pedagogical design capacity (Brown & Edelson, 2003; Davis & Krajcik, 2005).

Brown and Edelson (2003) proposed the concept of pedagogical design capacity as teachers' "ability to perceive and mobilize existing resources in order to craft instructional contexts" (2003, p. 6). This capacity is an interaction between the teacher's knowledge and goals and curricular resources (Brown & Edelson, 2003; Remillard, 2018). It is important to highlight that researchers have conceptualized pedagogical design capacity as an interaction between the teacher and the curricular resources (Brown & Edelson, 2003; Remillard, 2010). Those resources may be more or less transparent in term of why curriculum designers organized segments of units or lessons in specific ways (Remillard, 2018). Teachers will interpret and use the resources

based on their knowledge of content, pedagogical content knowledge (Shulman, 1987), professional experiences, and instructional goals. Teachers' professional context will also likely affect how they use and adapt curricular resources (Beyer & Davis, 2012; Forbes & Davis, 2010). Because teachers' planning is an active and interactive process, it is important to understand the teacher's decision-making, the curricular resources, and the context in which the teacher works (Remillard, 2018).

Curricular Resources for Teaching Disciplinary Literacy

There are steadily growing efforts to design curriculum resources that reflect a disciplinary literacy approach to teaching history for middle and high school students. These approaches highlight how the epistemology of a discipline relates to how disciplinary experts read texts (Goldman et al., 2016). In addition to increasing the number and types of texts students read, the curriculum resources give students opportunities to learn and apply disciplinary practices, such as those identified and described by Wineburg (1998) (e.g., sourcing, contextualization, corroboration). Some of the literature in this area focuses on descriptive accounts of how researchers developed disciplinary literacy history units (e.g., Duhaylongsod et al., 2015), as well as accounts of how teachers enacted history units that incorporated disciplinary practices with multiple texts (e.g., Kucan, Cho, & Han, 2017). Other studies have tied teachers' implementation of an instructional approach to student learning outcomes (e.g., De La Paz et al., 2014; Nokes et al., 2007; Reisman, 2012a). Related to the current study, two large-scale curriculum design efforts are especially salient because of their focus on curriculum documents as tools for teacher planning, adaptation, and learning: *Reading Like a Historian* (Reisman, 2012a, 2012b; Reisman & Fogo, 2016) and *READI* (Goldman et al., 2016).

Reading Like a Historian is a set of instructional resources developed by the Stanford History Education Group (Reisman, 2012a, 2012b). Studies have found positive effects on the

use of these materials to support students' learning in history content and disciplinary practices, as well as their general reading comprehension. To learn how to better support teachers in using the materials, Reisman and Fogo (2016) examined how features of the curriculum could serve an educative function for the teacher using them. Their goal was to understand the degree to which educative curricular materials could improve instruction. Some of the educative features in the curriculum included background information about the historical event and time period, document sets with that have been modified for readability, tools to support reading, and sample scripts to demonstrate how to model historical reading. Based on their analysis of a teacher's enactment of the curriculum, Reisman and Fogo (2016) described the ways in which the teacher's personal beliefs, experiences, content knowledge, and pedagogical content knowledge influenced how he taught the curriculum, as well as the degree to which he benefitted from the educative features of the curriculum. They found, for example, the teacher did not model historical thinking or facilitate whole class discussions, which they interpret to be because of the teacher's depth of pedagogical content knowledge related to historical reasoning. One of the closing recommendations Reisman and Fogo (2016) made is that curriculum designers explain how the documents relate to guiding historical questions for a lesson and how students might interpret the documents. This recommendation is in keeping with theoretical scholarship about how curricular resources could support teachers' pedagogical design capacity.

The *READI* project developed learning goals to guide design and redesign of curricula to teach argumentation in history (Goldman et al., 2016). As part of a major research and development project with teachers and disciplinary experts, the *READI* team shifted from developing document-based lessons that could "drop into" existing secondary history curricula to developing six learning goals that could guide the redesign of local history curricula (Goldman et al., 2016; Shanahan et al., 2016). The research team realized that the "drop in" lessons were not

sufficient in supporting teachers to change their instructional approach from a traditional textbook-based approach to a more inquiry focused document based approach. The "drop in" lessons also did not necessarily match the teachers' curriculum content. The research team then shifted to developing learning goals for teachers to use to redesign their local curriculum (Goldman et al., 2016). Shanahan et al. (2016) presented a case of how one eleventh-grade teacher incorporated the *READI* history learning goals as part of her history curriculum. In presenting this case, the authors explained how aspects of the teacher's approach to planning and instruction intersected with how she decided to incorporate the learning goals into the history curriculum. In a way, the *READI* project offers a model for considering local needs and adaptation from the start of a design project.

Both of these studies highlight teachers' agency over curriculum design and adaptation. Curriculum resources, such as teachers guides, reflect information and theories of teaching and learning (Remillard, 2018). As tools, however, curriculum resources are only useful to the degree that teachers see value and potential in them. The teacher in the case described by Shanahan et al. (2016) understood the epistemologies of historians and how they read texts. The teacher was interested in learning and professional opportunities, and she was open to changing her classroom practice. The teacher in the Reisman and Fogo (2016) study regularly enacted sourcing as a component of historical thinking, and he was committed to supporting his students' reading skills. He was interested the curricular resources because the document sets allowed students to learn about different perspectives. The teacher had also participated in professional development activities to learn about the instructional approach.

In this chapter, I focus on a design partnership with a fifth-grade teacher to learn how instructional routines for critical reading practice could travel across school sites. As part of the design partnership, I shared resources from previous collaborative design-based research focused

on supporting students' critical reading skills with history texts. My goal was not that the teacher implement specific lessons. I thought these curricular resources would be meaningful ways to share theories and explanations for how and why the teachers and I had thought instructional routines had, or had not, supported targeted learning goals at the other school. This decision was based on Greeno's (2006c) recommendation that researchers share study findings and provide resources for "educators in other settings to use the successful case or cases that were implemented as existence proofs that can be emulated should they wish to do so" (p. 799). Informed by situative learning perspectives (Greeno, 2006b), and especially a theory of expansive learning (Engeström & Sannino, 2010), I studied how the teacher incorporated an instructional routine for questioning and evaluating primary sources of information into her school's social studies curriculum. I address the following research questions: How does a teacher adapt an instructional routine for her school and classroom context? What features of the collaborative design process supported the teacher's planning? This study contributes to scholarship on how teachers adapt curricular resources to meet students' learning needs and their instructional goals in history. The study contribution is unique in terms of the focus on elementary history instruction and how the design process mediated a teacher's local curriculum adaptations.

Research Methods

Research Context

The fieldwork in this chapter reflects the third phase of a three-part design-based research study (Barab & Squire, 2004; Brown, 1992). The larger study focused on how to teach elementary school students to evaluate and corroborate multiple sources of information about history. Over the course of two school years, I partnered with teachers at two schools: Inquiry School and Equity Academy. Starting with teachers' goals for student learning and local

curricula, I collaborated with teachers at the two schools through multiple cycles of designing, adapting, and refining instructional routines and lessons for teaching critical reading practices as part of social studies lessons. We focused on the social studies curricula because history is typically taught as a component of a multi-disciplinary social studies curriculum in the elementary grades.

In the first and second phases of the project, I had partnered with fifth- and sixth-grade teachers at Inquiry School. I spent time studying their approach to teaching reading as part of content area instruction in the first phase of the study. I learned about the school's curriculum and teachers' instructional approaches. I also spoke with the teachers about their interests related to teaching reading in history. What learning goals would they like to address through a design effort? In the second phase of the study, the teachers and I worked together to develop instructional routines to support students' critical reading practices with history texts. We planned how to incorporate these routines as part of their regular social studies instruction. The teachers enacted the routines. Then we met to reflect on our progress and whether we would adjust a component of the instructional routine. In the third phase of the project, I engaged in a similar process with a fifth-grade teacher at Equity Academy.

In this chapter, I focus on my partnership with a fifth-grade teacher, Ms. Martin, at Equity Academy during the 2015-2016 school year. I had begun the collaborative design work with seven fifth- and sixth-grade teachers at Inquiry School the previous year. In partnering with Ms. Martin, my goal was to study how instructional routines could travel to a new instructional context, as well as what types of materials and resources might help a teacher make productive adaptations. I now turn to introducing Equity Academy as a design context and Ms. Martin as a history teacher. I provide an overview of the design work we did together, and I describe the sources of data and analysis strategies that generated the findings for this chapter.

Setting and Participants

School context. Equity Academy is a public school that serves about 440 students in kindergarten through sixth grade. Eighty percent of students in these grades identified as Hispanic or Latino, 12% identified as Asian, 3% identified as African American, 2% identified as Filipino, 2% identified as White, and 1% identified as two or more races. Seventy-two percent of the students had been identified as English Learners (ELs).

An important part of the school's mission is to be an instructional model for public schools. Teachers at the school have experience studying and reflecting on their own instructional practice. Grade-level teams work together to develop instructional units and plan instruction. They have weave the school's core practices (e.g., a focus on social justice) throughout the curricula, which is aligned to state content standards.

Two characteristics of Equity Academy are especially important for understanding the school as a context for instructional design and adaptation: organizational structures to support students who are English learners, and teachers' relative autonomy to plan and develop curriculum to support students. As noted previously, over half of the students in grades kindergarten through six had been identified as English learners (ELs). The state has set "English Language Development" (ELD) standards for students who are identified as ELs. To address the state ELD standards, teachers at this grade level had decided to group students by their ELD level for one instructional period during the day. Teachers made this decision so they could better differentiate instruction to meet the ELD standards for each specific ELD level. During this period, students had five-week cycles of social studies or science units, and they rotated to different teachers for these units. The teachers collaboratively set English language, reading, and writing expectations according to the ELD standards for this period of instruction.

I observed the social studies period during three of these five-week cycles. Each rotation involved a new group of students based on their ELD level. Across the weeks, I counted between 25 and 30 students in the classroom during the social studies instructional period. The teacher, Ms. Martin, taught the same social studies content during the three cycles. She modified the lessons based on her knowledge of students' needs and questions, and she incorporated strategies to help students learn language and content. The grade-level team had decided that one product of the five-week cycle was that students would write an expository text using multiple sources of information.

Social studies in room 32. When I first met Ms. Martin, she shared her interest in teaching history with primary sources. She had been teaching elementary school for close to ten years and had worked at Equity Academy for most of that time. Several years prior, she had become dissatisfied with teaching social studies using a textbook. This dissatisfaction led Ms. Martin to seek out professional development, instructional resources, and opportunities to collaborate with teachers at other schools to develop curriculum using primary and secondary sources. She had incorporated primary sources throughout the fourth- and fifth-grade social studies curriculum. Using a three-step protocol, Ms. Martin regularly modeled, and gave students opportunities to practice, making observations, inferencing, and generating questions about these primary sources. The primary sources, however, were mostly a source of content and an opportunity to incorporate multiple perspectives on historical events and time periods. Ms. Martin thought that teaching students to evaluate and corroborate sources of information was the next step for her curriculum development. She also saw it as aligning with the school's curricular initiatives in the secondary grades. The secondary social studies teachers had recently started to incorporate historical thinking practices in the school's curricula.

During classroom visits, I observed Ms. Martin teaching the variety of disciplinary content standards that fell under the umbrella of the state social studies standards. I observed, for example, a lesson focused on regions and climate. While I did sometimes observe lessons that addressed geography, I tried to schedule my classroom visits for days when the primary focus of the lesson would be history. The lessons that focused primarily on history addressed state content standards related to Indigenous peoples in North America and European explorers. Within these lessons, the teacher often taught students how to read and interpret different sources of information and then use this information to write an expository text. While the state ELD standards for reading and writing differed for each group of students, all students read multiple sources of information and used that information to write an expository text.

Researcher positionality. Although I focused the design collaboration on historical thinking practices, it seems important to point out that I am not a historian and have no formal training in history. My primary research interests are literacy and curriculum design. I am especially interested in historical thinking and reading practices. By teaching these practices in school, the aim is that young children will be well-prepared to critique and evaluate information they encounter outside of the history curriculum (Wineburg & Reisman, 2015). In all of the design activities, the teachers and I drew from existing, well-regarded resources (i.e., Stanford History Education Group).

My goal in partnering with Ms. Martin at Equity Academy was to see how instructional routines traveled to a new school context. Within the social studies curriculum, teachers at the two schools shared an interest in incorporating multiple texts—not just a single textbook—to teach history content. They were especially interested in incorporating primary sources. Among the teachers with whom I collaborated, there was also a pedagogical focus on critical reading and corroboration of history texts. There were also institutional similarities between the schools.

Teachers at both schools had leadership positions, and they were able to make decisions related to their professional learning and curriculum. Teachers planned and coordinated instruction with their level colleagues. The schools used multi-age groupings instead of traditional grades, which meant that teachers stayed with the same cohort of students for two school years. These similarities led me to believe that the intent of the instructional routines to teach historical thinking would be relevant and useful to teachers at the two schools.

I did not know Ms. Martin before we began this collaboration, nor had I previously worked with teachers in the elementary grades at Equity Academy. I do, however, have a background in providing technical assistance to teachers and school administrators. Because of my professional background in providing technical assistance to educators, I approached this research project as a professional learning opportunity. I wanted the teacher partners to have a voice in shaping the scope of our work as well as how we accomplished our goals. In the next section, I describe our collaborative design process in greater detail.

Collaborative Design Process

Ms. Martin and I had nine design meetings between February-June 2016. Before launching into the collaborative design process, however, I spent time understanding Ms. Martin's approach to teaching social studies and the school's curriculum. I intended for the design process to build on the school's existing curriculum; I believed it was important that I spent time learning about lesson content and organization. I both observed instruction during the social studies period and interviewed Ms. Martin about one of the observed lessons. I describe both of these methods of data collection in greater detail below. These observations and the interview provided me with important insights going into the design cycles.

Our design meetings started about one month after I first began observing in Ms. Martin's classroom. We first focused on setting goals for our collaboration. In our first meeting,

Ms. Martin asked, “Where should we start?” I responded by asking if she could explain her learning goal for the upcoming unit. Her goal was related to an expository piece of writing that students had to produce. Students had to use multiple sources of information to write the text. The rest of our collaboration unfolded from there. Ms. Martin described goals and expectations for the kinds of reading she wanted students to do in social studies. Our planning and conversations were always guided by Ms. Martin’s learning goals for students and expectations for the outcomes of lessons and units.

During the course of the nine meetings, Ms. Martin shared existing curriculum resources, which included unit and lesson plans, school-created expectations for reading and writing, and texts for students to read. I shared lesson plans and other instructional resources from the design work at Inquiry School. For example, I shared a conjecture map (Sandoval, 2004, 2014) that I had constructed as part of a collaborative design effort with a team of teachers at Inquiry School. In one of these lesson plans, I had intentionally embedded educative features to make clear the context in which the lesson had been taught, the design rationales that guided the lesson structure, and insights from the classrooms in which the lessons had been taught (e.g., questions students had about texts, how a teacher introduced a particular vocabulary word or concept [e.g., Davis & Krajcik, 2005]). Subsequent meetings focused on planning, reflecting, and refining lessons and instructional routines. Similar to Shanahan et al. (2006) in the *READI* project, it was not possible nor desirable to ask Ms. Martin to enact the pre-existing lessons. Instead, the design rationales and resources informed how she adapted her existing curriculum and curricular resources. Our last meeting was a reflection on our design process and outcomes.

Apart from the first and last meetings, we typically spent time actually planning for an upcoming lesson during these meetings. Ms. Martin had the main responsibility for planning lessons, and she always taught the lessons in the classroom. My role in meetings was to ask

questions about past or upcoming lessons, share resources, and occasionally offer a suggestion for how to incorporate sourcing as part of the primary source routine. I deferred to Ms. Martin on all decisions related to content. To support her instruction, I offered to help search for primary sources. We spent a great deal of time looking for primary sources to use as part of lessons. Ms. Martin had a library of primary sources she had collected over the years; however, she sometimes wanted to see if we could find a different or better one to support a lesson learning goal. We searched the websites of museums and libraries for potential primary sources. Finding primary sources proved to be one of our biggest challenges in the design process. We had to both locate documents that matched the content learning goals and that students would be able to access and read independently. In between meetings, Ms. Martin and I sent emails to share primary sources we had found. We also exchanged professional resources related to teaching history in the elementary grades. We developed a colleagueship around figuring out how to incorporate historical thinking practices in the school's social studies curriculum.

I continued to observe Ms. Martin's social studies instruction throughout the design period. Ms. Martin's social studies instruction took place during this designated ELD period. During the time that we worked together, I observed three five-week cycles of student groups. Ms. Martin had the same content focus during each of these five-week cycles. These cycles dictated the flow of our collaborative design work and iterations. In addition to refining her approach to teaching historical thinking practices, Ms. Martin made adaptations to other elements of her curriculum based on the previous cycle. Throughout each five-week instructional cycle, I observed Ms. Martin keeping a dual focus on scaffolding instruction to facilitate students' access to historical content while incorporating their linguistic knowledge, experiences, and interests in the classroom.

Data Collection

Between February-June 2016, I collected four sources of data: field notes of classroom observations, an audio-recorded interview with Ms. Martin, assignment and lesson-planning artifacts, and audio recordings of our design meetings. The data for this chapter come from the transcript of the 37-minute interview with Ms. Martin, 23 field notes of 25.5 hours of classroom observation during social studies, and notes and transcripts from nine collaborative design meetings. I describe my approach for collecting each source of data below. I wanted to understand the instructional context, the enacted social studies curriculum, and our design process. The data collection generally fell into two phases—in preparation for and during the collaborative design process.

Preparation for design. Before designing lessons with Ms. Martin, I wanted to understand her approach to teaching social studies. I observed instruction during the scheduled social studies instructional period, which was seventy minutes and typically occurred three days each week. I employed a strategy similar to my approach to classroom observations at Inquiry School during the first phase of the dissertation study. My early observations focused on understanding the classroom norms and routines, the physical organization of the classroom space, the teacher's approach to teaching history, and how students used texts as part of classroom tasks. These observations might be considered "grand tours" of the classroom during the social studies class period (Spradley, 1979). Unlike the first phase of the dissertation, I did not have the same amount of time to learn about the teacher's general instructional approach. I quickly focused my observations on documenting teacher-student interactions during the classroom tasks that involved texts, as well as the specific materials and tools used as part of these tasks.

I typically sat in the same corner of the classroom during an observation. To the degree possible, I tried to stay out of the way of the teacher and students. When students were working independently or in small groups, I would walk to one or two tables to look at the students' work or to listen in on small group conversations. I wrote field notes (Emerson et al., 2011) to document my observations of classroom instruction. After leaving the school, I would type my handwritten notes, or review my typed notes, and fill in details about the classroom context and instructional activities.

I conducted a semi-structured interview with Ms. Martin based on one of these classroom observations. The purpose of this interview was to better understand Ms. Martin's social studies curriculum and her pedagogical approach to teaching history, and especially how she viewed the role of reading in the social studies curriculum. The observed lesson was a shared experience to anchor Ms. Martin's description of her teaching. I selected the focus lesson based on whether it involved reading, and then I tried to schedule the interview within a week of the lesson observation.

To begin the interview, I used my field notes to briefly summarize the lesson. I confirmed that Ms. Martin was willing to participate in an interview about the lesson, shared the categories of questions I would ask, and reminded her that she did not have to answer any of the questions. With Ms. Martin's permission, I then started the audio recording. The interview questions fell into four categories: professional experience; lesson-planning process; how the observed lesson related to the yearlong plan for instruction; and the role of reading in that lesson (Appendix B). Apart from the professional experience questions, I asked one broad initial question for each category (e.g., "Please describe what you do to prepare a social studies lesson [one or two periods of instruction]."). I then asked follow-up questions based on the teacher's response. I also sometimes asked clarifying questions to make sure that I understood something that Ms.

Martin had shared (e.g., “Could you say more about that?” “What would be an example of…?”). At the end of the interview, I asked Ms. Martin if she had questions for me. The interview lasted 37 minutes. I audio recorded and transcribed the interview.

During the design process. After observing Ms. Martin’s social studies classroom for several weeks, I began meeting with Ms. Martin for design planning meetings. These meetings involved sharing lessons and sample instructional resources, planning adaptations for the local grade-level curriculum, and reflecting on recently taught lessons. Early meetings had an additional focus of identifying and clarifying our goals for working together. Ms. Martin and I met nine times between February-June 2016. The meetings ranged from approximately 30 minutes to one hour. I documented the first meeting by writing field notes. I audio recorded and then transcribed the subsequent eight meetings. I also kept examples of artifacts (e.g., copies of primary sources, lesson plans, shared meeting notes) to provide additional context on the meetings.

I continued to observe the social studies instructional period during our design period. Again, the social studies period took place three times each week for 70 minutes. I intentionally scheduled to observe lessons that we discussed during the planning meetings. During these observations, I took notes on the structure and organization of tasks within lessons. I especially attended to teacher and student interactions in tasks that involved texts and reading. I wrote field notes (Emerson et al., 2011) to document these observations. I wrote field notes in a small notebook when I first began observing, and then later transitioned to typing notes on a laptop as the teacher and students became more used to my presence in the classroom. Including my first classroom observations, I observed 23 periods of social studies instruction, which amounted to 25.5 hours of observation.

Data Analysis

I conducted three phases of data analysis. The first phase of analysis focused on understanding Ms. Martin's approach to teaching social studies when we started working together. The second phase involved constructing an understanding of our design process, with a specific focus on the collaborative design meetings as a learning activity. In the third and final phase of analysis, I looked at the classroom practices to understand the relationship between our design work and the lessons Ms. Martin enacted in the classroom.

My first step in analysis was to understand Ms. Martin's approach to teaching history at the time when we began working together. I used domain and taxonomic coding (Saldaña, 2013; Spradley, 1979) to identify and organize the ways that the teacher planned and taught reading as part of social studies instruction, as well as the beliefs and knowledge that informed her approach. In this analysis, I was interested in how and why the teacher organized social studies instruction for students. I began by reading the interview transcript while listening to the audio recording. I then reviewed the interview transcript, as well as field notes and transcript from the first three design meetings, multiple times to construct domains (Saldaña, 2013; Spradley, 1979) related to teaching history and reading. This coding approach seemed particularly useful for understanding the knowledge and beliefs that guided Ms. Martin's teaching (Saldaña, 2013). I reviewed these data sources to look for "x is a way to y" relationships (i.e., means-end [Spradley, 1979]). An example of this type of relationship is that "incorporating students' identities in the curriculum is a way to be socially just." I also looked for "x is a reason for y" relationships (i.e., rationale), such as "incorporating multiple perspectives is a reason for using primary sources" (Spradley, 1979). In constructing these domains, I used both in vivo terms that came directly from the data sources, as well as "analytic terms" that characterized or summarized a larger concept (Spradley, 1979). I then collapsed the domains into two taxonomies and wrote a memo

to describe what I understood to be Ms. Martin's approach to teaching history at that particular point in time. From Ms. Martin's own account, she had learned and changed her practice over time. This initial analysis allowed me insights as to what ideas about planning instruction and teaching history had shifted over time.

The next step was to construct an overview of the design work that the teacher and I did together. I reviewed all transcripts and notes from the design meetings, wrote a summary of the main work of each meeting, and started a running list of topics that were the focus of our conversations (e.g., materials, ELD levels). In this same table, I also linked the design meeting conversation with field notes from classroom observations that were discussed either in terms of planning or reflection. This overview allowed me to have a "big picture" view of the collaborative design process and outcomes.

Finally, I wanted to understand whether Ms. Martin's approach to teaching historical thinking systematically shifted over time. I reviewed all field notes from my classroom observations—both from before and during design meetings. I divided the observations into tasks (Kisa & Stein, 2015; Stein, 1996), which seemed like more meaningfully comparable unit than lessons or instructional periods. Tasks may involve one or more activities focused on the same instructional goal (Kisa & Stein, 2015; Stein, 1996). I decided the division points between tasks based on when teachers introduced a new instructional goal or focus for students. After dividing the field notes into tasks, I used an open coding process (Saldaña, 2013) to describe instances when Ms. Martin referenced the work of historians, provided instructions for reading, or modeled how to read a text. To look for patterns, I created a matrix of the observation dates and occurrence of codes. The matrix allowed me to see that Ms. Martin shifted from telling students about the work that historians have to do (e.g., read maps, read multiple texts) to increasingly explaining how historians do their work (e.g., evaluate sources).

Validity checks. This third phase of the study involved two types of member checks (Maxwell, 2013; Merriam & Tisdell, 2016) with Ms. Martin to share my interpretations of data I had collected. The design meetings with Ms. Martin were an opportunity to discuss recent lessons. I was able to ask questions about the lessons and how she had interpreted classroom interactions. I was also able to share my observations and reflections about lessons I had observed. After the data collection period, I shared preliminary findings for this chapter with Ms. Martin. She reviewed the findings to determine whether they resonated with her memory of the work we did together. She also shared some clarifications related to the grade-level curriculum and ELD standards.

Limitations. A main limitation in the analysis is that I was not able to observe all social studies lessons during the data collection period. When there was a substitute teacher, for example, I did not observe the class. I also occasionally had work or school scheduling conflicts with the social studies period. Although I was not able to observe all lessons, I was able to observe a substantial number of lessons and believe they are representative of the overall patterns of instruction during the social studies period.

Findings

In this section, I demonstrate the ways Ms. Martin's instructional planning and practice in social studies expanded to include the historical thinking practices that were the focus of our work together. The collaborative design work impacted both Ms. Martin's individual classroom teaching and her curriculum planning with other teachers at her level. First, I introduce Ms. Martin as a social studies teacher, and then illustrate how her teaching shifted over time to incorporate sourcing texts as part of studying primary sources. Ms. Martin had already started to incorporate primary sources in the curriculum. She had sought out professional development and opportunities to develop units with other teachers. She also had ideas about the kinds of

curriculum work she would like to do next. By working together in this collaborative design process, we were able to identify opportunities to incorporate historical reading practices, specifically sourcing, in her existing lessons. Ms. Martin then shared the work with her grade-level colleagues to develop a new writing unit for the following school year, which I interpret to be evidence of pedagogical design capacity for historical thinking practices and primary sources. I then provide an explanation for how our collaborative design work supported these shifts in Ms. Martin's instructional planning and practice.

Social Studies Instruction in Ms. Martin's Classroom

Ms. Martin planned and taught social studies in a way that incorporated both her pedagogical beliefs in social justice teaching and the literacy expectations of the school curriculum. She was committed to incorporating multiple perspectives and experiences within the social studies curriculum. When describing how she planned lessons in an interview, Ms. Martin shared that she thinks "about multiple perspectives and the people who are the silenced within U.S. history." She also saw teaching with primary sources as aligning with the school's social justice mission.

As an educator, she also believed it was important for students to see themselves reflected in the school's social studies, and especially history, curriculum. She explained that students "need to identify themselves as part of what makes this country rather than an outsider who's looking in to a history." One way she addressed these commitments was through diversifying the content and types of texts students read. For example, instead of teaching social studies using a single textbook, Ms. Martin had invested a great deal of her time and resources to find primary and secondary sources of information about historical events and time periods. She had sought out resources from museums that "brought a different perspective than what I would usually see in the books." Ms. Martin viewed reading as a "a very powerful tool to open up . . .

the world." From reading, students could learn about different places and time periods, as well as develop an understanding of how events in the past have repercussions in the present. Ms. Martin had filled her classroom with books for students to read and use throughout the school day. In addition to dedicated bookshelves the classroom, there were plastic tubs filled with books related to the class's social studies units. These were books Ms. Martin had purchased through a local curriculum development grant as well as borrowed from the school library. Ms. Martin also displayed recent read aloud texts along the marker rail of the white board.

A central goal of Ms. Martin's instruction was for students to learn how to critically read, question, and discuss a variety of sources of information. Ms. Martin addressed specific literacy objectives aligned with the school's ELD curriculum. The social studies class took place during an instructional period designated for ELD for English learners. During this instructional period, students cycled through social studies and science classes with classmates identified within the same ELD level. Each cycle was five weeks. Within that five-week cycle, teachers taught and supported students to draft a piece of expository writing. The grade-level team of teachers had set the writing expectations to align with ELD standards, and they had collaboratively developed rubrics to evaluate student's written products. One of their anticipated outcomes for each five-week social studies cycle was that students would use multiple sources of information to research a topic and produce a short piece of expository writing.

To meet all of the literacy goals and expectations, Ms. Martin structured the class period using a workshop model. Ms. Martin referred to how she introduced content to students as following, "I do. We do. You do." Within a class period, Ms. Martin typically modeled a reading or writing strategy, provided students with scaffolded opportunities to practice applying that strategy, and gave them time to use the strategy on their own or in a small-group setting. She taught students, for example, how to annotate a text to identify key ideas, and how to create a

table to organize information from multiple sources. She also used a variety of strategies to support students' English language development during this period. The classroom walls, and often the marker boards, displayed posters that Ms. Martin had created as resources for students (e.g., annotation key, social studies expectations), as well as chart paper with Ms. Martin's notes from her demonstrations or guided practice conversations about reading skills and strategies with students. These handwritten and drawn posters throughout the room made the teacher's thinking and expectations visible to students and they also served as documentation of their classroom conversations.

Intersection of Social Justice Teaching and Disciplinary Practices in History

Ms. Martin saw an alignment between her pedagogical beliefs about social justice teaching and the disciplinary tools and practices of historians. This alignment especially came through in her use of primary sources. Primary sources were a way for Ms. Martin to incorporate multiple perspectives in the history curriculum. In the field note excerpt below, Ms. Martin speaks with her students about the importance of recognizing multiple perspectives when learning about history. She explains that, as historians, the students should try to understand multiple perspectives when studying this particular historical event.

> "So," Ms. Martin begins, "something historians try to do is understand multiple perspectives. We should be understanding different perspectives on an event." She then has a brief conversation with students about both the words "multiple" and "perspective." (field notes, 2/25/16)

To examine perspective using a primary source of information, Ms. Martin taught students how to use a three-step protocol from the Library of Congress. She would also give them a three-column graphic organizer to document their notes. The vignette below shows how Ms. Martin modeled the protocol for students.

> "First," Ms. Martin tells the class, "you ask yourself, 'What do I see when I look at a primary source?' It's not about what you think." She projected a picture on the marker board. Sitting at their desks, all students have a three-column graphic organizer in front of them. Ms. Martin models looking at the picture and making observations.
>
> "I told you what I see. I'm going to write it down." She begins writing her observations in the first column of the graphic organizer. "That's what historians do."
>
> Moving to the next step in the protocol, Ms. Martin continues, "Then, all of those observations should give me a clue." She explains how she make inferences based on her observations and background knowledge. Finally, she models generating questions. "Historians, what I just did is analyze a primary source. You're going to do it now. We'll start together and you'll finish on your own." (field notes, 3/30/16)

Ms. Martin was teaching students to separate their observations from their inferences about what they saw. She was also encouraging them to be inquisitive and wonder about the source and its meaning. The observations, inferences, and questions, however, generally focused on the content of the source. Students were attending the information embedded in it.

Expanding an Instructional Approach to Incorporate Historical Thinking

By the end of our first collaborative design cycle, which aligned with the five-week ELD rotation, Ms. Martin's approach to teaching primary sources expanded to include historical thinking, especially sourcing. Ms. Martin and I met for a design meeting on the day after the lesson mentioned above. In that design meeting, I shared an annotated lesson plan and supplemental materials with Ms. Martin. The annotated lesson plan provided information about how teachers introduced questions to help students evaluate a sources of information. Ms. Martin reflected on how she could have incorporated these questions within recent lessons with primary sources, and we discussed ways to incorporate the questions in upcoming lessons. In future

lessons with primary sources, Ms. Martin started asking students to evaluate sources of information, and she introduced a poster with historical thinking questions to scaffold these conversations. Ms. Martin also encouraged students to think about texts and artifacts in more nuanced ways. In the vignette below, Ms. Martin and her students are continuing to use the three-step protocol to analyze a painting. Ms. Martin complicates the analysis, however, by asking students to consider whether this particular painting is actually a primary source.

> "So, I'm a little bit confused." Ms. Martin opens the lesson. Students are gathered on the rug by the marker board. She reminds students they had started analyzing a primary source the previous day using the three-step protocol. "We wrote observations, reflections, and today, we're going to ask questions." Then she tells students why she is now confused. "We're going to talk about whether it was a primary or secondary source. Ms. Martin said 'primary source.' But is it really a secondary source? It's complicated! We're going to figure it out." Ms. Martin heads toward the projector, and students stand to return to their desks.
>
> Ms. Martin projects a photograph of the painting on the screen, but she covers the title with a piece of paper. Noticing that part of the document is obscured, one student asks, "Why are you covering it up? Is that information?" (field notes, 4/14/16)

This painting was one that the teacher had found in an educator resource section of the website for a well-known museum. It depicted an nineteenth century artist's interpretation of Christopher Columbus landing in the Americas. On the museum's website, however, this painting had been categorized as a primary source. An explanation on the website clarified that the painting is a primary source for understanding how some people in the nineteenth century perceived Columbus.

Ms. Martin wanted her students to learn to critique images like this one. After reviewing the notes on class observations and reflections from the day before, Ms. Martin gave students time to generate questions. She asked them to predict what the title of the painting might be, and then removed the paper to uncover the actual title with the class. This conversation about the title was part of the a new way Ms. Martin was asking students to critique a source. By questioning the title, they were also questioning the artist's purpose and bias in selecting that title. Ms. Martin continued the conversation by inviting students back to the rug to introduce historical thinking questions.

> "This is part of historical thinking," Ms. Martin begins. "It's called sourcing." She unfurls a handwritten poster with a series of questions. "Who wrote, drew, or created this?" Ms. Martin holds up the photograph of the painting. "We need to research." She advises them. "Next, what is the author's perspective? Turn to your neighbor. What does perspective mean?" Students turn and talk. Ms. Martin sounds a chime to signal the group to come back together. She repeats the word "perspective" in English and then again in Spanish. The class discusses a definition of the word. "We're trying to figure out—who's perspective is this from?"
>
> "Let me tell you something about this painting." Ms. Martin tells students the painting was created in the 1800s. She reminds them that Christopher Columbus landed in what is now called America in the late 1400s. "The painting was created almost 400 years later. Is this a primary source or a secondary source? Turn and talk with a partner about the question." After a minute or two, she uses the familiar chime to signal the group to come back together. She repeats the question. "Is this a primary source or a secondary source?"

In the conversation that followed, students argued that it was a secondary source. The original plan was that Ms. Martin would then give students another image to analyze independently. That plan changed when Ms. Martin noticed that the class conversation was very generative. Students offered interesting answers, such as the one below.

> "The person who drew it wasn't there." One student explains, "If you tell someone what happened, they can't do it exactly. Someone could add different things that could change history." A few students start applauding in support of this answer.

This extended classroom vignette shows how Ms. Martin's approach to teaching primary sources was expanding to include historical thinking practices. She did not stop using the reading tools and strategies that she had been using prior to our collaboration. As described above, she continued to use the three-step protocol for interpreting primary sources. She also continued to teach students how to use tools and strategies like annotation, note-taking, and graphic organizers could support their reading and writing. She wove into these practices an awareness of source, however, that changed the ways she taught students to think about historical information they encounter.

At the conclusion of the two design cycles, which coincided with students' last day of their five-week instructional cycle, Ms. Martin ended the class with a similar reminder to students. Below is an excerpt from field notes that capture her parting words to students at the end of one of these cycles.

> "In history, you will always have multiple perspectives." Ms. Martin reminds students. "You need to learn how to question a source based on who wrote it, when, and why. It's not just about facts. It's about how people at that time saw the world." (fieldnotes, 4/15/16)

Ms. Martin ended with a similar reminder for students at the end of next instructional cycle. Reflecting on the lessons during our final design meetings, Ms. Martin explained how she thought the lessons she had taught this year had "planted a seed" for students to become curious about sources of information. Ms. Martin said that she would like to continue working on approaches to teaching students how to evaluate a primary source. She saw this work as aligning with her longer-term goals as an educator and learning goals that she wanted to address. In a design meeting later, Ms. Martin explained that she wanted students "to be able to look at a book and say, 'Oh, why would someone put this picture here? What does that mean? And when was it taken?'" The work that we had done together over the past few months was a step toward her larger vision for history and social studies instruction.

One Step in a Trajectory of Learning

Ms. Martin saw how the focus of our collaborative design aligned with her learning goals as a professional. During our final design meeting, Ms. Martin explained that she thought our collaboration "started to get me to think about all the work that I need to do." As described previously, Ms. Martin had been teaching history with primary sources for several years before we started working together. She had sought out professional learning opportunities, collaborated with other educators, and applied for grants to develop her approach to teaching history with primary sources. She framed our recent collaboration part of that trajectory of learning.

> "So, I know that I had done work on looking for primary sources, and trying to get the kids to start looking at them objectively—subjectively—but I think I was really missing that link. Which was: How do I truly ask those questions in a way to get the kids to start thinking deeply? And . . . having those discussions?" (transcript, 6/15/16)

Ms. Martin had clear ideas about how she wanted to improve her instruction next. For the future, she reflected on how she wanted to deepen her practice around interpreting primary sources. She

also had longer term goals to build curriculum units related to the history and contemporary experiences of diverse groups of Indigenous peoples across the United States. Ms. Martin viewed her professional learning and curriculum development an ongoing process.

During our final design meeting in June, Ms. Martin reflected on how the collaborative design project had also impacted her instructional planning with grade-level colleagues. She explained that she had spoken with the other fourth- and fifth-grade teachers at the school. With her grade-level colleagues, Ms. Martin had shared what she had learned related to teaching primary sources and historical thinking. To me, she explained, "I feel that now . . . I have a little more information, because of what we tried out, where I can somehow support [my co-workers]." With Ms. Martin's leadership, the grade-level team had already begun adapting a writing unit to incorporate primary sources for the next school year. The team wanted this writing unit to incorporate multiple perspectives and primary sources, and teachers had identified the kinds of primary sources they intended to include. Ms. Martin was especially excited to share that they planned to incorporate historical thinking practices to teach students how to evaluate and interpret the primary sources.

Discussion

The purpose of this third phase of the dissertation study was to gain insight as to how elementary school teachers might incorporate a new instructional routine in existing local social studies curricula. I partnered with one fifth-grade teacher, Ms. Martin, at Equity Academy to share information and resources about instructional routines enacted by teachers at Inquiry School. Ms. Martin was interested in teaching students to critically read and corroborate multiple sources of information about history, and she had sought professional learning opportunities and curricular resources to support these practices. As contexts for teaching and learning, Equity Academy and Inquiry School shared important similarities and differences. The similarities

between the two schools meant there was teacher interest, expertise, and institutional support for incorporating new instructional routines related to historical reading practices. The differences between the schools provided an interesting opportunity to study how to support the travel of an instructional routine to different schools. Because of my interest in how instructional approaches can travel (National Academy of Education, 1999) to new school sites, I wanted to understand both Ms. Martin's process of incorporating the new routine as well as what resources and interactions supported her in that process.

Two research questions guided the study design and analysis: How does a teacher adapt an instructional routine for her school and classroom context? What features of the collaborative design process supported the teacher's planning? To answer these questions, I documented both our collaborative design process and the teacher's classroom instruction. The data allowed me to see connections between the discussions and decisions in the design meetings and shifts in the teachers' instruction. Ms. Martin did certainly adapt the instructional routine for evaluating and interpreting primary sources; however, she adapted her existing social studies curriculum to incorporate the routine too. Ms. Martin expanded her teaching practice to include considering the source of a text, photograph, or other artifact. She also developed a pedagogical design capacity (Brown & Edelson, 2003) for adapting future lessons and instructional units to include teaching historical thinking practices with primary sources. Our design process was highly collaborative. We shared curricular resources and discussed theories for how and why we thought types of instruction would lead to student learning. It is not possible to isolate which one of these elements supported Ms. Martin's planning. After a discussion of how Ms. Martin adapted instruction, I address the main features of the collaborative design process that supported her planning.

Design as Professional Learning

While my research focus was initially to understand how Ms. Martin would adapt an instructional routine for her classroom context, I had to shift that focus when I realized that Ms. Martin was also adapting her curriculum to incorporate the new instructional routine. I came to understand our work together through the lens of expansive learning (Engeström & Sannino, 2010), which "leads to the formation of a new, expanded object and pattern of activity oriented to the object" (p. 7). Ms. Martin had become interested in changing her approach to teaching history several years prior. Instead of teaching history from a single textbook, she had incorporated multiple primary and secondary sources of information for students to read and interpret. She also provided students with tools, such as annotation, note-taking, and a three-step primary source protocol, for engaging with these texts and artifacts. In the design meetings, Ms. Martin and I drew on new and existing curricular resources to plan lessons that incorporated an instructional routine for sourcing texts or images. Ms. Martin continued to teach history using primary and secondary sources of information along with tools to support how students processed information from these documents; she also incorporated a routine for questioning and evaluating the source of a text or image. By incorporating this routine, Ms. Martin expanded her approach to teaching students how to interpret primary sources as well as ways to read and learn about history.

This study illustrates the ways in which lesson planning and teaching is a kind of design work (Brown & Edelson, 2003; McKenney et al., 2015). Ms. Martin had multiple instructional goals for her students. In our design meetings, these instructional goals anchored our planning for future lessons and reflections on recent ones. We used curricular resources to plan and reconfigure lessons that would help students meet these goals. Through this process of adapting the social studies curriculum to incorporate the sourcing routine, Ms. Martin developed a

pedagogical design capacity (Brown & Edelson, 2003; Davis & Krajcik, 2005) for teaching historical reading practices with primary sources. She saw new affordances in her existing curricular resources. Her pedagogical design capacity, however, was not constrained to the lessons we discussed in design meetings.

By the end of the four months that we worked together, in fact, Ms. Martin shared some of these curricular resources with the other teachers at her grade level. She talked to her colleagues about incorporating historical reading practices and primary sources in future units. Together they developed a unit that they would use in the fall. It was a writing unit that incorporated primary and secondary sources related to specific historical events. I see this unit as further evidence of Ms. Martin's pedagogical design capacity (Brown & Edelson, 2003). Ms. Martin was able to see opportunities in new curricular resources to incorporate historical reading practices and primary sources, and she worked with colleagues to organize resources to serve her learning goals for students. This type of design capacity is what Goldman (2018) argued teachers need to develop so they can "improvis[e] and innovate[e] in the face of what might be moment-to-moment changing circumstances and demands" (p. 16). I argue that the collaborative design process provided an opportunity for Ms. Martin to develop this capacity.

Supporting Travel Through Collaborative Design

This capacity for improvement enables the successful travel and productive adaptation of innovations to new contexts (National Academy of Education Report, 1999). To support this capacity, authors of the 1999 National Academy of Education Report proposed the importance of sharing theories for how and why something worked in a specific site, developing tools and resources to help educators make adaptations for their local context, and identifying people who can support local educators. Through a collaborative design process with Ms. Martin, I intentionally incorporated all three of these recommendations.

Design-based approaches to research involves developing and refining theories for how and why an instructional approach led to specific types of learning (Barab & Squire, 2004; Brown, 1992). In this study, I had developed and documented these theories in the form of Sandoval's conjecture maps (2004, 2014) with teachers at Inquiry School during the second phase of the study. These maps traced our conjectures for how specific aspects of the instruction (e.g., materials, classroom norms) would lead to student behaviors, and ultimately, a student learning goal. In addition to the conjecture map, I drew from the literature on educative curriculum (Ball & Cohen, 1996; Davis & Krajcik, 2005; Davis et al., 2011) to annotate a fifth-grade lesson plan on the causes of the American Revolution. I embedded the Inquiry School teachers' "pedagogical judgements" (Davis & Krajcik, 2005, p. 5) when they taught the lesson as well as questions students had during the lesson. As Davis and Krajcik (2005) explained: "Making rationales for decisions visible is one way that curriculum materials could move beyond simply adding new ideas to teachers' repertoires and, instead, help them to integrate their knowledge base and make connections between theory and practice—taking advantage of how curriculum materials are situated in teachers' work" (p. 5). In these ways, I had tried to make theories and explanations for how different aspects of the instructional routine and lesson were intended to support student learning shareable beyond Inquiry School.

Curricular resources reflect ideas about teaching and learning (Remillard, 2018). Some researchers have attempted to be more explicit about these ideas in such a way that the materials can be educative for teachers (e.g., Ball & Cohen, 1996; Davis & Krajcik, 2005). In this phase of the study, I was especially interested in how was especially interested in how curricular resources could support Ms. Martin in making productive adaptations to the instructional routine and her local curriculum (Ball & Cohen, 1998; Davis & Krajcik, 2005). Like the *READI* project (Goldman et al., 2016; Shanahan et al., 2016), I realized that the history lesson plans from

another school were not going to be useful as "drop in" lessons, especially because the curricular content did not match given the project timelines. The *READI* team developed history learning goals for teachers to incorporate in their local curriculum (Goldman et al., 2016; Shanahan et al., 2016). The conjecture map and annotated lesson plan served a similar purpose. I shared these curricular resources from Inquiry School with Ms. Martin to explain how we had organized instruction and why. Ms. Martin and I also reviewed and discussed a variety of other curricular resources related to teaching historical thinking practices. By providing a rationale for why segments of a lesson were put together in a specific way, I had intended to make transparent the proposed purpose and function in learning (Davis & Krajcik, 2005; Davis et al., 2011).

To interpret curricular resources, educators draw on their past experiences and knowledge (Remillard, 2018). When Reisman and Fogo (2010) studied how features of the *Reading Like a Historian* curriculum could support a teacher's instruction, they noted the ways in which the teacher's beliefs, experiences, and knowledge related to how he taught the curriculum. In a case study of a history teacher incorporating the *READI* learning goals into her curriculum, Shanahan et al. (2016) also noted that the teacher brought substantial expertise and interest to the work. For Ms. Martin, incorporating historical reading practices was a logical next step for how she wanted to develop as a teacher. She saw this step as part of a longer trajectory of curriculum development and design, and she had plans to develop future instructional units that incorporated primary and secondary sources. Ms. Martin also perceived this curriculum development to support the school's social justice mission and would also vertically align the elementary social studies curriculum with the secondary history curriculum.

Within the collaborative design process, Ms. Martin and I developed a colleagueship around our common focus. We shared instructional resources, websites, and ideas about how to teach students to read and interpret historical documents with a critical lens. There was,

nevertheless, a clear distribution of responsibility. Ms. Martin was ultimately responsible for the lessons—both in content and focus. She knew her students and the curriculum. I deferred to her judgment on the lesson planning. My role was to share resources related to historical reading practices, understand the teacher's curricular goals, and then help Ms. Martin identify where and how in the lessons to include opportunities for historical reading. I asked a lot of questions. I asked questions to understand the social studies curriculum, to understand Ms. Martin's thinking about the curriculum, and to understand the constraints in which we were designing.

During our final design meeting, Ms. Martin explained that she thought our collaboration "started to get me to think about all the work that I need to do." Our design meeting conversations were an opportunity for Ms. Martin and me to reflect on recent lessons and decide what to change for a future lesson. In a study of fifth- and seventh-grade teachers pedagogical design capacity for incorporating argumentation in science curriculum, Knight-Bardsley and McNeill (2016) propose that professional development was most effective when teachers had an opportunity to try strategies in their classrooms and reflect afterwards. They elaborated that reflection appeared to be particular helpful when teachers provided evidence for why they thought a strategy was effective or not effective in the classroom and what they might change for the future (Knight-Bardsley & McNeill, 2016). This type of reflection nicely characterizes typical conversations Ms. Martin and I had in design meetings.

One area where we did share responsibility was in identifying materials. Locating primary and secondary sources of information proved to be a main—if not the main—challenge to our work together. When looking for texts for students to read, we had to consider both whether the content aligned with the instructional goals for a lesson, and whether students would be able to access the texts when working independently or with a partner. This experience highlighted for me the importance of materials in supporting this kind of instructional change.

We often had an idea for how to modify a lesson, but then we could not identify sources to support such a lesson. It is likely why some researchers have written their own fictional sources instead of using primary sources as part of middle school history instruction (Duhaylongsod et al., 2015).

Conclusion

We started small in this design collaboration. We had a very targeted focus for design: to incorporate the practice of sourcing a text into the teacher's routines for social studies instruction. That strategy of starting small seemed to be important for practical purposes. The changes would be happening quickly. We could also attend carefully to how to incorporate the changes in the teacher's existing unit and lesson plans. I shared resources based on the interests and learning goal the teacher shared (e.g., "So I'm trying to think of what I can quickly get you. So, I can share tools and resources, and maybe stories from the classroom—like little almost like vignettes—if that would help us talk about some of these ideas, and talk about how we could adapt it for this particular context."). Although we started small, sourcing is a powerful practice that has applications far beyond the fifth-grade social studies classroom. Being able to evaluate a document or artifact based on who created it, their intent, and their context, is an important skill in contemporary society (Wineburg & Reisman, 2015).

In a relatively short period of time, Ms. Martin expanded her instructional approach to include the targeted reading practice. She had also begun sharing the practice with colleagues at her grade level. The collaborative design process is time-intensive, and this process is not meant to take the place of other forms of sharing research with practitioners. There is certainly benefit to sharing research findings broadly. Although the findings might not be shared in a way that allows practitioners to adapt and implement the practice in their classrooms, it can help teachers understand other options and approaches to instruction that are available and hold promise. They

can spark a practitioner's interest to learn more and seek partnerships. I do argue, however, that the design process uniquely fosters professional learning. The design process positioned Ms. Martin and me as partners and fellow learners in curriculum design. By studying how an instructional routine traveled across two school contexts, I was better able to understand how the routine worked to support student learning. I was also able to see some common challenges to enacting the routine in the classroom. The teacher developed a sort of pedagogical design capacity (Brown & Edelson, 2003) for working with primary sources, which is a capacity that is needed for a disciplinary literacy approach to instruction.

CHAPTER 5

Conclusion

The goal of this dissertation study was two-fold: to study how teachers incorporated critical reading practices as part of their history curriculum, and to contribute to a theory of research collaboration by explaining how participating in a collaborative design project related to shifts in teachers' classroom practice. To meet these two goals, I planned a design-based research project in three phases. The first phase involved studying how teachers at Inquiry School taught reading as part of subject area classes. This research allowed me to learn about the school curriculum and the teachers' pedagogical approaches. The second phase was a collaboration between myself and teachers at Inquiry School to enact and study instructional routines to support critical reading with history texts. We did that work by setting a student learning goal, reconfiguring aspects of the existing curriculum to address that goal, and then collecting evidence of teaching and learning related to the goal. In the third phase, I partnered with a teacher at Equity Academy to study how she incorporated an instructional routine for sourcing primary source documents within her curriculum. As part of that work, I shared instructional resources and planning documents from the design collaboration at Inquiry School.

In this concluding chapter, I highlight three implications of the current study for disciplinary reading instruction and research-practice partnerships. The first implication relates to the ways teachers position students as authors and experts in relation to texts. The second implication speaks to how design-based research can support teachers in reconfiguring their existing curricula. The third implication addresses the importance of researchers partnering with practitioners to identify research problems and ways to address them.

Positioning Students as Authors and Experts

In studying disciplinary reading practices, students can learn how to question texts and assert their own authority as readers (Goldman, Britt, et al., 2016; Wineburg & Reisman, 2015). A goal of disciplinary literacy is for students to be able to apply these critical reading practices within their subject area studies as well as to situations outside the classroom (Wineburg & Reisman, 2015). In Chapter 2, my analysis focused on the sixth-grade teachers' frames for teaching reading as part of literacy, social studies, and science lessons. I drew on the theoretical and empirical literature on framing (e.g., Engle, 2006) as a lens to think about how teachers framed the work of reading within a classroom activity. I observed several examples of what Engle (2006) characterized as expanded framing, which means that the teacher attempted to establish a connection between a past or future context. Engle (2006) argued that teachers supported students transferring knowledge or skills between contexts when they framed an interaction or activity in an expansive way.

One way that teachers can frame an interaction expansively is by positioning students as "authors" or experts who contribute to knowledge (Engle, 2006). Engle (2006) explained, "Specifically, intercontextuality and transfer can be fostered by framing learners as authors who are engaged with a broad community of people actively involved in the intellectual conversation with them" (p. 457). In the book club activity, the teachers positioned students as authors by encouraging them to apply their knowledge of author's craft, as well as their experiences with writing, to the work of interpreting a novel. The teachers framing of reading in the book club as reading like writers encouraged students to see their prior knowledge and experience was relevant to interpret the novel (Engle et al., 2012). With this framing, the teachers also reminded students that they were also authors of a similar style text (Engle et al., 2012).

Teachers positioned students as contributors to knowledge in social studies lessons too; however, the frame operated differently in social studies. Teachers framed primary source activities as learning about work being done in a field. They introduced texts and other resources to provide students with context about the work of archaeologists, anthropologists, and historians through texts. These texts brought the work of different academic communities into the classroom. This is unique in history instruction because textbooks often hide the nature of the work historians do to interpret history (Paxton, 1999). By introducing students to the work of historians, and then giving them tools to observe and analyze primary sources, the teachers were positioning students in an extended academic community with the archaeologists and other experts.

Within a disciplinary literacy approach, this type of expansive framing might be helpful to encourage students to question and critique texts in different types of activities. Bain (2006) describes how he strategically designed lessons to teach high school students to question the textbook and himself as their teacher. Although his students had expertly analyzed and interpreted primary and secondary sources related to a historical event, they did not seem to apply those same reading skills to their evaluation of the textbook. Bain conjectured that the students did not see themselves as expert peers with the textbook author. He reconfigured classroom activities so that students had developed subject matter expertise, and then he asked students to critique the textbook account. Similarly, in the book club activity at Inquiry School, the teachers positioned students as peer authors with the authors of the novel they were reading. The teachers encouraged students to draw on their own experiences as a writer to question the writing choices of another author.

Reconfiguring Classroom Activities

There is a great potential in a disciplinary approach to teaching reading; there are also challenges to translating complex disciplinary practices to the classroom (Bain, 2006; Moje, 2015; Reisman & McGrew, 2018). Without time and opportunities to learn how to create a learning environment that will support students' engagement with historical reading, teachers may not truly change how students interact with texts and content as part of learning history (Goldman, Britt, et al., 2016; Shanahan et al., 2016). In Chapters 3 and 4, I write about a collaborative design-based approach to research with teachers at Inquiry School and Equity Academy. The design process at both schools used the teachers' local curriculum as a foundation for the work. We started both processes by defining a student learning goal to guide our design work. Using the learning goal as the guide, we could then determine which features of the existing learning environments to leverage (e.g., multiple sources of information, primary sources), as well propose components of the learning environment to modify. The process of collaborative design supported teachers in reconfiguring their classroom activities to support students' critical reading and engagement with texts.

In Chapter 4, I illustrate how a teacher expanded her instructional practice over the three months to incorporate a sourcing routine with primary sources. I argue that she also developed a pedagogical design capacity (Brown & Edelson, 2003) for incorporating this type of historical reading practice within future history lessons and units. Brown and Edelson (2003) describe pedagogical design capacity as teacher's "ability to perceive and mobilize existing resources in order to craft instructional contexts" (p. 6). During our last design meeting, the teacher shared that she had collaborated with her grade-level colleagues to develop a new unit for the following school year. This finding connects to Brown and Edelson's (2003) proposal that adapting curricular materials can lead to this type of generative learning.

Partnering with Practitioners

The teachers at Inquiry School and Equity Academy were my partners in this project. Design-based research typically involves people who have a stake in the curriculum, tool, or instructional approach in the process of design (Collins et al., 2004). Theory and previous scholarship inform an instructional design; practitioner expertise about teaching and learning is also crucial in the design process. Exploring a comparison between aeronautical engineering and design research in education, O'Neill (2012) points out: "A seasoned teacher's understanding of what might work can help to blaze a trail through a massive design space when theory does not provide adequate direction" (p. 134). The teachers with whom I collaborated knew a great deal about literacy instruction and teaching with primary sources. I intentionally structured the design process as a collaboration to learn from their knowledge and experience.

The design-based research literature needs detailed and rich descriptions of the complexities of teaching. By working "side by side" (Erickson, 2006b) with teachers to design instructional routines, I gained insight into the opportunities, challenges, and constraints to teaching disciplinary reading practices in the elementary grades. Like collaborative action research and educational ethnography, I think that design-based research has the potential to "show us both the social gravity in the daily practices of teaching and learning in classrooms and the opportunities for socially progressive or regressive choice that resides in it, opportunities for accomplishing social justice or injustice locally" (Erickson, 2006b, p. 255). Working alongside experienced educators allowed me to gain insight about the "social gravity" (Erickson, 2006b) of teaching critical reading skills in elementary school.

Future Research

We need more research to explore models of teaching disciplinary literacy in elementary schools. In the elementary grades, a "comparative" stance on studying school subjects (Stevens

et al., 2005) seems to be particularly useful for understanding how teachers can coordinate the multiple subject area curricula they have to teach. There are few examples in the literature of how elementary teachers might help students see similarities and differences in the reading practices they learn in science, history, and English language arts. Future research could add to these examples, expand the subject area or grade-level focus, or address the students' perspectives on their experiences.

Future research should also examine the ways in which models of researcher-practitioner collaborations foster local capacity for instructional innovation and improvement. I am especially interested in the ways researchers leverage local curricula in these partnerships. Because I grounded our design work in the local curriculum, I think the design process helped teachers recognize future opportunities for adapting curricula. Curricular resources, such as texts, lesson plans, and graphic organizers, are the tools that teachers use to plan instruction (Remillard, 2018). It is important to learn more about the ways researchers can work with teachers to see new affordances in existing curricular resources, find places to reconfigure or enhance curricula, and develop a pedagogical design capacity (Brown & Edelson, 2003) to support future curricular adaptations.

I began this dissertation study with a question about the role of researchers and educational research in helping teachers to address changing expectations for reading history texts. Because there are few models for this kind of instruction in the elementary grades, I decided that a design-based approach was a productive way to study a theoretically-based instructional approach in an authentic classroom context. I partnered with fifth- and sixth-grade teachers to collaboratively design and study instructional routines that helped students evaluate and corroborate sources of information. This study contributed to an understanding of the ways teachers can frame reading activities to position students as experts. Disciplinary reading requires students to actively make

sense and process texts (Goldman, 2018). Teaching also requires educators to actively question, critique, and synthesize information from curricular resources (Brown & Edelson, 2003; McKenney et al., 2015). Another contribution of this study is an understanding of how a collaborative design process can support teachers in adapting their local curriculum. Both of these skill sets—disciplinary reading practices and curriculum adaptation—are increasingly important in the twenty-first century.

Appendix A

Types of Informal Questions for Students

Note: These are the types of informal questions that I may ask students. Of course, I may need to tailor these questions slightly to match the specific classroom context.

"I see that you are writing in your reader's notebook. Could you tell me a bit about what you are writing?"

"How do you know what to write in your reader's notebook?"

"How did you decide what to write in your reader's notebook?"

"How did you decide what to include in your notes?"

"What will you do with these notes?"

"Did you use your book/article/worksheet when you wrote these notes?"

"What's the first thing that you do when you read something [insert name of subject] class?"

"What do you do after you read something in [insert name of subject] class?"

"Can you tell me a bit about what your team is working on?"

"How do you know what to do?"

"How do you know if you're doing a good job?"

Appendix B

Teacher Interview Questions

Note: Below are the questions related to lesson planning and instruction that I plan to ask teachers during the interview. Because these are semi-structured interviews, I may adjust the interview based on a teacher's responses. For example, I may ask clarifying and open-ended follow up questions, such as, "Could you say more about that?" or "What would be an example of __?" Also, based on previous responses and time considerations, I may not ask all of the questions listed. If a teacher indicates that s/he does not understand the question, then I may rephrase the question.

Thank you for agreeing to meet with me to discuss [insert descriptive title for lesson]. I'm going to ask you some questions about your professional experience, about how you prepare [insert name of subject] lessons in general, and then about [insert descriptive title] lesson in particular. As with any of our conversations, you can always tell me if you would prefer to not answer a question, or if you would like me to stop the recording.

Professional experience

What was your major and/or minor in undergraduate studies?
Do you have a master's degree? If so, what was your degree specialization?
For how many years have you been a teacher at this school?
Have you taught other levels/grades at this school?
Have you taught at other schools? If so, was the school a public, private, or charter school? For how many years did you teach there?

Please describe what you do to prepare a [insert name of subject] lesson (one or two periods of instruction).

Possible follow-up questions:

How do you determine your goals for a lesson?
How do you decide how you will present the content to students? What information about students do you consider?

[Insert date or time marker], you taught [insert descriptive title for lesson]. Please describe how this lesson fits in your yearlong plan for [insert name of subject].

Possible follow-up questions:

What were your goals for the lesson? How did you determine these goals?
How typical is this lesson compared to the other [insert name of subject] lessons that you've taught so far this school year?
How typical is this lesson in terms of the content?
How typical is this lesson in terms of the structure?
What do students now know, or are able to do, as a result of this lesson? How do you know?

Please describe the role of reading in this lesson.

Possible follow-up questions:

Why did you include [name a specific reading-related activity] as part of the lesson?
What did you do to prepare for this activity?
How did you select the text(s)?
What did you notice about how students completed the activity? Why do you think students did that?
If you were to teach the lesson again, is there any part of this activity that you would like to change? Why?
Based on this lesson, are there specific reading skills or practices would you like to address in future lessons?

Is there anything else about the lesson that you would like to mention?

Do you have any questions for me?

Appendix C

Connecting Historical Thinking Practices with Fifth-Grade Learning Standards

Historical Thinking Practice	*C3 Framework for Social Studies State Standards* (NCSS, 2013)	CCSS for ELA & Literacy (2010)
Sourcing *Using information about the source and purpose of a document or artifact (e.g., author, time, location) to evaluate its usefulness for studying an event (Leinhardt & Young, 1996; Reisman, 2012a, 2012b; Wineburg, 1998).*	Describe how people's perspectives shaped the historical sources they created. (D2.His.6.3-5) Infer the intended audience and purpose of a historical source from information within the source itself. (D2.His.11.3-5) Use information about a historical source, including the maker, date, place of origin, intended audience, and purpose to judge the extent to which the source is useful for studying a particular topic. (D2.His.13.3-5)	Explain the relationships or interactions between two or more individuals, events, ideas, or concepts in a historical, scientific, or technical text based on specific information in the text. (CCSS.ELA-LITERACY.RI.5.3)
Contextualization *Considering the information presented in a source within a historical context (Leinhardt & Young, 1996; Reisman, 2012a, 2012b; Wineburg, 1998).*	Explain connections among historical contexts and people's perspectives at the time. (D2.His.5.3-5)	Determine the meaning of general academic and domain-specific words and phrases in a text relevant to a *grade 5 topic or subject area*. (CCSS.ELA-LITERACY.RI.5.4)
Corroboration *Evaluating information in a document or artifact by comparing and contrasting the information presented in that source with information from other sources (Leinhardt & Young, 1996; Reisman, 2012a, 2012b; Wineburg, 1998).*	Explain why individuals and groups during the same historical period differed in their perspectives. (D2.His.4.3-5) Compare information provided by different historical sources about the past. (D2.His.10.3-5) Generate questions about multiple historical sources and their relationships to particular historical events and developments. (D2.His.12.3-5)	Compare and contrast the overall structure (e.g., chronology, comparison, cause/effect, problem/solution) of events, ideas, concepts, or information in two or more texts. (CCSS.ELA-LITERACY.RI.5.5) Analyze multiple accounts of the same event or topic, noting important similarities and differences in the point of view they represent. (CCSS.ELA-LITERACY.RI.5.6) Integrate information from several texts on the same topic in order to write or speak about the subject knowledgeably. (CCSS.ELA-LITERACY.RI.5.9)

Appendix D

Summary of Teacher Interests

Questions/Interests/Observations	Connections & Questions
Context and Perspective • Students need to be able to separate the modern context from the historical context. • Students can gain some understanding of context by thinking through the lens of characters in historical fiction texts.	
Approaches and Purposes for Note-taking • How are students taking notes when reading non-fiction texts? • What note taking strategies have been taught? What kinds of notes are students taking? What note-taking strategy would be most relevant to the task? • Students need to take notes in a way that will help them with their writing. • Students need instruction in how to write a summary of someone else's ideas and give their opinion about those ideas. This opinion would be based on what students read in the article, as well as what they know from other readings and experiences. • Students can learn to use headings within a text to figure out the main points. Writers use headings to organize their own thinking, and to organize your thinking as you read the text.	
Using Evidence • How do students make claims and back them up with text evidence? • Students need to learn to be analytic in their reasoning. They have to look at evidence, and then make a decision based on that evidence. • Students need to use evidence to support their claims. • Students need to be able to cite text appropriately (e.g., paraphrase, quote, cite sources).	

References

Arias, A. M., Smith, P. S., Davis, E. A., Marino, J. C., & Palincsar, A. S. (2017). Justifying predictions: Connecting use of educative curriculum materials to students' engagement in science argumentation. *Journal of Science Teacher Education*, *28*(1), 11-35.

Armbruster, B. B., & Anderson, T. H. (1988). On selecting "considerate" content area textbooks. *Remedial and Special Education*, *9*(1), 47-52.

Bain, R. B. (2005). "They thought the world was flat?" Applying the principles of *How People Learn* in teaching high school history. In J. Bransford & S. Donovan (Eds.), *How students learn: History, mathematics, and science in the classroom* (pp. 179-213). Washington, DC: The National Academies Press.

Bain, R. B. (2006). Rounding up unusual suspects: Facing the authority hidden in the history classroom. *Teachers College Record*, *108*(10), 2080-2114.

Ball, D. L., & Cohen, D. K. (1996). Reform by the book: What is: Or might be: The role of curriculum materials in teacher learning and instructional reform? *Educational Researcher*, *25*(9), 6-14.

Ball, D. L., Sleep, L., Boerst, T. A., & Bass, H. (2009). Combining the development of practice and the practice of development in teacher education. *The Elementary School Journal*, *109*(5), 458-474.

Barab, S. A. (2006). Design-based research: A methodological toolkit for the learning sciences. In R. K. Sawyer (Ed.), *The Cambridge handbook of the learning sciences* (pp. 153–170). New York, NY: Cambridge University Press.

Barab, S. A., & Luehmann, A. L. (2003). Building sustainable science curriculum: Acknowledging and accommodating local adaptation. *Science Education*, *87*(4), 454-467.

Barab, S. A., & Squire, K. (2004). Design-based research: Putting a stake in the ground. *The Journal of the Learning* Sciences, *13*(1), 1-14.

Barab, S. A., Thomas, M. K., Dodge, T., Squire, K., & Newell, M. (2004). Critical design ethnography: Designing for change. *Anthropology & Education Quarterly*, *35*(2), 254-268.

Barton, K. C. (1997). "I just kinda know": Elementary students' ideas about historical evidence. *Theory and Research in Social Education*, *25*(4), 407-430.

Bateson, G. (1987). *Steps to an ecology of mind.* Northvale, NJ: Jason Aronson, Inc. (Original work published in 1972)

Beck, I. L., & McKeown, M. G. (1991). Research directions: Social studies texts are hard to understand: Mediating some of the difficulties. *Language Arts, 68*(6), 482-490

Beck, I. L., McKeown, M. G., & Gromoll, E. W. (1989). Learning from social studies texts. *Cognition and Instruction*, *6*(2), 99-158.

Berland, L. K., & Hammer, D. (2012). Framing for scientific argumentation. *Journal of Research in Science Teaching*, *49*(1), 68-94.

Beyer, C. J., & Davis, E. A. (2012). Developing preservice elementary teachers' pedagogical design capacity for reform-based curriculum design. *Curriculum Inquiry*, *42*(3), 386-413.

Britt, M. A., & Aglinskas, C. (2002) Improving students' ability to identify and use source information. *Cognition and Instruction*, *20*(4), 485–522.

Brown, A. L. (1992). Design experiments: Theoretical and methodological challenges in creating complex interventions in classroom settings. *The Journal of the Learning Sciences*, *2*(2), 141-178.

Brown, M., & Edelson, D. C. (2003). *Teaching as design: Can we better understand the ways in which teachers use materials so we can better design materials to support their changes*

in practice? [LeTUS Report Series]. Evanston, IL: The Center for Learning Technologies in Urban Schools.

California State Board of Education. (2013). *California common core state standards for English language arts and literacy in history/social studies, science, and technical subjects.* Sacramento, CA: Author.

Cervetti, G. N., Barber, J., Dorph, R., Pearson, P. D., & Goldschmidt, P. G. (2012). The impact of an integrated approach to science and literacy in elementary school classrooms. *Journal of Research in Science Teaching*, *49*(5), 631-658.

Cervetti, G. N., Kulikowich, J. M., & Bravo, M. A. (2015). The effects of educative curriculum materials on teachers' use of instructional strategies for English language learners in science and on student learning. *Contemporary Educational Psychology*, *40*, 86-98.

Cervetti, G. N., Pearson, P. D., Bravo, M. A., & Barber, J. (2005). Reading and writing in the service of inquiry-based science. Retrieved from http://www.scienceandliteracy.org/research/our_approach

Cobb, P., Confrey, J., Lehrer, R., & Schauble, L. (2003). Design experiments in educational research. *Educational Researcher*, *32*(1), 9-13.

Cober, R., Tan, E., Slotta, J., So, H. J., & Könings, K. D. (2015). Teachers as participatory designers: Two case studies with technology-enhanced learning environments. *Instructional Science*, *43*(2), 203-228.

Coburn, C. E., & Penuel, W. R. (2016). Research–practice partnerships in education: Outcomes, dynamics, and open questions. *Educational Researcher*, *45*(1), 48-54.

Coburn, C. E., Penuel, W. R., & Geil, K. E. (2013). *Research-practice partnerships: A strategy for leveraging research for educational improvement in school districts*. New York, NY: William T. Grant Foundation.

Collins, A., Joseph, D., & Bielaczyc, K. (2004). Design research: Theoretical and methodological issues. *The Journal of the Learning Sciences*, *13*(1), 15-42.

D'Amico, L. (2010). The Center for Learning Technologies in Urban Schools: Evolving relationships in design-based research. In C. E. Coburn & M. K. Stein (Eds.), *Research and practice in education: Building alliances, bridging the divide* (pp. 37-53). Lanham, MD: Rowman & Littlefield.

Davis, E. A., Beyer, C., Forbes, C. T., & Stevens, S. (2011). Understanding pedagogical design capacity through teachers' narratives. *Teaching and Teacher Education*, *27*(4), 797-810.

Davis, E. A., & Krajcik, J. S. (2005). Designing educative curriculum materials to promote teacher learning. *Educational Researcher*, *34*(3), 3-14.

Davis, E. A., Palincsar, A. S., Smith, P. S., Arias, A. M., & Kademian, S. M. (2017). Educative curriculum materials: Uptake, impact, and implications for research and design. *Educational Researcher*, *46*(6), 293-304.

De La Paz, S., Felton, M., Monte-Sano, C., Croninger, R., Jackson, C., Deogracias, J. S., & Hoffman, B. P. (2014). Developing historical reading and writing with adolescent readers: Effects on student learning. *Theory & Research in Social Education*, *42*(2), 228-274.

Duhaylongsod, L., Snow, C. E., Selman, R. L., & Donovan, M. S. (2015). Toward disciplinary literacy: Dilemmas and challenges in designing history curriculum to support middle school students. *Harvard Educational Review*, *85*(4), 587-608.

Edelson, D. C., Gordin, D. N., & Pea, R. D. (1999). Addressing the challenges of inquiry-based learning through technology and curriculum design. *The Journal of the Learning Sciences, 8*(3-4), 391-450.

Emerson, R. M., Fretz, R. I., & Shaw, L. L. (2011). *Writing ethnographic fieldnotes*. Chicago, IL: University of Chicago Press.

Engeström, Y, & Sannino, A. (2010). Studies of expansive learning: Foundations, findings and future challenges. *Educational Research Review*, *5*(1), 1-24.

Engle, R. A. (2006). Framing interactions to foster generative learning: A situative explanation of transfer in a community of learners classroom. *The Journal of the Learning Sciences*, *15*(4), 451-498.

Engle, R. A. (2012). The resurgence of research into transfer: An introduction to the final articles of the transfer strand. *The Journal of the Learning Sciences*, *21*(3), 347-352.

Engle, R. A., & Conant, F. R. (2002). Guiding principles for fostering productive disciplinary engagement: Explaining an emergent argument in a community of learners classroom. *Cognition and Instruction*, *20*(4), 399-483.

Engle, R. A., Lam, D. P., Meyer, X. S., & Nix, S. E. (2012). How does expansive framing promote transfer? Several proposed explanations and a research agenda for investigating them. *Educational Psychologist*, *47*(3), 215-231.

Engle, R. A., Nguyen, P. D., & Mendelson, A. (2011). The influence of framing on transfer: Initial evidence from a tutoring experiment. *Instructional Science*, *39*(5), 603-628.

Erickson, F. (1986). Qualitative methods on research on teaching. In M. C. Wittrock (Ed.), *Handbook of research on teaching* (3rd ed., pp. 119-161). New York, NY: Macmillan.

Erickson, F. (2006a). Definition and analysis of data from videotape: Some research procedures and their rationales. In J.L. Green, G. Camilli, & P. B. Elmore (Eds.), *Handbook of complementary methods in education research* (571-585). New York, NY: Routledge.

Erickson, F. (2006b). Studying side-by-side: Collaborative action ethnography in education research. In G. Spindler & L. Hammond (Eds.), *Innovations in educational ethnography* (pp. 235-257). Mahwah, NJ: Lawrence Erlbaum Associates.

Erickson, F., & Schultz, J. (1997). When is a context? Some issues and methods in the analysis of social competence. In M. Cole, Y. Engestrom, & O. Vasquez (Eds.), *Mind, culture, and activity: Seminal papers from the laboratory of comparative human cognition* (pp. 22-31). Cambridge, UK: Cambridge University Press.

Ferretti, R. P., MacArthur, C. A., & Okolo, C. M. (2007). Students' misconceptions about US westward migration. *Journal of Learning Disabilities*, *40*(2), 145-153.

Fitchett, P. G., & Heafner, T. L. (2010). A national perspective on the effects of high-stakes testing and standardization on elementary social studies marginalization. *Theory and Research in Social Education*, *38*(1), 114-130.

Forbes, C. T., & Davis, E. A. (2010). Curriculum design for inquiry: Preservice elementary teachers' mobilization and adaptation of science curriculum materials. *Journal of Research in Science Teaching*, *47*(7), 820-839.

Goffman, E. (1974). *Frame analysis: An essay on the organization of experience*. Cambridge, MA: Harvard University Press.

Goldman, S. R. (2018). Discourse of learning and the learning of discourse. *Discourse Processes*. doi: 10.1080/0163853X.2018.1440866

Goldman, S. R., Britt, M. A., Brown, W., Cribb, G., George, M., Greenleaf, C., . . . & Project READI. (2016). Disciplinary literacies and learning to read for understanding: A conceptual framework for disciplinary literacy. *Educational Psychologist*, *51*(2), 219-246.

Goldman, S.R., & Snow, C. (2015). Adolescent literacy: Development and instruction. In A. Pollatsek, & R. Treiman (Eds.), *The Oxford handbook of reading* (pp. 463–478). New York, NY: Oxford University Press.

Goldman, S. R., Snow, C., & Vaughn, S. (2016). Common themes in teaching reading for understanding: Lessons from three projects. *Journal of Adolescent & Adult Literacy*, *60*(3), 255-264.

Goodlad, J. I. (1984). *A place called school.* New York, NY: McGraw-Hill Book Company.

Greenleaf, C. L., Litman, C., Hanson, T. L., Rosen, R., Boscardin, C. K., Herman, J., . . . & Jones, B. (2011). Integrating literacy and science in biology: Teaching and learning impacts of reading apprenticeship professional development. *American Educational Research Journal*, *48*(3), 647-717.

Greenleaf, C., Litman, C., & Marple, S. (2018). The impact of inquiry-based professional development on teachers' capacity to integrate literacy instruction in secondary subject areas. *Teaching and Teacher Education*, *71*, 226-240.

Greeno, J. G. (2006a). Authoritative, accountable positioning and connected, general knowing: Progressive themes in understanding transfer. *The Journal of the Learning Sciences*, *15*(4), 537-547.

Greeno, J. G. (2006b). Learning in activity. In R. K. Sawyer (Ed.), *The Cambridge handbook of the learning sciences* (pp. 79-96). New York, NY: Cambridge University Press.

Greeno, J. G. (2006c). Theoretical and practical advances through research on learning. In J.L. Green, G. Camilli, & P. B. Elmore (Eds.), *Handbook of complementary methods in education research* (795-822). New York, NY: Routledge.

Greeno, J. G. (2009). A theory bite on contextualizing, framing, and positioning: A companion to Son and Goldstone. *Cognition and Instruction*, *27*(3), 269-275.

Greeno, J. G., & Collins, A. (2008). Commentary on the final report of the National Mathematics Advisory Panel. *Educational* Researcher, 37(9), 618-623.

Guthrie, J. T., Wigfield, A., Barbosa, P., Perencevich, K. C., Taboada, A., Davis, M. H., . . . & Tonks, S. (2004). Increasing reading comprehension and engagement through concept-oriented reading instruction. *Journal of Educational Psychology*, *96*(3), 403-423.

Guthrie, J. T., Wigfield, A., & VonSecker, C. (2000). Effects of integrated instruction on motivation and strategy use in reading. *Journal of Educational Psychology*, *92*(2), 331-341.

Gutiérrez, K. D., & Penuel, W. R. (2014). Relevance to practice as a criterion for rigor. *Educational Researcher*, *43*(1), 19-23.

Hammer, D. M., Elby, A., Scherr, R. E., & Redish, E. F. (2005). Resources, framing, and transfer. In J. Mestre (Ed.), *Transfer of learning from a modern multidisciplinary perspective* (pp. 89–120). Greenwich, CT: Information Age.

Hammersley, M., & Atkinson, P. (2007). *Ethnography: Principles in practice*. New York, NY: Routledge.

Hapgood, S., Magnusson, S. J., & Palincsar, A. S. (2004). Teacher, text, and experience: A case of young children's scientific inquiry. *The Journal of the Learning Sciences*, *13*(4), 455-505.

Herrenkohl, L. R., & Cornelius, L. (2013). Investigating elementary students' scientific and historical argumentation. *The Journal of the Learning Sciences*, *22*(3), 413-461.

Herrenkohl, L. R., & Polman, J. L. (2018). Learning within and beyond disciplines. In F. Fischer, C. E. Hmelo-Silver, S. R. Goldman, & P. Reimann (Eds.), *International handbook of the learning sciences* (pp. 106-115). New York, NY: Routledge.

Hiebert, J., Gallimore, R., & Stigler, J. W. (2002). A knowledge base for the teaching profession: What would it look like and how can we get one? *Educational Researcher*, *31*(5), 3-15.

Hiebert, J., & Morris, A. K. (2009). Building a knowledge base for teacher education: An experience in K-8 mathematics teacher preparation. *The Elementary School Journal, 109*(5), 475-490.

Hutchison, P., & Hammer, D. (2010). Attending to student epistemological framing in a science classroom. *Science Education*, *94*(3), 506-524.

Jennings, J., & Rentner, D. S. (2006). Ten big effects of the No Child Left Behind Act on public schools. *Phi Delta Kappan*, *88*(2), 110.

Juel, C., Hebard, H., Haubner, J. P., & Moran, M. (2010). Reading through a disciplinary lens. *Educational Leadership, 67*(6), 12-17.

Kirshner, B., & Polman, J. L. (2013). Adaptation by design: A context-sensitive, dialogic approach to interventions. In B. Fishman, W. R. Penuel, A. Allen, & B. H. Cheng (Eds.), *Design-based implementation research: Theories, methods, and exemplars.* National Society for the Study of Education Yearbook (Vol.112, Issue 2, pp.215–236). New York, NY: Teachers College Press.

Kucan, L., Cho, B. Y., & Han, H. (2017). Introducing the historical thinking practice of contextualizing to middle school students. *The Social Studies*, *108*(5), 210-218.

Kyza, E. A. & Georgiou, Y. (2014). Developing in-service science teachers' ownership of the PROFILES pedagogical framework through a technology-supported participatory design approach to professional development. *Science Education International, 25*(2), 55-77.

Kyza, E. A., & Nicolaidou, I. (2017). Co-designing reform-based online inquiry learning environments as a situated approach to teachers' professional development. *CoDesign*, *13*(4), 261-286.

Lagemann, E. C. (2002). *Useable knowledge in education: A memorandum for the Spencer Foundation Board of Directors.* Retrieved from https://web.archive.org/web/20020619040202/http:/www.spencer.org/publications/usable_knowl edge_report_ecl_a.htm

Lam, D. P, Mendelson, A., Meyer, X. S., & Goldwasser, L. (2014). Learner alignment with expansive framing as a driver of transfer. In J. L. Polman, E. A. Kyza, D. K. O'Neill, I. Tabak, W. R. Penuel, A. S. Jurow, K. O'Connor, T. Lee, & L. D'Amico (Eds.), *Learning and becoming in practice: The International Conference of the Learning Sciences* (pp. 689-696). Colorado, CO: International Society of the Learning Sciences.

Land, T. J., Tyminski, A. M., & Drake, C. (2015). Examining pre-service elementary mathematics teachers' reading of educative curriculum materials. *Teaching and Teacher Education*, *51*, 16-26.

Lee, C.D., & Spratley, A. (2010). *Reading in the disciplines: The challenges of adolescent literacy*. New York, NY: Carnegie Corporation of New York.

Leinhardt, G., Stainton, C., & Virji, S. M. (1994). A sense of history. *Educational Psychologist*, *29*(2), 79-88.

Leinhardt, G., & Young, K. M. (1996). Two texts, three readers: Distance and expertise in reading history. *Cognition and Instruction*, *14*(4), 441-486.

Levin, D. M., Hammer, D., & Coffey, J. E. (2009). Novice teachers' attention to student thinking. *Journal of Teacher Education*, *60*(2), 142-154.

Litman, C., Marple, S., Greenleaf, C., Charney-Sirott, I., Bolz, M. J., Richardson, L. K., . . . & Goldman, S. R. (2017). Text-based argumentation with multiple sources: A descriptive study of opportunity to learn in secondary English language arts, history, and science. *The Journal of the Learning Sciences*, *26*(1), 79-130.

Luna, M. J., & Sherin, M. G. (2017). Using a video club design to promote teacher attention to students' ideas in science. *Teaching and Teacher Education*, *66*, 282-294.

Maxwell, J. A. (2013). *Qualitative research design: An interactive approach.* Thousand Oaks, CA: SAGE Publications.

McKenney, S., Kali, Y., Markauskaite, L., & Voogt, J. (2015). Teacher design knowledge for technology enhanced learning: an ecological framework for investigating assets and needs. *Instructional Science*, *43*(2), 181-202.

Mehan, H. (2008). Engaging the sociological imagination: My journey into design research and public sociology. *Anthropology & Education Quarterly*, *39*(1), 77-91.

Merriam, S. B., & Tisdell, E. J. (2016). *Qualitative research: A guide to design and implementation.* San Francisco, CA: Jossey-Bass.

Moje, E. B. (2008). Foregrounding the disciplines in secondary literacy teaching and learning: A call for change. *Journal of Adolescent & Adult Literacy*, *52*(2), 96-107.

Moje, E. B. (2015). Doing and teaching disciplinary literacy with adolescent learners: A social and cultural enterprise. *Harvard Educational Review*, *85*(2), 254-278.

Monte-Sano, C. (2011). Beyond reading comprehension and summary: Learning to read and write in history by focusing on evidence, perspective, and interpretation. *Curriculum Inquiry*, *41*(2), 212-249.

Monte-Sano, C., & Budano, C. (2013). Developing and enacting pedagogical content knowledge for teaching history: An exploration of two novice teachers' growth over three years. *Journal of the Learning Sciences*, *22*(2), 171-211.

Monte-Sano, C., & De La Paz, S. (2012). Using writing tasks to elicit adolescents' historical reasoning. *Journal of Literacy Research*, *44*(3), 273-299.

National Academy of Education. (1999). *Recommendations regarding research priorities: An advisory report to the National Educational Research Policy and Priorities Board.* Washington, DC: Author.

National Council for the Social Studies. (2013). *The college, career, and civic life (C3) framework for social studies state standards: Guidance for enhancing the rigor of K-12 civics, economics, geography, and history.* Silver Spring, MD: Author.

National Governors Association Center for Best Practices & Council of Chief State School Officers. (2010). *Common core state standards for English language arts and literacy in in history/social studies, science, and technical subjects*. Washington, DC: Author.

National Institute of Child Health and Human Development. (2000). *Report of the national reading panel: Teaching children to read: Reports of the subgroups* (Report No. 00-4754). Washington, DC: U.S. Government Printing Office.

NGSS Lead States. (2013). *Next generation science standards: For states, by states.* Washington, DC: The National Academies Press.

Nokes, J. D. (2014). Elementary students' roles and epistemic stances during document-based history lessons. *Theory & Research in Social Education*, *42*(3), 375-413.

Nokes, J. D., Dole, J. A., & Hacker, D. J. (2007). Teaching high school students to use heuristics while reading historical texts. *Journal of Educational Psychology*, *99*(3), 492.

Olson, K. (2011). *Essentials of qualitative interviewing*. Walnut Creek, CA: Left Coast Press.

O'Neill, D. K. (2012). Designs that fly: What the history of aeronautics tells us about the future of design-based research in education. *International Journal of Research & Method in Education*, *35*(2), 119-140.

Paxton, R. J. (1997). "Someone with like a life wrote it": The effects of a visible author on high school history students. *Journal of Educational Psychology*, *89*(2), 235-250.

Paxton, R. J. (1999). A deafening silence: History textbooks and the students who read them. *Review of Educational Research, 69*(3), 315-339.

Paxton, R. J. (2002). The influence of author visibility on high school students solving a historical problem. *Cognition and Instruction*, *20*(2), 197-248.

Pearson, P. D., Moje, E., & Greenleaf, C. (2010). Literacy and science: Each in the service of the other. *Science*, *328*(5977), 459-463.

Penuel, W. R., Phillips, R. S., & Harris, C. J. (2014). Analysing teachers' curriculum implementation from integrity and actor-oriented perspectives. *Journal of Curriculum Studies*, *46*(6), 751-777.

Penuel, W. R., Roschelle, J., & Shechtman, N. (2007). Designing formative assessment software with teachers: An analysis of the co-design process. *Research and Practice in Technology Enhanced Learning*, *2*(1), 51-74.

Remillard, J. T. (2005). Examining key concepts in research on teachers' use of mathematics curricula. *Review of Educational Research*, *75*(2), 211-246.

Remillard, J. T. (2018). Examining teachers' interactions with curriculum resource to uncover pedagogical design capacity. In L. Fan, L. Trouche, C. Qi, S. Rezat, & J. Visnovska (Eds.), *Research on mathematics textbooks and teachers' resources* [ICME-13 Monographs] (pp. 69-88). Cham, Switzerland: Springer International Publishing.

Reisman, A. (2012a). Reading like a historian: A document-based history curriculum intervention in urban high schools. *Cognition and Instruction*, *30*(1), 86-112.

Reisman, A. (2012b). The 'document-based lesson': Bringing disciplinary inquiry into high school history classrooms with adolescent struggling readers. *Journal of Curriculum Studies*, *44*(2), 233-264.

Reisman, A., & Fogo, B. (2016). Contributions of educative document-based curricular materials to quality of historical instruction. *Teaching and Teacher Education*, *59*, 191-202.

Reisman, A., & McGrew, S. (2018). Reading in history education: Text, sources, and evidence. In S. A. Metzger & L. A. Harris (Eds.), *The Wiley international handbook of history teaching and learning* (pp. 527-550). Hoboken, NJ: John Wiley & Sons, Inc.

Rouet, J. F., Favart, M., Britt, M. A., & Perfetti, C. A. (1997). Studying and using multiple documents in history: Effects of discipline expertise. *Cognition and Instruction*, *15*(1), 85-106.

Russ, R. S., & Luna, M. J. (2013). Inferring teacher epistemological framing from local patterns in teacher noticing. *Journal of Research in Science Teaching*, *50*(3), 284-314.

Saldaña, J. (2013). *The coding manual for qualitative researchers*. Thousand Oaks, CA: SAGE Publications Limited.

Sandoval, W. A. (2004). Developing learning theory by refining conjectures embodied in educational designs. *Educational Psychologist*, *39*(4), 213-223.

Sandoval, W. (2014). Conjecture mapping: An approach to systematic educational design research. *The Journal of the Learning Sciences*, *23*(1), 18-36.

Schleppegrell, M. J., Achugar, M., & Oteíza, T. (2004). The grammar of history: Enhancing content-based instruction through a functional focus on language. *TESOL Quarterly*, *38*(1), 67-93.

Schoenbach, R., Braunger, J., Greenleaf, C., & Litman, C. (2003). Apprenticing adolescents to reading in subject-area classrooms. *Phi Delta Kappan*, *85*(2), 133-138.

Shanahan, C., Heppler, J., Manderino, M., Bolz, M., Cribb, G., & Goldman, S. R. (2016). Deepening what it means to read (and write) like a historian: Progressions of instruction

across a school year in an eleventh grade U.S. history class. *The History Teacher*, *49*(2), 241-270.

Shanahan, T., & Shanahan, C. (2008). Teaching disciplinary literacy to adolescents: Rethinking content-area literacy. *Harvard Educational Review*, *78*(1), 40-59.

Shanahan, C., & Shanahan, T. (2014). Does disciplinary literacy have a place in elementary school? *The Reading Teacher*, *67*(8), 636-639.

Shanahan, C., Shanahan, T., & Misischia, C. (2011). Analysis of expert readers in three disciplines: History, mathematics, and chemistry. *Journal of Literacy Research*, *43*(4), 393-429.

Shulman, L. (1987). Knowledge and teaching: Foundations of the new reform. *Harvard Educational Review*, *57*(1), 1-23.

Shulman, L. S., & Quinlan, K. M. (1996). The comparative psychology of school subjects. In R. C. Calfee & D. C. Berliner (Eds.), *Handbook of educational psychology* (pp. 399–422). New York, NY: Macmillan.

Snow, C. E. (2015). Rigor and realism: Doing educational science in the real world. *Educational Researcher*, *44*(9), 460-466.

Snow, C. E., Burns, M. S., & Griffin, P. (1998). *Preventing reading difficulties in young children.* Washington, DC: National Academies Press.

Snow, C., & Moje, E. (2010). Why is everyone talking about adolescent literacy? *Phi Delta Kappan*, *91*(6), 66-69.

Sosa, T., Hall, A. H., Goldman, S. R., & Lee, C. D. (2016). Developing symbolic interpretation through literary argumentation. *The Journal of the Learning Sciences*, *25*(1), 93-132.

Spradley, J. P. (1979). *The ethnographic interview*. Belmont, CA: Wadsworth.

Stahl, S. A., Hynd, C. R., Britton, B. K., McNish, M. M., & Bosquet, D. (1996). What happens when students read multiple source documents in history? *Reading Research Quarterly*, *31*(4), 430-456.

Stanford History Education Group. (n.d.). Reading like a historian history lessons. Retrieved from: https://sheg.stanford.edu/history-lessons

Stevens, R., Wineburg, S., Herrenkohl, L. R., & Bell, P. (2005). Comparative understanding of school subjects: Past, present, and future. *Review of Educational Research*, *75*(2), 125-157.

Stigler, J. W., & Thompson, B. J. (2009). Thoughts on creating, accumulating, and utilizing shareable knowledge to improve teaching. *The Elementary School Journal*, *109*(5), 442-457.

Squire, K. D., MaKinster, J. G., Barnett, M., Luehmann, A. L., & Barab, S. L. (2003). Designed curriculum and local culture: Acknowledging the primacy of classroom culture. *Science Education*, *87*(4), 468-489.

Taylor, G., Shepard, L., Kinner, F., & Rosenthal, J. (2003). *A survey of teachers perspectives on high-stakes testing in Colorado: What gets taught, what gets lost.* Los Angeles, CA: CRESST/CREDE/University of Colorado at Boulder.

The Design-Based Research Collective. (2003). Design-based research: An emerging paradigm for educational inquiry. *Educational Researcher, 32*(1), 5-8.

Troyer, M. (2017). Teacher's adaptations to and orientations towards an adolescent literacy curriculum. *Journal of Curriculum Studies*. doi: 10.1080/00220272.2017.1407458

VanSledright, B. (2002a). Confronting history's interpretive paradox while teaching fifth graders to investigate the past. *American Educational Research Journal*, *39*(4), 1089-1115.

VanSledright, B. A. (2002b). Fifth graders investigating history in the classroom: Results from a researcher-practitioner design experiment. *The Elementary School Journal*, *103*(2), 131-160.

Voss, J. F., & Wiley, J. (2000) A case study of developing historical understanding via instruction: The importance of integrating text components and constructing arguments. In P. Stearns, S. Wineburg, & P. Seixas (Eds.), *Knowing, teaching and learning in history* (pp. 375-389). New York, NY: NYU Press.

Wiley, J., & Voss, J. F. (1999). Constructing arguments from multiple sources: Tasks that promote understanding and not just memory for text. *Journal of Educational Psychology*, *91*(2), 301.

Wills, J. (2007). Putting the squeeze on social studies: Managing teaching dilemmas in subject areas excluded from state testing. *Teachers College Record*, *109*(8), 1980-2046.

Wineburg, S. (1991). On the reading of historical texts: Notes on the breach between school and academy. *American Educational Research Journal, 28*(3), 495-519.

Wineburg, S. (1994). The cognitive representation of historical texts. In G. Leinhardt, I. L. Beck, & C. Stainton (Eds.), *Teaching and learning in history* (pp. 85-135). Hillsdale, NJ: Erlbaum.

Wineburg, S. (1997) Beyond "breadth and depth": Subject matter knowledge and assessment. *Theory Into Practice, 36*(4), 255-261.

Wineburg, S. (1998). Reading Abraham Lincoln: An expert/expert study in the interpretation of historical texts. *Cognitive Science*, *22*(3), 319-346.

Wineburg, S. (2001). *Historical thinking and other unnatural acts: Charting the future of teaching the past*. Philadelphia, PA: Temple University Press.

Wineburg, S., & Reisman, A. (2015). Disciplinary literacy in history. *The Journal of Adolescent & Adult Literacy*, *58*(8), 636-639.

Wolfe, M. B., & Goldman, S. R. (2005). Relations between adolescents' text processing and reasoning. *Cognition and Instruction*, *23*(4), 467-502.